Comprehensive Annual Financial Report

For the years ended December 31, 1998 and 1997

Issued By

Charles F. Conrad General Manager and Chief Investment Officer

> Catherine E. Walker Accounting and Operations Manager



ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Oakland, California 94612

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ACERA is a retirement system, organized under the County Employees Retirement Law of 1937, which provides retirement, disability, and death benefits to the employees, retirees and former employees of the County of Alameda, and certain other public employers.

ACERA's primary responsibilities are: Administration of the trust fund, Delivery of retirement, disability and death benefits to eligible members, Administration of health care and cost-of-living programs, and General assistance in retirement and related benefits.

Mission Statement

To provide ACERA members and employers with flexible, cost-effective, participant-oriented benefits through prudent investment management and superior member services.

Board and Staff Commitment

To carry out our Mission through a competent, professional, impartial and open decision making process. In providing benefits and services, all persons will be treated fairly and with courtesy and respect. Investments will be managed to balance the need for security with superior performance. We expect excellence in all activities. We will also be accountable and act in accordance with the law.

Goals:

- I. To create an environment in which Board Members can maximize their performance as trustees.
- II. To improve the level of benefits and delivery of services provided to members and employees.
- III. To improve communications with members and employers.
- IV. To attract, develop and retain competent and professional staff.
- V. To achieve and maintain top quartile investment performance as measured by the Public Fund Universe.



Introduction

Letter of Transmittal

Alameda County Employees' Retirement Association Board of Retirement Oakland, CA 94612

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Dear Board Members:

As General Manager of the Alameda County Employees' Retirement Association (ACERA), I am pleased to present this Comprehensive Annual Financial Report (CAFR) for the year ended December 31, 1998, our 50th year.

1998 was a year of change and growth. Association assets grew to \$3.5 billion, the funded ratio increased to 108%, and member accounts were credited with 20.86% in earnings. Our board crafted a solution to the *Ventura* case, and our retired members received fully paid dental and vision care benefits as well as an improved cost of living benefit. In administration, expenses increased largely due to expenditures on ACERA's Year 2000 Compliance Project and legal counsel for *Ventura*. In board activity, five of the nine members of the Board of Retirement were replaced for the upcoming 1999 year.

ACERA is a strong and vibrant organization, well positioned to serve our members.

The Comprehensive Annual Financial Report

The Comprehensive Annual Financial Report (CAFR) of the Alameda County Employees' Retirement Association (ACERA) for the years ending December 31, 1998 and December 31, 1997, is submitted for your review. Responsibility for both accuracy of the data, and the completeness and fairness of the presentation, rests with ACERA's management. It is our intent to ensure that the presentation of financial information is accurate and fair, and all material disclosures have been made. The CAFR is divided into five sections:

Introductory Section: Contains ACERA's Mission, Commitment and Goals, a Letter of Transmittal, the Certificate of Achievement, a list of Board of Retirement members, an overview of ACERA's Organizational Chart, and a list of Professional Consultants.

Financial Section: Presents the Independent Auditor's Report which contains ACERA's financial condition and funding status, the financial statements of the system and required supplementary information.

Investment Section: Contains a report on investment activity, investment policies, investment results and various investment schedules.

Actuarial Section: Provides an overview of the funding status of the Association and other actuarial related information, contains an Actuary's Certification Letter and the results of the annual actuarial valuation.

Statistical Section: Contains significant detailed data pertaining to ACERA.

I trust that you and the members of ACERA will find this CAFR helpful in understanding the Association and our commitment to financial integrity and member service.

ACERA and its Services

Established by the Alameda County Board of Supervisors by Ordinance No. 446, dated October 21, 1947, operative January 1, 1948, and governed by the provisions of the County Employees Retirement Law of 1937, the Alameda County Employees' Retirement Association (ACERA) provides retirement allowances and other benefits to the safety and general members employed by Alameda County and members employed by the following special districts:

Livermore Area Recreation & Park District

Housing Authority of Alameda County

Alameda County Schools

ACERA provides lifetime retirement, disability, and death benefits to its general and safety members. In addition, ACERA administers retiree health care, dental care, vision care and cost-of-living programs. The Association is also responsible for the prudent investment of member and employer contributions, and defraying reasonable expenses of administration.

The Alameda County Employees' Retirement Association Board of Retirement is responsible for establishing policies governing the administration of the retirement plan, making benefit determinations and managing the investment of the system's assets. The Board operates under authority granted by Article XVI of the Constitution of the State of California.

Article XVI, Section 17(b) of the Constitution of the State of California provides that "the members of the Retirement Board of a public retirement system shall discharge their duties...solely in the interest of, and for the exclusive purpose of providing benefits to, participants and their beneficiaries, minimizing employer contributions thereto, and defraying reasonable expenses of administering the system. A Retirement Board's duty to its participants and their beneficiaries shall take precedence over any other duty." Section 17(a) further provides that the Board has…"the sole and exclusive responsibility to administer the system in a manner that will assure prompt delivery of benefits and related services to the participants and their beneficiaries."

The ACERA Board of Retirement is a nine (9) member Board, four (4) of whom are appointed by the Alameda County Board of Supervisors, four (4) of whom are elected by ACERA's membership and the County Treasurer who is an ex-officio member. Board members, with the exception of the County Treasurer, serve three (3) year terms in office, with no term limits. The following members of ACERA elect the four (4) elected members:

- Two (2) Board members are elected by General members of ACERA
- One (1) Board member is elected by Safety members of ACERA
- One (1) Board member is elected by Retired members of ACERA

The Board of Retirement oversees the General Manager and staff in the performance of their duties in accordance with the County Employees Retirement Law of 1937, ACERA's by-laws and Board policies.

Service Efforts and Accomplishments

In 1998, ACERA instituted a Supplemental COLA benefit, provided fully-paid dental and vision care plans for its retirees and increased the retiree death benefit from \$1,000 to \$5,000. In addition, ACERA initiated its Year 2000 Compliance Project and began implementing the *Ventura* decision. ACERA established positions for additional key personnel: Investment Officer and Investment Analyst; Assistant Managers were also added to both the Benefits and Accounting Divisions. Finally, ACERA hired an actuarial firm to conduct an independent actuarial audit of the system. The audit revealed no significant discrepancies.

Accounting System and Reports

Management of ACERA is responsible for establishing and maintaining an internal control structure designed to ensure that ACERA's assets are protected from loss, theft, or misuse. Responsibility for the accuracy, completeness, and fair presentation of the information, and all disclosures, rests with ACERA's management. The accounting firm of Williams, Adley & Co. LLP. provides both financial statement and internal control audit services. The financial audit ensures ACERA's financial statements are presented in conformity with generally accepted accounting principles and are free from material misstatement. The internal controls are reviewed to ensure that ACERA's operating policies and procedures are being adhered to and are sufficient to safeguard ACERA's assets.

This report has been prepared in accordance with generally accepted accounting principles as promulgated by the Governmental Accounting Standards Board (GASB) and its predecessor, the National Council on Governmental Accounting.

ACERA's transactions are reported on the accrual basis of accounting. Revenues are taken into account when earned, regardless of the date of collection. Expenses are recorded when the corresponding liabilities are incurred, regardless of when the payment is made.

Revenues

The primary revenue sources to finance the benefits ACERA provides are earnings on investments and member (employee) and employer contributions. These income sources for December 31, 1998 and 1997 totaled \$531.8 million and \$536.6 million, respectively (see Table 1, page ?).

Expenses

ACERA was created to provide retirement annuities, survivor benefits and permanent disability benefits to qualified members and their beneficiaries. The cost of such programs includes recurring benefit payments, as designated by the plan, refund of contributions to terminated employees and the cost of administering the system. Expenses at December 31, 1998 increased by 18% over the previous year (see Table 2, page?). This stems from implementation of increased death benefit payments, the addition of key personnel, the implementation of the *Ventura* decision and ACERA's Year 2000 Compliance Project, provision of fully-paid retiree vision and dental care, and performance of an actuarial audit (see Table 2, page?).).

Table 1: Contributions and Investment Earnings

	1998	1997	Increase/ (Decrease) Amount	Percent Change
Member Contributions	\$ 35,748,407	\$ 32,684,638	\$ 3,063,769	9%
Employer Contributions	24,389,376	23,471,769	917,607	4%
Investment Earnings	\$471,624,158*	480,486,364*	(8,862,206)	(2%)
Miscellaneous	64,755	5,256	59,499	1132%
Total	\$531,826,696	\$536,648,027	\$(4,821,331)	(1%)

* Net of Investment expenses of \$27,016,259 and \$27,868,081 for December 31, 1998 and 1997, respectively.

Table 2: Benefit Payments and Other Expenses

	Increase/			
	1998	1997	(Decrease) Amount	Percent Change
Retiree Benefits	\$ 95,578,486	\$81,285,933	\$14,292,553	18%
Administrative	4,677,407	3,184,028	1,493,377	47%
Health Insurance	5,908,618	5,105,210	803,408	16%
Actuarial	\$212,597	116,636	95,961	82%
Refunds	4,095,621	4,391,437	(295,816)	(7%)
Total	\$110,472,729	\$94,083,244	\$16,389,485	18%

Actuarial Funding Status

ACERA's funding objective is to meet long-term benefit promises by retaining a well-funded plan status and obtaining superior investment returns while minimizing employer contributions. Employer contributions remain approximately level as a percent of member payroll. The greater the level of overall plan funding, the larger the ratio of assets accumulated to the actuarial accrued liability. The advantage of a well-funded plan is that the benefits earned by participants are funded during their working careers and not by future generations of taxpayers. At the present time, ACERA enjoys a funding ratio in excess of 108%.

ACERA engages an independent actuarial consulting firm, William M. Mercer, Incorporated, to conduct annual actuarial valuations. Recommendations are presented to ACERA's Board for consideration. Triennially, an analysis is made of the appropriateness of all economic and non-economic assumptions. A triennial analysis was performed for the period from January 1, 1996 to December 31, 1998, and certain changes to economic and non-economic assumptions were adopted by the Board. The Board also engaged the actuarial firm of Gabriel, Roeder, Smith & Co. to perform an actuarial audit. The audit confirmed the appropriateness of ACERA's actuarial processes.

The actuarial accrued liability of ACERA at December 31, 1998 and December 31, 1997 amount to \$2,613,011,000 and \$2,218,319,000 respectively. The actuarial value of assets at December 31, 1998 and December 31, 1997 amount to \$2,830,437,000 and \$2,313,787,000 respectively.

The County of Alameda issued \$283,485,000 of pension obligation bonds on December 19, 1996. This recent bond issue, together with \$307,923,000 issued by the County on April 20, 1995, satisfied the Unfunded Actuarial Accrued

Liability (UAAL) of the County of Alameda as presently calculated. A more detailed discussion of funding is provided in the Actuarial Section of this report.

Investments

General Authority

Article XVI, Section 17 of the Constitution of the State of California provides that "Notwithstanding any other provisions of law or this Constitution, the Retirement Board of a public pension or retirement system shall have plenary authority and fiduciary responsibility for investment of moneys and administration of the system..."

Article XVI, Section 17(a) of the Constitution of the State of California provides that "the Retirement Board of a public pension or retirement system shall have the sole and exclusive fiduciary responsibility over the assets..."

Prudent Expert Duty

Article XVI, Section 17(c) of the Constitution of the State of California, provides that "the members of the Retirement Board of a public pension or retirement system shall discharge their duties... with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aim." By permitting further diversification of investments within a fund, the prudent expert standard may enable a fund to reduce overall risk and increase returns. A summary of the asset allocation can be found in the Investment Section of this report.

The prudent expert rule permits the Board to establish an investment policy based upon professional advice and counsel and allows for delegation of investment authority to professional investment advisors. The Statement of Investment Policy outlines the responsibility for the investment of the fund and the degree of risk that is deemed appropriate for the fund. Investment advisors are to execute the Investment Policy in accordance with Board policy and guidelines.

For the years ended December 31, 1998 and December 31, 1997 ACERA investments provided a 16.1% and 17.9% rate of return, respectively. ACERA's annualized rate of return over the last three years was 16.2%. Over the last five years, it was 14.6%.

Professional Services

Professional Consultants and Investment Managers are retained by the Board of Retirement to provide professional services essential to the effective and efficient operation of ACERA.

An opinion from the certified public accountant and the actuary are included in this report. The Consultants and Investment Managers retained by the Board are listed on page (**insert page numbers**) of this report.

Certificate of Achievement

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Alameda County Employees' Retirement Association (ACERA) for its comprehensive annual financial report (CAFR) for the fiscal years ended December 31, 1997 and December 31, 1996. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports.

In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report, whose contents conform to program standards. The CAFR must satisfy both generally accepted accounting principals and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. ACERA has received a Certificate of Achievement for the last two consecutive years. We believe our current report continues to conform to the Certificate of Achievement program requirements, and we are submitting the CAFR to GFOA.

Acknowledgments

The compilation of this report reflects the combined effort of ACERA's staff under the leadership of the Board of Retirement. It is intended to provide complete and reliable information with respect to the Board's stewardship of ACERA.

This report is being mailed to all employers and members of the Association and to employee and retiree organizations. Their cooperation contributes significantly to the success of ACERA. We hope our employers and our members find this report informative.

On behalf of the Board of Retirement, I would like to take this opportunity to express my gratitude to the staff, the advisors, and to the many people who have worked so diligently to assure the successful operation of ACERA.

Respectfully submitted,

Charles F. Conrad General Manager April 30, 1999

Certificate of Achievement For Excellence In Financial Reporting

Presented to

Alameda County Employees' Retirement Association, California

For its comprehensive Annual Financial Report For the Fiscal Year Ended December 31, 1997

A Certificate of Achievement for Excellence in Financial Reporting is presented by the Government Finance Officers Association of the United States and Canada to Government units and public employee retirement systems whose comprehensive annual financial reports (CAFRs) achieve the highest standards in government accounting and financial reporting.



President

Executive Director

MEMBERS OF THE BOARD OF RETIREMENT

As of December 31, 1998

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Back row (left to right)

Photo on this page

DAVE SAFER

Elected by General Members

WILLIAM SCHAFF

Appointed by the Board of Supervisors

LIZ KOPPENHAVER

Elected by Safety Members

PAUL TRUDELL

Elected by General Members

MARIAN BAMFORD SMITH

Appointed by the Board of Supervisors

DONALD R. WHITE

Ex-Officio member Treasurer-Tax Collector County of Alameda

Front row (left to right)

CHARLES L. HARRINGTON

Vice Chairman Elected by Retired Members

JAMES R. MUNIZ

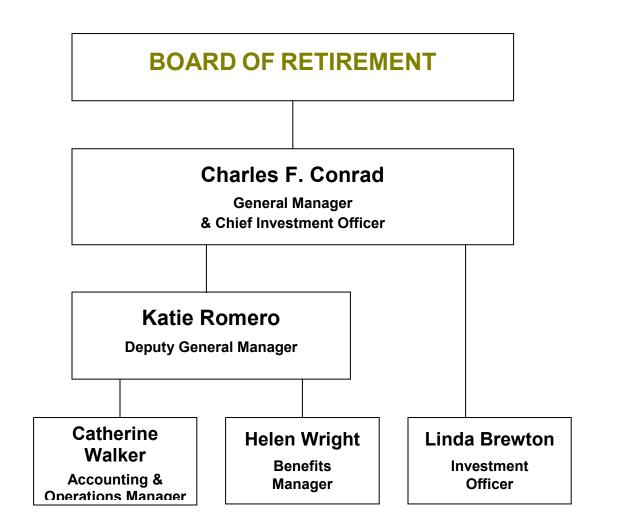
Chairman Appointed by the Board of Supervisors

WILMA CHAN

Secretary Appointed by the Board of Supervisors Member of the Board of Supervisors

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION Administrative Organization Chart As of December 31, 1998

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List of Professional Consultants

Custodian Bank of New York

Actuary William M. Mercer, Co. Gabriel, Roeder, Smith & Co. (actuarial audit)

Auditor Williams, Adley & Co., LLP

Legal Counsel Alameda County Counsel Baker & McKenzie Brobeck, Phleger & Harrison, LLP Jones, Day, Reaves & Pogue Mortgage Loan Services Wells Fargo Bank

Personnel Coordination Lakeside Group Santy & Goldstein Services Computer Services Client Services & Integration, Inc. Hewlett Packard

Technical Support Advent Software Frank, Rimerman Consulting, LLP Suite Solutions, Inc.

Publications, Layout & Design Laura Myers Design

Other Specialized Services Campbell Consulting Group Clarence White, CPA Cortex Applied Research, Inc. Grant Anderson Co.

Note: List of Investment Professionals is located on page (insert page) of the Investment Section of this report.

Financial

Auditor's letterhead in background

Independent Auditor's Report

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Board of Retirement Alameda County Employees' Retirement Association Oakland, California

We have audited the accompanying statements of plan net assets of the Alameda County Employees' Retirement Association ("ACERA"), as of December 31, 1998 and 1997, and the related statements of changes in plan net assets for the years then ended. These financial statements are the responsibility of ACERA's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, net assets available for benefits and changes in the position of ACERA, as of December 31, 1998 and 1997, and the net assets available for benefits for the two years then ended in conformity with generally accepted accounting principles.

In accordance with *Government Auditing Standards*, we have also issued a report dated April 30, 1999 on our consideration of ACERA's compliance and internal control structure over financial reporting.

Auditor's signature goes here

April 30, 1999

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION Statements of Plan Net Assets

	December 31,	
	1998	1997
Assets		
Cash and Deposits	\$ 2,008,079	\$ 33,251
Receivables:		
Contributions	473,505	175,071
Accrued Interest	10,670,773	5,237,798
Dividends	111,272	920,125
Real Estate	8,248,815	1,421,625
Securities Lending	50,467	45,462
Sale of Securities	552,174	10,190,991
Sale of Real Estate	17,846,000	19,700,000
Other	109,987	<u>3,813</u>
Total Receivables	38,062,993	37,694,885
Prepaid Expenses	90,907	41,473
Real Estate – Other Asset	500,000	
Investments, at Fair Value:		
Short-Term Investments	66,436,156	141,684,345
Government Bonds	236,239,611	177,881,635
Corporate Bonds	359,524,593	208,810,289
Bond Market Fund	458,144,811	390,219,580
Corporate Stocks	286,062,521	819,222,371
Domestic Equity Index Fund International Equity Commingled Funds	1,349,410,363 399,261,947	731,811,865 346,535,968
Real Estate Properties	137,565,458	105,802,970
Real Estate Trusts	28,427,763	36,820,586
Real Estate Mortgage Loans	933,876	1,476,974
AFL-CIO Housing Investment Trust	67,567,946	13,361,247
Securities Lending Collateral	147,078,714	219,385,620
Total Investments	3,536,653,759	3,193,013,450
Fixed Assets (Net of Accumulated Depreciation of \$617,619 and \$311,309):		
Equipment and Furniture	935,412	1,148,209
Leasehold Improvements	230,191	241,772
Total Fixed Assets	1,165,603	1,389,981
Total Assets	3,578,481,341	3,232,173,040
Liabilities		
Prepaid Employer and Member Contributions	25,461,500	24,424,426
Purchase of Securities	15,624,447	18,463,561
Accrued Investment and Actuary Expenses	1,930,909	2,124,914
Accrued Administration Expenses	404,260	471,998
Member Refunds Payable	810,258	328,081
Securities Lending Liability	147,078,714	219,385,620
Retirement Payroll Deductions Payable	369,278	1,526,432
Total Liabilities	191,679,366	266,725,032
Net Assets Held in Trust for Pension Benefits (See Sch of Funding Progress)	\$3,386,801,975	\$2,965,448,008

(See accompanying notes to the financial statements on [insert page here].)

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION Statement of Changes in Plan Net Assets

	December 31,	
	1998	1997
Additions		
Contributions:		
Members	\$ 35,748,407	\$ 32,684,638
Employer	24,389,376	23,471,769
Total Contributions	60,137,783	56,156,407
Investment Income:		
Net Appreciation in Fair Value of Investments	413,851,253	437,819,878
Interest	41,893,507	29,747,454
Dividends	8,756,096	11,264,701
Real Estate	23,390,933	18,466,691
Securities Lending	10,748,628	11,055,721
Total Investment Income	498,640,417	508,354,445
Less: Investment Expenses	(27,016,259)	(27,868,081)
Net Investment Income	471,624,158	480,486,364
Miscellaneous Income	64,755	5,256
Miscellaneous Income Total Additions	64,755 531,826,696	5,256 536,648,027
Total Additions		
Total Additions Deductions		
Total Additions Deductions Benefit Payments:	531,826,696	536,648,027
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement:	531,826,696 87,754,005	536,648,027 79,869,841
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies	531,826,696 87,754,005 1,040,024 5,908,618	536,648,027 79,869,841 963,631 5,105,210
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living	531,826,696 87,754,005 1,040,024 5,908,618 6,784,457	536,648,027 79,869,841 963,631 5,105,210 452,461
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies	531,826,696 87,754,005 1,040,024 5,908,618	536,648,027 79,869,841 963,631 5,105,210
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living	531,826,696 87,754,005 1,040,024 5,908,618 6,784,457	536,648,027 79,869,841 963,631 5,105,210 452,461
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living Total Benefit Payments	531,826,696 87,754,005 1,040,024 5,908,618 <u>6,784,457</u> 101,487,104	536,648,027 79,869,841 963,631 5,105,210 452,461 86,391,143
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living Total Benefit Payments Refunds	531,826,696 87,754,005 1,040,024 5,908,618 <u>6,784,457</u> 101,487,104 4,095,621	536,648,027 79,869,841 963,631 5,105,210 452,461 86,391,143 4,391,437
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living Total Benefit Payments Refunds Administrative	531,826,696 87,754,005 1,040,024 5,908,618 <u>6,784,457</u> 101,487,104 4,095,621 4,677,407	536,648,027 79,869,841 963,631 5,105,210 452,461 86,391,143 4,391,437 3,184,028
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living Total Benefit Payments Refunds Administrative Actuarial	531,826,696 87,754,005 1,040,024 5,908,618 <u>6,784,457</u> 101,487,104 4,095,621 4,677,407 212,597	536,648,027 79,869,841 963,631 5,105,210 452,461 86,391,143 4,391,437 3,184,028 116,636
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living Total Benefit Payments Refunds Administrative Actuarial Total Deductions	531,826,696 87,754,005 1,040,024 5,908,618 6,784,457 101,487,104 4,095,621 4,677,407 212,597 110,472,729	536,648,027 79,869,841 963,631 5,105,210 452,461 86,391,143 4,391,437 3,184,028 116,636 94,083,244
Total Additions Deductions Benefit Payments: Service Retirement Death Post Retirement: Health Insurance Subsidies Supplemental Cost of Living Total Benefit Payments Refunds Administrative Actuarial Total Deductions Excess of Additions over Deductions	531,826,696 87,754,005 1,040,024 5,908,618 6,784,457 101,487,104 4,095,621 4,677,407 212,597 110,472,729	536,648,027 79,869,841 963,631 5,105,210 452,461 86,391,143 4,391,437 3,184,028 116,636 94,083,244

(See accompanying notes to the financial statements on insert page number).

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION Notes to Financial Statements

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as of December 31, 1998 and 1997

1. Plan Description

Alameda County Employees' Retirement Association ("ACERA") began operations on January 1, 1948 and is governed by the California Constitution, the County Employees Retirement Law of 1937 and the bylaws, procedures and policies adopted by the Board of Retirement. ACERA operates as a cost-sharing multi-employer defined benefit plan for Alameda County and three participating Special Districts located in the County but not under the control of the County Board of Supervisors. ACERA provides retirement, disability and death benefits to its safety and general members, and administers retiree health, dental, and vision benefit programs. All risks and costs, including benefit costs, are shared by the participating entities. One actuarial valuation is performed annually for the system as a whole.

Plan Membership

All full-time employees of participating entities appointed to permanent positions are required by statute to become members of ACERA. Safety membership includes probation officers and employees who are active in law enforcement and juvenile hall group counseling. General membership includes all other occupational classifications.

ACERA's membership consisted of:

December 31,	
1998	1997
5,380	5,202
6,744	6,774
2,755	2,473
915	857
15,794	15,306
	1998 5,380 6,744 2,755 915

Benefit Provisions

Members become vested after five years of credited service. Vested general members may retire at age fifty or older with ten or more years of qualifying service, at any age with thirty or more years of qualifying service, or seventy or older regardless of service credit. Vested safety members may retire at age fifty or older with ten or more years of qualifying service, or at any age with twenty or more years of qualifying service. Members who qualify are entitled to monthly retirement benefits for life. Service retirement benefits are based on final average salary, age at retirement and length of service as of retirement date, according to applicable statutory formulae.

The service retirement benefits within the plan are tiered based on their membership entry date. Members with an entry date prior to July 1, 1983 belong to Tier 1 while those with an entry date on or after July 1, 1983 belong to Tier 2. Tier 1 members contribute at a higher rate and therefore, receive higher retirement benefits.

ACERA is integrated with Social Security for all employees except sheriffs and juvenile hall group counselors. For members covered by Social Security, the retirement benefit is adjusted by a reduction factor.

Cost-of-Living Adjustment

Retirement benefits are subject to postretirement cost-of-living adjustments ("COLA") based upon changes in the Consumer Price Index for the San Francisco Bay Area. Annual COLA increases are capped at 3% for Tier 1 and 2% for Tier 2 members.

Supplemental Cost-of-Living

In addition to basic cost-of-living increases, the Board of Retirement structured a Supplemental Cost-of-Living program, effective January 1, 1998. The new Supplemental COLA is structured to maintain purchasing power at no less than 85% of the original benefit. The new Supplemental COLA is applicable to members who have an accumulated loss of purchasing power of more than 15% or more due to inflation.

Tier 1 members who retired on or before April 1, 1982 and Tier 2 members who retired on or before April 1, 1987 are entitled to the new Supplemental COLA. As a result of this new benefit, deductions from the Supplemental Retiree Benefit Reserve account ("SRBR") increased by approximately \$6.3 million.

Funding for the Supplemental COLA is provided solely through the SRBR, which derives its funding from investment earnings in excess of the actuarial interest assumption rate. Supplemental COLA increases are subject to approval by the Board of Retirement on an annual basis. Continuation of the benefit is based on available funding.

2. Summary of Significant Accounting Policies

Reporting Entity

ACERA, with its own governing board, is an independent governmental entity separate and distinct from the County of Alameda. ACERA's annual financial statements are included in the County of Alameda Annual Financial Report as a pension trust fund.

Basis of Accounting

ACERA's financial statements are prepared using the accrual basis of accounting. Employer and employee contributions are recognized as revenues in the period in which employee services are performed and expenses are recorded when the corresponding liabilities are incurred.

Cash and Deposits

Cash and pooled cash are deposited with the Alameda County Treasurer, approximate market, and are entirely insured. Income on pooled cash is allocated based on ACERA's average daily balance in relation to total pooled assets.

Method Used to Value Investments

Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Mortgages are reported based on the remaining principal balances, which approximate the value of future principal and interest payments discounted at prevailing rates for similar instruments. The fair value of real estate investments is based on prices in a competitive market as determined by specialists.

Fixed Assets

Fixed assets and leasehold improvements are stated at cost, net of accumulated depreciation and amortization. Depreciation and amortization are calculated using the straight-line method over the estimated useful lives of the depreciable assets and the term of the lease, respectively. Computers and equipment have a useful life of five years, whereas furniture has a useful life of seven years. Depreciation expense was \$273,807 and \$193,922 for the years ended December 31, 1998 and 1997, respectively. Amortization expense was \$43,649 and \$22,284 for the years ended December 31, 1998 and 1997, respectively.



Estimates

The preparation of financial statements are in accordance with generally accepted accounting principles which require the plan administrator to make estimates and assumptions that affect certain amounts and disclosures. Accordingly, actual results may differ from those estimates.

Reclassifications

Certain amounts in the December 31, 1997 financial statements have been reclassified in 1998 for comparative purposes.

3. Contributions

The employers and members contribute to ACERA based on rates recommended by an independent actuary and adopted by the Board of Retirement. Covered employees are required by statute to contribute toward their pensions. Member contribution rates are formulated on the basis of their age at the date of entry and the actuarially-calculated benefits. Contributory plan members are required to contribute between 6.17% and 11.64% of their annual covered salary. Member contributions are refundable upon termination from the retirement system.

The County and Special Districts are required by statute to contribute the amounts necessary to finance the estimated benefits accruing to ACERA members. The County has entered into an agreement whereby the County prepays both the County's employer and employee contributions discounted at 8%. The discount (or effective interest earned) credited to the employer advance reserve balance was \$2,025,238 and \$2,041,990 for the years ended December 31, 1998 and 1997, respectively.

4. Reserves

ACERA reserves are established from member and employer contributions and the accumulation of investment income after satisfying investment and administrative expenses. The reserves do not represent the present value of assets needed, as determined by actuarial valuation, to satisfy retirements and other benefits as they become due. ACERA's major reserves are as follows:

Laura: Please note each category name is in a different color

Member Reserve represents the total accumulated member contributions. Additions include member contributions and investment earnings; deductions include refunds of member contributions and transfers to Retired Member Reserve.

Employer Advance Reserve represents the total accumulated employer contributions for future retirement payments to current active members. Additions include contributions from the employer and investment earnings; deductions include transfers to Retired Member Reserve.

Retired Member Reserve represents the total accumulated transfers from Member Reserve and the Employer Advance Reserve and investment earnings, less payments to retired members, beneficiaries and survivors.

Contingency Reserve represents a reserve accumulated for future earnings deficiencies and investment losses. The Contingency Reserve is used to satisfy the California Government Code requirement to reserve at least 1% of total assets against the above deficiencies. The balance of the Contingency Reserve, which is funded entirely from investment earnings, cannot exceed 3% of the total assets of the retirement system. The balance of the Contingency Reserve of \$107,281,567 and \$96,965,191 represents 3% of total assets for both years ended December 31, 1998 and 1997.

Supplemental Retiree Benefit Reserve (SRBR) represents funds set aside from investment earnings to provide supplemental benefits to retirees. The Supplemental COLA, Medicare Part B Reimbursement, Health Equity Location Program, vision, dental, and increased death benefits to retirees are currently being funded by this reserve. The SRBR was established on January 1, 1985, when the Board of Retirement and Board of Supervisors for Alameda County adopted the provisions of Article 5.5 of the Government Code.

Market Stabilization Reserve represents unrealized gains or losses recognized in the financial statements as a result of reporting investments at fair value instead of cost.

Interest is allocated to all reserves except for the Contingency Reserve and Market Stabilization Reserve. The interest is allocated based on the actuarial interest assumption rate, which is approved by the Board of Retirement. The Contingency Reserve is increased to the limit of 3% of total assets at market value as established by the Board and permitted by Section 31616 of the County Employees Retirement Law of 1937 (1937 Act). The remaining net earnings are allocated 50% to the SRBR and 50% allocated proportionally to all other reserves with the exception of the Contingency Reserve and Market Stabilization Reserve as required by Sections 31618 and 31619 of the 1937 Act.

Reserves as of December 31, 1998 and 1997 are as follows:

	December 31,	
	1998	1997
Member Reserve		
Active Member Reserve	\$ 658,988,042	\$ 553,439,457
Unclaimed Deposits	36,988	159,499
Total Member Reserve	659,025,030	553,598,956
Employer Advance Reserve	589,025,545	512,842,143
Retired Member Reserve	1,335,421,619	1,105,994,047
Supplemental Retiree Benefit Reserve	250,095,608	144,671,900
Contingency Reserve	107,281,567	96,965,191
Market Stabilization Reserve	445,952,606	551,375,771
Total Reserve at Fair Value	\$3,386,801,975	\$2,965,448,008

5. Actuarial Valuation

ACERA has retained an independent actuarial firm, William M. Mercer, Incorporated to conduct an actuarial valuation to monitor ACERA's funding status. On an annual basis, this valuation is updated for economic and non-economic assumptions as required by the California Government Code. The last valuation was performed as of December 31, 1998, and determined the plan's funded status to be 108.3% (calculated per GASB Statement No. 25, "Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans").

6. Postemployment Healthcare Benefits

ACERA administers a healthcare benefits program for retired members and their eligible dependents. As administrator, ACERA negotiates the healthcare contract with the providers, but does not handle the claim process. ACERA withholds the healthcare premiums from the retirees' monthly benefit payments and forwards the premiums to the healthcare providers.

Alameda County (the "County") subsidizes the health care premiums of certain retirees by paying a percentage of the cost for the retiree based on the lowest average cost plan available. The amount of the subsidy is dependent upon the retirees' number of years of service. The subsidy ranges from 50% for retirees with 10 years of service to 100% for retirees with 20 years of service. The cost of the healthcare premiums, after the subsidy, is deducted from the retirees' monthly benefit payments. The program may be amended, revised or discontinued at any time.

Plan net assets are not held in trust for postemployment healthcare benefits. Each year, the County prepays an amount to cover the established healthcare premium subsidies. As of December 31, 1998, the County's healthcare premium account balance was \$5,010,703. A total of \$5,908,618 and \$5,105,210 was spent on healthcare premium subsidies for 3,511 and 3,382 retirees, for the periods ended December 31, 1998 and 1997, respectively.

7. Industry Concentration of Portfolio Assets

The Board of Retirement's investment policies and guidelines permit investment in numerous specified asset classes to take advantage of the noncorrelated economic behavior of diverse asset classes. The result is a well-diversified portfolio. The investment portfolio contained no concentration of investments in any one entity (other than those issued or guaranteed by the U.S. Government) that represented 5 percent or more of the total investment portfolio.

8. Investments

ACERA's investment guidelines reflect the duties imposed by an investment standard known as the "prudent expert rule." The prudent expert rule, as set forth in the State Constitution, established a standard for all fiduciaries, which includes anyone who has discretionary authority with respect to ACERA's investments.

Bank of New York Western Trust Company (BoNY) serves as custodian of ACERA's investments. ACERA's asset classes include U.S. Equity, International Equity, U.S. Fixed Income, Member Mortgages and Real Estate. Any class may be held in direct form, pooled form or both. In 1998, thirteen external investment managers managed securities portfolios; three investment managers were retained for real estate investments.

Investments are categorized by type to give an indication of the level of credit risk assumed at year end. Category 1 includes investments that are insured or registered, or for which the securities are held by ACERA or its agent in ACERA's name. Category 2 includes investments that are uninsured and unregistered, with securities held by the counterparty's trust department or agent in the entity's name. Category 3 includes investments that are uninsured and unregistered, with securities held by the counterparty or by its trust department or agent but not in the entity's name. ACERA had no Category 2 investments at December 31, 1998 and 1997.

Laura: Catherine wants to eliminate the small dashes – and just leave those areas blank

	Risk December 31, 1998		nber 31, 1998	Decemb	mber 31, 1997	
	Category	Cost	Market	Cost	Market	
Investments - Categorized						
Short-Term Investments	1	\$ 66,436,156	\$ 66,436,156	\$141,684,345	\$ 141,684,345	
Government Bonds	1	176,162,272	176,745,004	141,654,677	145,825,737	
Corporate Bonds	1	300,128,472	299,331,541	184,438,779	189,765,649	
Corporate Stocks	1	186,815,407	229,628,691	528,809,600	650,937,289	
Total		729,542,307	772,141,392	996,587,401	1,128,213,020	
Investments Made With Securiti	es - Lending	Cash Collateral				
Government Bonds	3	-	-	-	50,000,000	
Corporate Bonds	3	-	79,136,688	-	14,000,000	
Bank Obligations	3	-	46,574,802	-	132,602,996	
Commercial Paper	3	-	5,416,001	-	11,997,617	
Repurchase Agreements	3		15,951,223	-	10,240,007	
Total		-	147,078,714	-	218,840,620	
Total Categorized Investme	ents	729,542,307	919,220,106	996,587,401	1,347,053,640	
Investments Net Octored	I					
Investments – Not Categorize	a					
Bond Market Fund	-	385,354,455	458,144,810	351,354,455	390,219,580	
International Bonds	-	27,366,797	28,938,458	-	-	
Domestic Equity Index Fund	-	801,357,554	1,349,410,363	429,054,047	731,811,865	
International Equity						
Commingled Fund	-	283,317,472	399,261,947	283,317,472	346,535,968	
AFL-CIO Investment		66,509,773	67,567,946	10 516 749	13,361,247	
Housing Trust Real Estate Properties	-	127,547,800	137,669,675	12,516,748 97,160,000	105,802,970	
Real Estate Trusts	-	27,121,245				
Real Estate Mortgage Loans	-	933,876	28,427,763 933,876	37,702,805 1,476,974	36,820,586 1,476,974	
	-		•			
Total		1,719,508,972	2,470,354,838	1,212,582,501	1,626,029,190	
Investments Held by Broker: Dealers under Securities Loans	with Cash Co	ollateral				
Corporate Bonds	-	28,319,544	29,057,640	18,231,336	19,044,640	
Corporate Stocks	-	54,952,808	56,433,830	163,191,353	168,285,082	
Government Bonds		58,660,999	59,494,606	31,659,469	32,055,898	
Total		141,933,351	144,986,076	213,082,158	219,385,620	
Non-Cash Collateral			2,092,738			
Securities Lending Short-Term Collateral Investment Pool	-	-	-	-	545,000	
Total Non-Categorized Investme	ents	1,861,442,323	2,617,433,652	1,425,664,659	1,845,959,810	
Total Investments						
I GIAI INVESTIMENTS		\$2,590,984,630	\$3,536,653,758	\$2,422,252,060	\$3,193,013,450	

Securities Lending

The Board of Retirement (Board) policies authorize ACERA to participate in a securities lending program. Security lending transactions, which are short-term collateralized loans of ACERA securities to brokers, have a simultaneous agreement that allows ACERA to invest and receive earnings on the loan collateral for a loan rebate fee. All securities loans can be terminated on demand by either ACERA or the borrower, although the average term of loans is one week. There are no restrictions on the amount of securities that may be lent.

ACERA's custodian bank, BoNY, administers its securities lending program. BoNY is responsible for maintaining an adequate level of collateral in an amount equal to at least 102% of the market value of loaned U.S. government securities. Collateral received may include cash, letters of credit, or securities. If securities collateral is received, ACERA cannot pledge or sell the securities collateral unless the borrower defaults.

At year-end, ACERA had no credit risk exposure to borrowers because the amounts ACERA owed to borrowers exceeded the amounts the borrowers owed to ACERA. ACERA's contract with BoNY requires it to indemnify ACERA if the borrowers fail to return the securities (and if the collateral is inadequate to replace the securities lent) or fail to pay ACERA for income distributions by the securities' issuers while the securities are on loan.

As of December 31, 1998 and 1997, ACERA had securities on loan with a carrying value of \$141,933,351 and \$213,082,158 for cash collateral of \$147,078,714 and \$219,385,620, respectively. As the securities on loan at yearend were collateralized by cash, they are presented as unclassified in the preceding schedule of custodial credit risk. Investments made with the cash collateral are classified by risk category.

ACERA's securities lending income is as follows:

	1998	1997
Gross Income	\$10,748,628	\$11,055,721
Expenses: Borrower Rebates Bank Fees	9,878,687 347,733	10,005,419 420,367
Total Expenses	10,226,420	10,425,786
Net Income from Securities Lending	\$ 522,208	\$ 629,935

Derivative Financial Investments

ACERA does not hold or issue derivative financial instruments for trading purposes. Derivative financial instruments are utilized by ACERA to improve or defend against currency fluctuations of the investment earnings and reduce interest rate risks. None of these securities were leveraged.

Indexed securities are short-term debt instruments for which the interest rates or principal amounts are indexed to an unrelated indicator and consist of collateralized mortgage obligations and asset-backed securities. Forward contracts enable a specific quantity of a particular commodity, foreign currency or other financial instruments, to be bought or sold at its current price, with delivery and settlement at a specified future date. At December 31, 1998, forward contracts with a market value of \$ 252,513 were outstanding. At December 31, 1997 there were no outstanding forward contracts. Cost and market values of index securities amounted to \$78,228,676 and \$78,270,471, respectively at December 31, 1998 and \$77,987,333 and \$81,676,122, respectively, at December 31, 1997.

At December 31, 1998 and 1997, ACERA was a 33 % and 62%, respectively, owner in a co-mingled fund (market value of \$571,764,303 at December 31, 1998 and \$260,735,192 at December 31, 1997). The investment portfolio included holdings in derivatives which had a total fair value of \$2,510,605 at December 31, 1998 and \$3,492,520 at December 31, 1997.

The investments in indexed securities bear no credit or legal risks, as they are government agency debt issues. However, they bear market risk in that the mortgages can be prepaid. The investments in forwards and futures also bear market risk as the current market may be particularly sensitive to interest rate fluctuations.

9. Administrative Expenses

ACERA's Board of Retirement annually adopts an operating budget for the administration of ACERA. The administrative expenses are charged against ACERA's investment earnings and are limited to eighteen hundredths of one percent of the total assets of the retirement system as set forth under Government Code Section 31580.2.

	December 31,		
	1998	1997	
Total Asset Base, at Fair Value	\$3,578,481,341	\$3,232,173,040	
Maximum Allowable for Administrative Expense (.18% x \$3,578,481,341 and \$3,232,173,040)	6,441,266	5,817,911	
Actual Administrative Expenses for the Fiscal Year	4,677,407	3,184,028	
Excess of Allowance over Actual Administrative Expenses	\$ 1,763,859	\$ 2,633,883	
Actual Administrative Expenses as a Percentage of Total Asset Base	.131%	.099%	

10. Contingent Liability

On October 1, 1997, the California Supreme Court decision in the matter of *Ventura County Deputy Sheriff's Association vs. Board of Retirement of the Ventura County Employees' Retirement Association* (1997) 16 Cal. 4th 483 became final. In this decision, the California Supreme Court held that:

- 1. Benefits paid in cash to members for employment related services are to be included in the calculation of the member's final compensation.
- 2. County funds added to a deferred compensation plan are not considered compensation for purposes of calculating pension benefits.

As a result of the *Ventura* discussion, the following additional cash benefits are now included in final compensation in Alameda County. These include, but are not limited to:

- 1. All shift differentials.
- 2. Vacation sell-back, up to the amount the employee is eligible to accrue during the final average salary period.
- 3. Vacation cash-out, up to the amount the employee is eligible to accrue during the final average salary period.
- 4. On-call pay.

This decision means that many retirement allowances granted by the twenty county retirement systems in California, including ACERA, were smaller than they would have been had the retirement systems been using the guidelines under the *Ventura*_decision.

Effective June 28, 1998, employee contributions for cash benefits are being deducted on a biweekly basis. ACERA calculated and processed retirement allowances including cash benefits under *Ventura* for those members who retired on or after October 1, 1997. However, because litigation regarding the applicability of *Ventura* to those who retired prior to October 1, 1997 has not yet been resolved, no definitive comments can be made at this time regarding this group.

The liability as a result of this decision has been estimated by the actuary to be \$259 million.

Financial

Auditor's letterhead in background

Independent Auditor's Report on Supplemental Schedules

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Board of Retirement Alameda County Employees' Retirement Association Oakland, California

We have audited the financial statements of ACERA as of and for the year ended December 31, 1998 and 1997, and have issued our report thereon dated April 30, 1999. Our audit was conducted for the purpose of forming an opinion on the basic financial statements taken as a whole.

The Year 2000 Supplemental Schedule presented (insert page number here) is not a required part of the basic financial statements but is required by the Governmental Accounting Standards Board. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the supplementary information. However, we did not audit the information and do not express an opinion on it. In addition, we do not provide assurance that ACERA is or will be year 2000 compliant, that ACERA's year 2000 remediation efforts will be successful in whole or in part, or that parties with which ACERA does business are or will become year 2000 complaint.

The Supplemental Schedules, on (insert page numbers here), are presented for purposes of additional analysis and are a required part of the basic financial statements. Such supplemental schedules have been subjected to the auditing procedures applied in the audits of the basic financial statements and, in our opinion, are fairly stated in all material respects in relation to the basic financial statements taken as a whole.

April 30, 1999

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Supplemental Schedules

as of December 31, 1998 and 1997

Year 2000 Compliance Project

The Year 2000 ("Y2K") date change can affect any system that uses computer hardware or computer software programs. Because of ACERA's reliance on computers, great emphasis is being placed on making sure these systems are ready for the upcoming date change.

ACERA is addressing the Y2K issue by organizing a team of internal and external professionals and resources to assess, design, and manage the implementation of a comprehensive plan to deal with this issue. The team is focusing on the viability of the internal computer systems and software applications in use, and the processes and operational procedures that these systems support. Vendors, suppliers, and services providers are also being reviewed for Y2K compliance.

Government Accounting Standards Board Technical Bulletin 99-1 "Disclosure About Year 2000 Issues," identifies four principle stages as being necessary to implement a Y2K compliant system. System awareness, assessment, remediation, and validation testing.

As a result, ACERA is implementing a comprehensive Y2K plan that includes for each designated component an associated assessment, remediation, testing, and validation stage. The plan calls for all systems to be processed in all stages by the end of the year 1999. As of December 31, 1998, ACERA is in the remediation stage. Completion of these stages is not a guarantee that systems and equipment will be year 2000 compliant.

The Year 2000 project expenditures were \$485,313 for year ending December 31, 1998 while projected expenditures are \$2,285,644.

The actual and projected expenditures are detailed below:

	1998	1999
Staff Wages	\$ 29,740	\$ 39,978
General Expenses	13,504	12,921
Consulting Expenses	438,000	459,500
Equipment and Software	4,069	8,069
Projected Capital Expenditure:		
Replacement of Retirement Information System		1,765,176
Total	\$485,313	\$2,285,644

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Supplemental Schedules

For the year ended December 31, 1998 and 1997

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Schedule of Administrative Expenses

	1998	1997
Personnel Services:		
Staff Wages	\$1,068,288	\$ 949,049
Fringe Benefits	332,751	314,207
Temporary Services	741,168	353,254
Total Personnel Services	2,142,207	1,616,510
Professional Services:		
Computer Services	231,519	40,777
Audit	46,865	45,500
Legal Counsel	433,743	185,713
Specialized Services	475,685	238,736
Total Professional Services	1,187,812	510,726
Communication:		
Printing	98,267	72,090
Communication	46,936	36,667
Postage	43,293	70,762
Total Communication	188,496	179,519
Rentals:		
Office Space	310,028	179,399
Equipment Leasing	6,463	2,698
Total Rentals	316,491	182,097
Other:		
Training	44,367	54,211
Supplies	57,405	65,571
Maintenance-Equipment	18,642	16,446
Insurance	79,770	41,038
Depreciation and Amortization	317,456	216,206
Office	315,900	287,040
Miscellaneous	8,861	14,664
Total Other	842,401	695,176
Total Administrative Expenses	\$4,677,407	\$3,184,028

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

Supplemental Schedules

For the year ended December 31, 1998 and 1997

	1998	1997
Investment Manager Fees:		
Equity		
Domestic	\$3,747,314	\$4,532,313
International	2,597,686	2,177,255
Fixed Income		
Domestic	1,068,266	823,918
Real Estate:		
Investment Trusts	223,086	452,110
Insurance Contracts	90,833	176,963
Individual Properties	1,027,102	995,070
Mortgage Loan Servicers	3,469	4,240
Total Investment Manager Fees	8,757,756	9,161,869
Other Investment Expense:		
Investment Custodians	205,174	217,374
Investment Consultants	245,269	283,559
Individual Properties Operating Expenses	3,724,767	4,059,128
Security Lending Fees	10,226,420	10,425,786
Commissions	1,824,033	1,678,375
Discounted Interest on Prepaid County Contributions	2,025,238	2,041,990
Miscellaneous	7,602	
Total Other Investment Expense	18,258,503	18,706,212
Total Investment Manager Fees and Other Investment Expenses	\$27,016,259	\$27,868,081

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Schedule of Payments to Consultants

	1998	1997
Actuarial Services	212,597	116,636
Audit Services	46,865	45,500
Legal Services	433,743	185,713
Personnel Coordination	186,540	60,692
Technical Support	404,064	153,253
Other Specialized Services	70,812	24,791
Total Payments to Consultants	\$1,354,620	\$586,585

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION Supplemental Schedules

December 31, 1998 and 1997

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Schedule of Funding Progress

(In Millions of Dollars) Actuarial Accrued UAAL as a Value (\$) Actuarial Unfunded Liability (\$) Percentage (%) AAL (\$) ("UAAL") Valuation of Plan Actuarial Funded Covered of Covered Ratio (%) Payroll (\$) Payroll Date Assets ("AAL") January 1 (b) (a/b) (b-a) [(b-a)/c] (a) (C) 1994 352 157% 1,076 1,630 66% 554 1995 1,443 1,715 84% 272 366 74% 1996 1,684 1,951 86% 267 374 71% 390 1997 2,113 2,068 102% (45) (12%) 1998 2,314 2,218 104% (96) 413 (23%) 1999 2,830 2,613 108% (217) 462 (47%)

Schedule of Employer Contributions

Fiscal Year Ended	Annual Required	Percentage (%)	
December 31,	Contribution (\$)	Contributed	
1993	39	100%	
1994	44	100%	
1995	33	1,023%*	
1996	21	1,440%*	
1997	23	100%	
1998	24	100%	

*Percentage contributed includes pension obligation bond proceeds.

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION Notes to Supplemental Schedules

December 31, 1998 and 1997

The information presented in the supplementary schedules was determined as part of the actuarial valuations as of the date indicated. Additional information as of the latest actuarial valuation date, December 31, 1998 is as follows:

ACTUARIAL COST METHOD: Entry Age Normal.

ASSET VALUATION METHOD: 5-year smoothing of Market Value.

AMORTIZATION OF UNFUNDED LIABILITY: The annual contribution rate which, if paid annually over the Unfunded Actuarial Accrued Liability (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 assumed annual inflation rate of 4.50%. The UAAL is being funded over the 20 year period following December 31, 1998. However, the 1993 Golden Handshake liabilities are being amortized over the 5 ½ year period following December 31, 1998 and the excess interest return on the Pension Obligation Bonds is being amortized over a 10 year period following December 31, 1998.

AMORTIZATION APPROACH: Open.

AMORTIZATION OF ACTUARIAL GAINS AND LOSSES: Accumulated actuarial gains as of December 31, 1998 attributable to County of Alameda members are being amortized over the 10 year period following that date. Any new actuarial gains and losses will be combined with all unamortized gains and losses and amortized over the current amortization period (20 years).

COST OF LIVING ADJUSTMENTS: The maximum increase in retirement allowance is 3% per year for Tier 1 and 2% for Tier 2 members. The maximums are based on the change in the Consumer Price Index for the calendar year prior to April 1, effective date.

INVESTMENT RATE OF RETURN: 8% per annum.*

PROJECTED SALARY INCREASES: 5.6% per annum.

CONSUMER PRICE INDEX: Increase of 4.5% per annum.

^{*} The Board has raised the investment return assumption from 8.00% to 8.25%, effective January 1, 1999.

Financial

Auditor's letterhead in background

Independent Auditor's report on Compliance and Internal Control over Financial Reporting Based on an Audit of Financial Statements Performed in Accordance with Government Auditing Standards

The Board of Retirement Alameda County Employees' Retirement Association Oakland, California

We have audited the financial statements of the Alameda County Employees' Retirement Association ("ACERA") as of and for the years ended December 31, 1998 and 1997, and have issued our report thereon dated April 30, 1999. We conducted our audit in accordance with generally accepted auditing standards and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Compliance

As part of obtaining reasonable assurance about whether ACERA's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grants, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance that are required to be reported under *Government Auditing Standards*.

Internal Control Over Financial Reporting

In planning and performing our audit, we considered ACERA's internal control over financial reporting in order to determine our auditing procedures for the purpose of expressing our opinion on the financial statements and not to provide assurance on the internal control over financial reporting. Our consideration of the internal control over financial reporting would not necessarily disclose all matters in the internal control over financial reporting that might be material weaknesses. A material weakness is a condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements in amounts that would be material in relation to the financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. We noted no matters involving the internal control over financial reporting and its operation that we consider to be material weaknesses.

This report is intended for information purposes to the Board of Retirement, ACERA management and the Controller of the State of California. However, this report is a matter of public record and its distribution is not limited.

Auditor's signature goes here

April 30, 1999

Investment

CHIEF INVESTMENT OFFICER'S REPORT

Introduction

1998 was another very strong year for the investment program. The U.S. stock market, as represented by the S&P 500, returned 28.8%. The broad U.S. Stock market was up 29.1%. ACERA credited 20.86% to member accounts. This reflected both the 16.1% return on the overall portfolio (stocks, bonds, and real estate) and a one-time gain due to a change in methodology used to recognize gains. This remarkable level of return also permitted the Supplemental Retiree Benefit Reserve (SRBR) to grow to \$250.1 million.

General Information

External investment management firms manage ACERA's assets. Professional investment consultants, along with investment staff, closely monitor the activity of these managers and assist the Board with the implementation of investment policies and long-term investment strategies.

ACERA's goal is to operate at a level of performance in the upper one quarter of comparable pension funds, and to be as fully funded as possible so that ACERA's benefit costs do not become a burden upon future generations of members and taxpayers.

Summary of Investment Objectives

The Board of Retirement, having sole and exclusive authority and sole and exclusive fiduciary responsibility for the investment and administration of the Trust, has adopted an Investment Policy Statement which reflects the Board's policies for the management of ACERA's investments. The Board reserves the right to amend, supplement or rescind this Statement at any time. The Investment Policy Statement establishes investment program goals and policies, asset allocation policies, performance objectives, investment management policies and risk controls. It also defines the principal duties of the Board, staff, investment managers, master custodian and consultants.

ACERA's primary investment objective is to take prudent risk, as necessary, to minimize the cost of meeting the obligations of the Trust. The purpose of the Investment Policy Statement is to express in operational terms: return expectations; prudence with respect to risk and; obligations, including compliance with statutes and regulations.

An integral part of the overall investment policy is the strategic asset allocation policy. This allocation mix is designed to provide an optimal mix of asset categories with return expectations that reflect expected risk. This emphasizes a maximum diversification of the portfolio that protects the Fund from declines that a particular asset class may experience in a given period. Both traditional assets (cash, bonds, domestic stocks, fixed income and mortgages) and nontraditional assets (real estate, international stock) are included in the mix.

Total portfolio return, over the long term, is directed toward achieving and maintaining a fully funded status for ACERA. Prudent risk taking is warranted within the context of overall portfolio diversification to meet this objective. All activities will be conducted so as to serve the best interests of ACERA's members and beneficiaries.

Summary of Proxy Voting Guidelines and Procedures

In recognition of its duty to manage retirement plan assets in the best interest of the plan participants, the Board has established Proxy voting guidelines and procedures which are intended to assist in the faithful discharge of the Board's duty to vote proxies on behalf of plan participants.

The guidelines consist of preferences with respect to specific, recurring proxy-voting issues followed by a general statement of voting policies. ACERA will at all times strive to cast proxy votes so as to advance the overall good of the plan participants.

Summary of Investment Results

The investment information is presented in conformance with the presentation standards of the Association for Investment Management and Research (AIMR).

Domestic equities posted strong returns for 1998 with the S&P 500 up 28.8% and the broad U.S. equity market up 24.1%. The median equity manager^{*} returned 15.5% for the year. International equities as measured by the MSCI EAFE Index had an equally strong return of 20.3% for the year, while the median international equity manager returned 13.7%. The MSCI South Africa Index was down –27.6% for the year. U.S. Bond returns were positive, with the Lehman Aggregate returning 8.7% and the median fixed income manager 8.4%. Real estate returns were positive with the median real estate manager returning 13.3% for the year.

ACERA's Total Fund return of 16.1% for the year is above 12.8% for the median total fund and above 14.3% for the median public fund. Over longer periods, ACERA's Total Fund has outperformed both the median total fund and median public fund. ACERA's total domestic equities returned 21.9% for the year, above the median equity manager return of 15.5% and below the S&P 500 return of 28.8%. Of ACERA's equity managers, The Bank of New York S&P 500 Index fund performed best with returns of 28.8%, exceeding median equity manager returns. ACERA's domestic equities in aggregate have outperformed the benchmarks over longer periods.

The Morgan Stanley Capital International Europe, Australia, Far East (MSCI EAFE) Index of international equities returned 20.3% for the year and the median international equity manager returned 13.7%. Capital Guardian's return of 15.2% exceeded the median international manager. GAM Institutional returned 16.5%, also surpassing the median manager. New Africa Advisers returned -5%, far better than the –27.6% for the MSCI South Africa Index, but below the median manager.

The ACERA total fixed income portfolio returned 8.3% for the year. All of ACERA's active bond managers beat both the median manager and the Lehman Aggregate. ACERA's passive bond manager, State Street Global Advisors, exceeded the median manager return and matched the Lehman Aggregate. Loomis Sayles was the best performer with a return of 9.4%. ACERA's total fixed income has exceeded the benchmarks over longer periods.

The median real estate manager returned 13.3% and the Wilshire Real Estate Funds Index returned 12.4% for the year. Based on Bank of New York values, ACERA's real estate portion returned 8.8%.

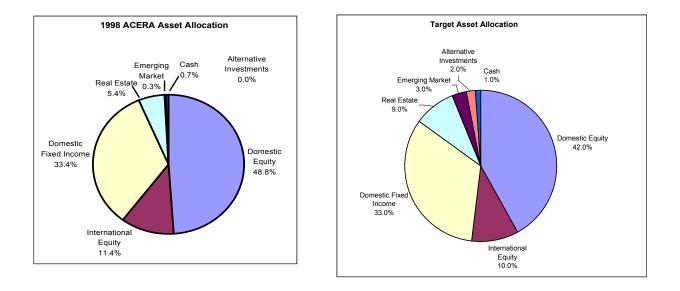
ACERA's fund is overweighed in total equities with 60.5% of assets in equities versus the target of 52% as of December 31, 1998. Domestic equities are overweight at 48.8% of assets versus the target of 42%, while international equities are overweight at 11.4% of assets versus the target of 10%. Cash at 0.7% is below its target of 1% of assets, and Emerging Market at .3% is below its target of 3.0%. Alternative Investments at 0% is also below its target allocation of 2%. Fixed income is at 33.4% of assets, above the target of 33%. Real estate continues to be under its 9% target at 5.4% of assets. Real estate and fixed income commitments will be funded from US equity, eventually bringing the assets closer to targets.

Charles F. Conrad Chief Investment Officer April 30, 1999

^{*} All medians are Wilshire COOP.

Investment

Asset Allocation



The 1998 Actual Asset Allocation is based upon the Investment Summary

List of Investment Professionals As of 12/31/98

Investment Managers

Equity - Domestic

Bank of New York- Index Fund Brandywine Nicholas Applegate

Equity - International

Capital Guardian GAM Institutional

Investment Consultants

Callan Associates Dorn, Helliesen & Cottle, Inc. Watson Wyatt Investment Consultants

Emerging Market

New Africa Advisers

Fixed Income - Domestic

AFL- CIO Investment Housing Trust Loomis Styles Nicholas Applegate State Street Global Advisors

Real Estate

Lend Lease PPF PM Realty Advisors Boston Financial Schroder Real Estate Associates

Investment Summary

	Market Value at 12/31/98	Percentage of Total Market Value
EQUITY		
Domestic		
Brandywine	\$ 156,348,532	4.6%
Nicholas Applegate	134,406,207	3.9%
Bank of New York S&P 400	127,670,513	3.8%
Bank of New York S&P 500	1,242,139,293	36.5%
Total Domestic Equity	1,660,564,545	48.8%
International		
Capital Guardian	201,464,539	5.9%
GAM Institutional	188,684,220	5.5%
Total International Equity	390,148,759	11.4%
Emerging Market		
New Africa Advisers	9,113,187	0.3%
Total Emerging Market Equity	9,113,187	0.3%
TOTAL EQUITY	2,059,826,491	60.5%
FIXED INCOME		
Domestic		
AFL-CIO Housing Investment Trust	67,567,946	2.0%
Loomis Sayles	310,209,519	9.1%
Nicholas Applegate	301,388,696	8.9%
State Street Global Advisors	458,144,811	13.4%
TOTAL DOMESTIC FIXED INCOME	1,137,310,972	33.4%
REAL ESTATE	184,573,547	5.4%
ALTERNATIVE INVESTMENTS	-	0.0%
CASH		
Treasurer's	2,006,549	0.1%
Unallocated	19,382,882	0.6%
TOTAL CASH	21,389,431	0.7%
TOTAL MARKET VALUE	\$3,403,100,441	100.0%

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Investment Results

	Current Year	Annua	lized
	1998	3 Year	5 Year
DOMESTIC EQUITY			
Total Domestic Equities	21.9%	23.3%	21.2%
Median Equity	15.5%	21.7%	20.5%
Benchmark: Russell 3000	24.1%	25.8%	22.3%
INTERNATIONAL EQUITY			
Total International Equities	15.2%	15.6%	13.8%
Median International Equity	13.7%	14.3%	11.3%
Benchmark: MSCI EAFE Index	20.3%	9.3%	9.5%
EMERGING MARKET EQUITY			
Total Emerging Market Equities	(5.0%)	(3.1%)	-
Median International Equity	13.7%	14.3%	11.3%
Benchmark: MSCI S. Africa Index	(27.6%)	(18.3%)	-
FIXED INCOME			
Total Fixed Income	8.3%	7.5%	7.4%
Median Fixed Income	8.4%	7.3%	7.2%
Benchmark: Lehman Aggregate	8.7%	7.3%	7.3%
REAL ESTATE			
Total Real Estate	8.8%	3.6%	1.3%
Median Real Estate	13.3%	11.9%	10.4%
Benchmark: Wilshire R.E. Funds Index	12.4%	12.0%	8.2%
TOTAL FUND			
Alameda Total Fund	16.1%	16.2%	14.6%
Median Total Fund	12.8%	15.0%	13.6%
Benchmark: Median Public Fund	14.3%	15.4%	13.5%

Note: Returns for periods greater than 1 year are annualized.

Results of all publicly traded investments are presented in conformance with Association for Investment Management and Research (AIMR) performance presentation standards.

Largest Stock Holdings (By Market Value)

As of December 31, 1998

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	Shares	Stock	MarketValue
1	22,100	ABOVENET COMMUNICATIONS INC.	\$2,892,338
2	16,000	VERISIGN INC.	2,464,000
3	40,800	METROMEDIA FIBER NETWORK INC.	2,113,950
4	47,100	DYCOM INDUSTRIES	2,048,850
5	16,100	REALNETWORKS INC.	1,967,219
6	33,400	NETWORK APPLIANCE INC.	1,690,875
7	26,400	TIMBERLAND COMPANY CL A	1,664,850
8	15,300	CNET INC.	1,409,513
9	23,600	MEDIMMUNE INC.	1,395,825
10	25,900	EMMIS COMMUNICATIONS CORP CL A	1,295,000
Total I	Largest Stock H	oldings	\$18,942,420

Largest Bond Holdings (By Market Value)

As of December 31, 1998

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	Par	Bonds	Percentage	Due Date	Market Value
1	13,050,000	U S TREASURY BONDS	8.50%	2/15/2020	\$18,094,608
2	13,000,000	U S TREASURY NOTES	5.50%	1/31/2003	13,383,890
3	9,900,000	U S TREASURY BONDS	6.00%	2/15/2026	10,798,722
4	10,100,000	GNMA POOL #468172	6.50%	8/15/2028	10,106,234
5	7,000,000	U S TREASURY BONDS	7.25%	5/15/2016	8,479,870
6	7,800,000	MERRILL LYNCH MTG	6.96%	11/21/2028	8,290,542
7	14,850,000	GNMA POOL #002285	8.00%	9/20/2026	7,935,436
8	8,000,000	MASSACHUSETS ST TPK AUTH	5.00%	1/1/2037	7,919,336
9	7,100,000	MORGAN STANLEY GROUP INC.	7.50%	2/1/2024	7,693,560
10	6,000,000	SAFECO CAP SER B	8.07%	7/15/2037	6,685,620
Total	Largest Bond Ho	oldings			\$99,387,818

Note: The above schedules do not reflect holdings in passive index funds. A complete list of portfolio holdings is available upon request.

Schedule of Management Fees and Commissions

	Assets une	Assets under Management		ees
	1998	1997	1998	1997
Investment Managers' Fees				
FIXED INCOME MANAGERS	\$1,053,909,015	\$ 776,911,504	\$ 1,068,266	\$ 823,918
EQUITY MANAGERS	2,168,738,933	2,052,615,796	6,345,000	6,709,568
REAL ESTATE MANAGERS	166,927,097	144,100,530	1,344,490	1,628,383
TOTAL INVESTMENT MANAGER FEES	\$3,389,575,045	\$2,973,627,830	\$ 8,757,756	\$ 9,161,869
Other Investment Service Fees				
CUSTODIAN FEES	-	-	\$ 205,174	\$ 217,374
SECURITY LENDING FEES	-	-	10,226,420	10,425,786
INVESTMENT CONSULTANT FEES	-	-	245,269	283,559
TOTAL INVESTMENT SERVICE FEES	-	-	\$10,676,863	\$10,926,719

Brokerage Firm	Numbers of Shares Traded	Total Commissions	Commissions per Share
Adams Harkness & Hill Inc.	30,000	780	0.026
Advest Inc.	16,500	990	0.06
Alex Brown	1,173,625	9,389	0.008
Alpha Management	8,200	492	0.06
Alpha Securities	107,098	6,533	0.061
Asiel & Co.	11,900	238	0.02
Autranet Services	116,955	5,146	0.044
Bear Stearns	1,020,850	40,834	0.04
Blair (William) & Co.	80,389	2,171	0.027
Boston Institutional	5,900	354	0.06
Bridge Trading Co.	160,990	7,728	0.048
Broadcort Capital	303,585	17,001	0.056
Brown Brothers, Harriman & C	o. 5,200	416	0.08
Buckingham Research	58,213	2,736	0.047
C L Global Partners Securities	4,675	281	0.06
Cantor Fitzgerald	1,367,547	87,523	0.064
Capital Institutional Services	607,862	36,472	0.06
Capital Institutional Services	70,845	5,030	0.071
Charles Schwab & Co.	557,105	21,170	0.038
Chicago Corporation	8,100	162	0.02
Citation Group/BCC Clearing	335,502	20,130	0.06
Cleary Gull & Reiland	59,408	2,258	0.038
Cowen & Co.	332,943	11,653	0.035
Credit Lyonnais Secs USA Inc	. 1,354,819	48,774	0.036
Deutsche Bank Capital Corp.	491,265	16,703	0.034

Schedule of Management Fees and Commissions (continued)

Brokerage Firm	Numbers of Shares Traded	Total Commissions	Commissions per Share
Dillon Read & Co.	41,233	1,856	0.045
Donaldson Lufkin & Jenrette	26,000	1,014	0.039
Execution Services	2,676,861	144,551	0.054
Factset Data Systems Inc.	10,100	606	0.06
First Albany Corp.	51,170	2,559	0.05
First Boston	12,200	732	0.06
Fox-Pitt Kelton Inc.	95,472	5,156	0.054
Furman Selz	21,255	1,127	0.053
Furman Selz / Mager Dietz Birn	iey 323,400	16,170	0.05
Gardner Rech & Company	9,000	540	0.06
Glazer C.L. & Co.	42,600	2,556	0.06
Goldman Sachs	1,832,853	31,159	0.017
Hanifen Imhoff	15,900	954	0.06
Helfant, Lawrence, Inc.	2,600	156	0.06
Instinet	7,420,842	281,992	0.038
Institutional Brokerage Services		600	0.06
Interstate/Johnson Lane	222,300	15,561	0.07
Investment Technology Group	1,774,727	58,566	0.033
ISI Group Inc.	19,700	1,182	0.06
J P Morgan Securities Inc.	44,316	1,684	0.038
Janney Montgomery Scott	673,371	39,056	0.058
Jefferies & Co.	1,526,010	42,728	0.028
Johnson Lane	7,650	459	0.06
Jones & Associates	758,632	43,242	0.057
Jones & Co.	7,169	466	0.065
Keefe Bruyette & Woods	1,750	105	0.06
Keefe Bruyette & Woods Inc.	227,760	11,844	0.052
Legg, Mason, Wood, Walker In	c. 44,478	2,046	0.046
Lehman Brothers Inc.	449,291	19,320	0.043
Lewco Secs/Agent Wertheim S		31,737	0.047
Lewco Secs/Hambrecht & Quis		8,658	0.023
Lewco Securities Inc.	114,382	6,291	0.055
Lynch Jones & Ryan	563,303	39,995	0.071
McDonald & Co.	48,511	2,135	0.044
Merrill Lynch	2,976,457	133,941	0.045
Montgomery Securities	75,833	1,365	0.018
Morgan J.P. Equities Inc.	53,050	3,183	0.06
Morgan J.P. Securities Inc.	508,917	24,428	0.048
Morgan Keegan	75,200	2,256	0.03

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Schedule of Management Fees and Commissions (continued)

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Brokerage Firm	Numbers of Shares Traded	Total Commissions	Commissions per Share
Morgan Stanley & Co.	5,813,981	156,978	0.027
Nationsbanc Capital Markets Ind	c. 732,907	19,789	0.027
Needham & Co.	20,800	624	0.03
Oppenheimer & Co.	625,203	23,133	0.037
Paine Webber	2,946,206	64,817	0.022
Pershing & Co.	1,524,714	42,692	0.028
Piper Jaffray & Hopwood	510,000	3,060	0.006
Prudential Bache	864,048	41,474	0.048
Prudential Bache Securities Inc.	29,300	1,758	0.06
Rauscher Pierce	153,000	459	0.003
Raymond James & Associates	178,081	5,521	0.031
Robert Baird & Co.	43,000	1,935	0.045
Robertson Stephens & Co.	685,700	6,857	0.01
Robinson Humphrey	166,214	6,981	0.042
Rowe & Pitman	4,900	294	0.06
S G Warburg,Rowe Pitman	182,343	7,294	0.04
Sanford C Bernstein & Co.	637,239	32,499	0.051
Smith Barney, Harris Upham	1,566,578	50,131	0.032
Soundview Financial Group	503,729	12,090	0.024
Spear Leeds & Kellogg	1,750	105	0.06
Standard & Poors	51,932	3,064	0.059
Sutro & Co.	21,850	1,311	0.06
Tucker Anthony	90,076	5,315	0.059
UBS Securities Inc.	131,250	6,825	0.052
Warburg	5,000	300	0.06
Wheat First Securities Inc.	225,000	1,800	0.008
TOTAL	49,819,916	\$1,824,033	0.037

NOTE: This sheet is printed with William Mercer's letterhead in background

April 7, 1999

Board of Retirement Alameda County Employees' Retirement Association 475 14th Street, Suite 1000 Oakland, California 94612

Dear Members of the Board:

We are pleased to present the actuarial valuation report for the Alameda County Employees' Retirement Association prepared as of December 31, 1998 by William M. Mercer, Incorporated. The report includes:

(1) a determination of the recommended employer contribution rates. These rates are calculated to be effective July 1, 1999;

- (2) a determination of the recommended member contribution rates, also to be effective on July 1, 1999;
- (3) a determination of the funded status as of December 31, 1998; and
- (4) financial reporting and disclosure information pursuant to applicable accounting standards.

This report conforms to the requirements of the governing state and local statutes, accounting rules, and generally accepted actuarial principles and practices.

This report reflects the estimated impact on funding status and contribution rates of the Retirement Board's expansion of the pay items includable in Earnable Compensation in response to the 1997 California Supreme Court decision in the Ventura County Deputy Sheriff's Association vs. Board of Retirement, Ventura County Employees' Retirement Association.

The estimated impact is based entirely on the impact observed for members who have retired since October 1, 1997. The expansion of pay items includes terminal pay and retroactive application to October 1, 1994 for all retirees.

The Retirement Association is still collecting data required to calculate increases in benefits for retirees who retired before October 1, 1997. We have estimated the impact of the proposed *Ventura* litigation settlement on pre-October 1, 1997 retirees based on increases observed for post-October 1, 1997 retirees.

We look forward to presenting this report to the Actuarial Committee and the Board in their April Meetings.

Sincerely,

Drew James, FSA, EA, MAAA

Andy Yeung, ASA, EA

William Mercer's letterhead in background

Actuary's Certification Letter

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The actuarial valuation required for the Alameda County Employees' Retirement Association has been prepared as of December 31, 1998 by William M. Mercer, Incorporated. In preparing this valuation, we have employed generally accepted actuarial methods and assumptions to determine a sound value for the Association's assets, liability and future contribution requirements. Our calculations are based upon member data provided to us by the Association's staff and financial information provided by the unaudited report. This data has not been audited, but it has been reviewed and found to be consistent, both internally and with prior year's data.

The contribution requirements are determined as a percentage of payroll. Employer rates provide for both normal cost and either a contribution to amortize the unfunded actuarial accrued liability or a credit when actuarial assets exceed the actuarial accrued liability. The amortization period is generally 20 years as of December 31, 1998; however, the amortization of the 1993 Golden Handshake liability is 5 ½ years and the excess interest return on the Pension Obligation Bonds is 10 years. The unfunded actuarial accrued liability contribution credit is calculated to remain level as a percentage of future payroll (including projected payroll for future members). Payments will increase at the assumed rate of inflation, which is 4.50% per year. The amortization periods are set by the Board of Retirement.

Contribution levels are recommended by the Actuary and adopted by the Board each year. The ratio of Actuarial Value of Assets to Actuarial Accrued Liabilities increased from 104.3% to 108.3% during the year.

There were two changes to the asset valuation method. First, beginning with 1998, smoothing is done using six month time periods to correspond with ACERA's interest accounting process. Second, the Board has accelerated the recognition of about \$259 million in deferred actuarial gains to offset the increase in actuarial accrued liability resulting from the proposed settlement of the *Ventura* litigation.

The Board has adopted new non-economic assumptions and raised the investment return assumption from 8.00% to 8.25%.

In our opinion, the combined operation of the assumptions and methods applied in this valuation, fairly represent past and anticipated future experience of the Association and meet the parameters required by GASB Statement 25.

A list of the supporting schedules we prepared for inclusion in the Actuarial and Financial Sections of the Association's CAFR report is provided below:

- 1. Schedule of Active Member Valuation Data
- 2. Retirees and Beneficiaries Added to and Removed From Retiree Payroll
- 3. Solvency Test
- 4. Actuarial Analysis of Financial Experience
- 5. Schedule of Average Benefit Payments for Retirees and Beneficiaries
- 6. Schedule of Funding Progress

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.

This report reflects the estimated impact on funding status and contribution rates of the Retirement Board's expansion of the pay items includable in Earnable Compensation in response to the 1997 California Supreme Court decision in the *Ventura County Deputy Sheriff's Association vs. Board of Retirement, Ventura County Employees' Retirement Association.* The estimated impact is based entirely on the impact observed for members who have retired since October 1, 1997. The expansion of pay items includes terminal pay and retroactive application to October 1, 1994 for all retirees.

William M. Mercer, Incorporated

Drew James, FSA, EA, MAAA

Andy Yeung, ASA, EA

April 7, 1999

Summary of Assumptions and Funding Method

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The following interest rate and inflation rate assumptions have been adopted by the Board as of December 31, 1998.

Assumptions

Valuation Interest Rate	8.25%
Inflation Assumption	4.50%
Cost of Living Adjustment:	3% for Tier 1 members; 2% for Tier 2 members
Interest Rate Credited to Active Member Accounts	8.25%

The following post-retirement and pre-retirement demographic experiences and salary increase assumptions are based on the plan's actuarial experience through December 31, 1998.

They were adopted by the Retirement Board and effective as of January 1, 1999.

Post-Retirement Mortality

(a) Service

	General Member	
	Males	1994 Group Annuity Mortality Table with one year setback (Male)
	Females	1994 Group Annuity Mortality Table with one year setback (Female)
	Safety Members	1994 Group Annuity Mortality Table with one year setback (Male)
	Beneficiaries	1994 Group Annuity Mortality Table with one year setback (Female)
(b)	Disability	
	General	1981 General Disability Mortality Table with two year setback
	Safety	1981 Safety Disability Mortality Table with no setback
(c)	For Employee Contribution Rate Purpo	ses
	General	1994 Group Annuity Mortality Table with a 4 year setback (Male)
	Safety	1994 Group Annuity Mortality Table with a 1 year setback (Male)
Pr	e-Retirement Mortality	Based upon the Experience Analysis as of 12/31/98
Wi	thdrawal Rates	Based upon the Experience Analysis as of 12/31/98
Di	sability Rates	Based upon the Experience Analysis as of 12/31/98

Actuarial

Service Retirement Rates	Based upon the Experience Analysis as of 12/31/98		
Salary Scales	Total increases of 5.60% per year reflecting approximately 4.50% inflation and approximately 1.10% for merit and longevity		
Percent of Active and Inactive Members Married			
Males	80%		
Females 55%			
Panaficiany Aga Difference			

Beneficiary Age Difference

Males	3 years older
Females	3 years younger

Value of Assets for Contribution Rate Purpos

Contribution Rate Purposes Actuarial Value as described in Section II(ii)

Funding Method and Amortization of Actuarial Gains or Losses

The County'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 20 years from the valuation date. The 1993 Golden Handshake liabilities are being amortized over a 10-year period beginning in 1994. There are 5½ years remaining in the amortization schedule as of the date of the Valuation. Excess interest earned on the Pension Obligation Bonds are amortized over 10 years.

Schedule of Active Member Valuation Data

(Note for Laura) See Attachment A, Actuarial Excel Spreadsheet on Share Drive. Include only 6 years

Valuation				Annual	% Increase in	
Date	Plan Type	Number	Annual Payroll (\$)	Average Pay (\$)	Average Pay *	
1/1/90	General	7,642	242,368,125	31,715	2.47%	
	Safety	1,333	50,475,045	37,866	6.57%	
	Total	8,975	292,843,170	32,629	3.59%	
1/1/91	General	7,689	264,710,135	34,427	8.55%	
	Safety	1,298	54,927,313	42,317	11.75%	
	Total	8,987	319,637,448	35,567	9.00%	
1/1/92	General	7,766	285,172,127	36,721	6.66%	
	Safety	1,203	56,369,693	46,858	10.73%	
	Total	8,969	341,541,820	38,080	7.07%	
1/1/93	General	7,916	309,059,921	39,042	6.32%	
	Safety	1,172	58,467,579	49,887	6.46%	
	Total	9,088	367,527,500	40,441	6.20%	
1/1/94	General	7,738	301,833,734	39,007	(0.09%	
	Safety	1,120	55,540,749	49,590	(0.60%	
	Total	8,858	357,374,483	40,345	(0.24%	
1/1/95	General	7,933	310,459,574	39,135	0.33%	
	Safety	1,128	55,445,811	49,154	(0.88%	
	Total	9,061	365,905,385	40,382	0.09%	
1/1/96	General	7,861	314,376,236	39,992	2.19%	
	Safety	1,196	59,227,940	49,522	0.75%	
	Total	9,057	373,604,176	41,250	2.15%	
1/1/97	General	7,859	326,703,539	41,571	3.95%	
	Safety	1,195	62,992,218	52,713	6.44%	
	Total	9,054	389,695,757	43,041	4.34%	
1/1/98	General	7,969	344,339,885	43,210	3.94%	
	Safety	1,278	68,705,274	53,760	1.99%	
	Total	9,247	413,045,159	44,668	3.78%	
1/1/99	General	8,173	387,930,299	47,465	9.85%	
	Safety	1,326	74,534,770	\$ 56,210	4.56%	
	Total	9,499	462,465,069	\$ 48,686	8.99%	

* Reflects the increase in average salary for members at the beginning of the year versus those at the end of the year, it does not reflect the average salary increases received by members who worked the full year.

Schedule of Retirees and Beneficiaries Added to and Removed From Payroll

Plan Year	At Beginning of Year	Added During Year	Removed During Year	At End of Year	Annual Retiree Payroll (in Thousands) (\$)		Average Annual Allowance (\$)
1993	4,642	355	121	4,876	63,511	16.64%	\$13,025
1994	4,876	241	191	4,926	66,392	4.54%	\$13,478
1995	4,926	284	190	5,020	71,426	7.58%	\$14,228
1996	5,020	248	157	5,111	75,966	6.36%	\$14,863
1997	5,111	220	129	5,202	81,868	7.77%	\$15,738
1998	5,202	244	66	5,380	89,724	6.91%	\$16,269

Solvency Test

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(Amounts in Thousands)

(Note for Laura) See Attachment C, Actuarial Excel Spreadsheet on Share Drive

	Aggre	gate Accrued Liabilitie	sfor		Portion of Accrued Liabilities Covered by Reported Assets						
Valuation Date	Active Member Contributions (\$)	Retired/Vested Members (\$)	Active Members (Employer Financed Portion) (\$)	Total (\$)	Actuarial Value of Assets (\$)	Active Member Contributions	Retired/Vested Members	Active Members (Employer Financed Portion)			
12/31/1993	364,006	775,997	489,500	1,629,503	1,076,096	100%	92%	0%			
12/31/1994	406,588	817,536	490,904	1,715,028	1,443,470	100%	100%	45%			
12/31/1995	448,792	890,098	612,162	1,951,052	1,684,299	100%	100%	56%			
12/31/1996	452,253	944,777	606,546	2,003,576	2,113,009	100%	100%	100%			
12/31/1997	510,381	1,041,268	666,670	2,218,319	2,313,787	100%	100%	100%			
12/31/1998	537,895	1,316,570	758,546	2,613,011	2,830,437	100%	100%	100%			

NOTES:

This exhibit includes actuarially funded liabilities and assets. The Supplemental Retirees Benefit Reserve and Reserve for Interest Fluctuation are not included.

Events affecting year to year comparability:

12/31/92 - Investment return assumption reduced from 8.50% to 8.25%; Inflation assumption dropped from 5.5% to 5%; changes to noneconomic assumptions.

12/31/93 - Investment return assumption reduced from 8.25% to 8%; Inflation assumption dropped from 5% to 4.75%; Golden handshake offered in 1993.

12/31/94 - Includes \$307,923 million Pension Obligation Bond contribution made on 4/29/95.

12/31/95 - Inflation assumption dropped from 4.75% to 4.5%; changes to noneconomic assumptions; change in actuarial asset valuation methodology.

Actuarial Analysis of Financial Experience

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(Amounts in Millions)

(Note for Laura) See Attachment D, Actuarial Excel Spreadsheet on Share Drive

	1998	1997	1996	1995
Prior Valuation Unfunded Actuarial Accrued Liability	\$ (95)	\$ (45) \$	267	\$ 272
Expected Increase from Prior Valuation		(1)	(261) *	\$ 25
Salary Increase Greater (Less) than Expected	36	(8)	(3)	(23)
Asset Return Less (Greater) than Expected	(110)	(61)	(28)	(27)
Other Experience	6	10	(14)	37
Ventura Litigation	259			
Actuarial Value of Assets Method Change	(259)	-		(112)
Economic Assumption Changes	(54) **	-		(17)
Noneconomic Assumption Changes	- **	-		89
Data Corrections	-	10	(6)	23
Ending Unfunded Actuarial Accrued Liability	\$ (217)	\$ (95) \$	(45)	\$ 267

* Included a Pension Obligation Bond Credit of \$(283) million.

** \$30 million is the combined impact of changes in economic and non-economic assumptions in 1998.

Schedule of Average Benefit Payment Amounts

	Number of Years Since Retirement								
	0-4	5-9	10-14	15-19	20-24	25-29	30 & OVER		
Period 1/1/93-12/31/93:									
Average Monthly Benefit	\$1,804	\$1,420	\$956	\$768	\$584	\$432	\$379		
Number of Active Retirants	837	1,108	1,034	967	556	236	138		
Period 1/1/94-12/31/94:									
Average Monthly Benefit	\$1,793	\$1,463	\$1,065	\$823	\$623	\$473	\$196		
Number of Active Retirants	898	1,052	965	1,039	600	245	127		
Period 1/1/95-12/31/95:									
Average Monthly Benefit	\$1,758	\$1,494	\$1,111	\$878	\$716	\$550	\$425		
Number of Active Retirants	1,110	1,132	928	979	553	210	100		
Period 1/1/96-12/31/96:									
Average Monthly Benefit	\$1,670	\$1,564	\$1,181	\$954	\$758	\$616	\$428		
Number of Active Retirants	1,110	1,126	912	959	612	245	110		
Period 1/1/97-12/31/97:									
Average Monthly Benefit	\$1,956	\$1,739	\$1,303	\$972	\$778	\$600	\$431		
Number of Active Retirants	1,100	999	845	1,021	728	331	178		
Period 1/1/98-12/31/98:									
Average Monthly Benefit	\$1,918	\$1,978	\$1,373	\$1,052	\$815	\$684	\$451		
Number of Active Retirants	1,047	1,173	817	995	790	363	195		

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Summary of Plan Provisions

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Benefit Sections 31676.1, 31676.12 and 31664 of the 1937 Act

Briefly summarized below are the major provisions of the 1937 Act as amended through December 31, 1998, and as adopted by Alameda County.

Membership

Employees hired after June 30, 1983 become members under Tier 2. All other members are covered by Tier 1 provisions.

Final Average Salary

Final average salary (FAS) is defined as the highest 12 consecutive months of compensation earnable for Tier 1 and highest 36 consecutive months for Tier 2.

Return of Contributions

If a member should resign or die before becoming eligible for retirement, his or her contributions plus interest will be refunded. In lieu of receiving a return of contributions, a member with five or more years of service may elect to leave his or her contributions on deposit and receive a deferred vested benefit when eligible for retirement.

Service Retirement Benefit

Members with 10 years of service who have attained the age of 50 are eligible to retire. Members with 30 years of service (20 years for Safety), regardless of age, are eligible to retire.

The benefit is a percentage of monthly FAS per year of service, depending on age at retirement and is illustrated below for typical ages. For members integrated with Social Security, the benefit is reduced by 1/3 of the percentage shown below times the first \$350 of monthly FAS per year of service credited after January 1, 1956.

PERCENTAGE OF FINAL AVERAGE SALARY GENERAL

Age	Tier 1	Tier 2	Safety
50	1.34%	1.18%	2.00%
55	1.77%	1.49%	2.62%
60	2.34%	1.92%	2.62%
62	2.62%	2.09%	2.62%
65 and over	2.62%	2.43%	2.62%

Disability Benefit

Members with 5 years of service, regardless of age, are eligible for nonservice connected disability. The benefit is 1.8% (1.5% for Tier 2 General members) of FAS for each year of service. If this benefit does not equal 1/3 of FAS, the benefit is increased by the above percentage of FAS for the years which would have been credited to age 62 for Tier 1 General members, age 65 for Tier 2 General members and age 55 for Safety members. The total benefit in this case cannot exceed 1/3 of FAS.

If the disability is service connected, the member may retire regardless of length of service, with a benefit of 50% of FAS.

Death Benefit (Before Retirement)

In addition to the return of contributions, a lump sum death benefit is payable to the member's beneficiary or estate equal to one month's salary for each completed year of service under the Retirement System, based on the final year's average salary, but not to exceed six months' salary.

If a member dies while eligible for service retirement or non-service connected disability, the spouse receives 60% of the allowance that the member would have received for retirement on the day of his or her death.

If a member dies in the performance of duty, the spouse receives 50% of the member's FAS.

Death Benefit (After Retirement)

If a member dies after retirement, a lump sum amount of \$1,000* is paid to the beneficiary or estate.*

If the retirement was for service connected disability, 100% of the member's allowance as it was at death is continued to the surviving spouse for life.

If the retirement was for other than service connected disability, 60% of the member's allowance is continued to the spouse for life.

Maximum Benefit

The maximum basic benefit payable to a member or beneficiary is 100% of FAS.

Cost of Living

The maximum increase in retirement allowance is 3% per year for Tier 1 and 2% for Tier 2 members. The maximums are based on the change in the Consumer Price Index for the calendar year prior to the April 1 effective date.

Contribution Rates

Member basic rates are based on a formula reflecting the age at entry into the System. The rates are such as to provide, for each year of service, an average annuity at age 60 of 1/100 of FAS for General members under Tier 1, at age 60 of 1/120 of FAS for General members under Tier 2, and at age 50 of 1/100 of FAS for Safety members. Member cost of living rates are actuarially determined to pay for one-half of future cost of living liabilities.

For members integrated with Social Security, the above contributions are reduced by one-third of that portion of such contribution payable with respect to the first \$350 of monthly salary. Member contributions are refundable upon termination from the System.

The County rates are actuarially determined to provide for the balance of the contributions needed to fund the benefits promised under the Retirement System.

^{*} Increased to \$5,000 as of August, 1998.

Probabilities of Separation Prior to Retirement

GENERAL TIER 1 MALE MEMBERS

20 07283 06700 03000 03000 00000 00000 00010 00057 00010 00000 21 07283 06700 03000 03000 00000 00010 000657 00010 00000 22 07283 06700 03000 03000 00000 00010 00066 00010 00067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000067 00010 000075 00010 000075 00010 000072 00010 000078 00010 000072 00010 000084 00010 000084 00010 000084 00010 000084 00010 000090 00010 000084 00010 000090 00010 000090 00010 000090 00010 000090 00010	Age		Withc	lrawal		Terminated	Ordinary	Duty	Ordinary	Duty	Service
21 .07283 .06700 .03000 .00000 .00000 .00010 .00067 .00010 .00000 22 .07283 .06700 .03000 .03000 .00000 .00010 .00063 .00010 .00006 23 .07283 .06700 .03000 .03000 .00000 .00010 .00067 .00110 .00007 24 .07283 .06700 .03000 .03000 .00020 .00010 .00075 .00110 .00007 26 .07283 .06700 .03000 .03000 .00220 .00010 .00018 .00010 .000078 .00010 .000078 .00010 .00008 .00010 .00008 .00010 .00008 .00010 .00008 .00010 .00008 .00010 .00008 .00010 .00008 .00010 .00008 .00010 .00008 .00010 .00000 .00010 .00001 .00001 .00001 .00001 .00001 .00001 .000010 .00001 .000010		<u>0<x<3< u=""></x<3<></u>	<u>3<=X<4</u>	<u>4<=X<5</u>	<u>5<=X</u>	<u>Vested</u>	<u>Disability</u>	<u>Disability</u>	<u>Death</u>	<u>Death</u>	Retirement
22 .07283 .06700 .03000 .03000 .00000 .00010 .00063 .00010 .00000 24 .07283 .06700 .03000 .03000 .00000 .00010 .00067 .00010 .00007 25 .07283 .06700 .03000 .03000 .00100 .00020 .00010 .00071 .00010 .00007 26 .07283 .06700 .03000 .03000 .00270 .00020 .00010 .00078 .00010 .00007 27 .07283 .06700 .03000 .03000 .00300 .00300 .00450 .00010 .00086 .00010 .00007 29 .07283 .06700 .03000 .03000 .00544 .00030 .00010 .00000 .00010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010 .000010	20	.07283	.06700	.03000	.03000	.00000	.00000	.00010	.00055	.00010	.00000
23 07283 .06700 .03000 .03000 .00000 .00010 .00063 .00010 .00000 24 .07283 .06700 .03000 .03000 .00000 .00010 .00017 .00010 .00000 25 .07283 .06700 .03000 .03000 .00020 .00010 .00075 .00010 .00007 26 .07283 .06700 .03000 .03000 .00020 .00010 .00081 .00010 .00000 28 .07283 .06700 .03000 .03000 .004450 .00020 .00010 .00086 .00010 .00008 .00010 .00000 30 .07283 .06700 .03000 .03000 .00633 .00010 .00008 .00010 .00000 .00010 .00008 .00010 .00000 .00010 .000010 .00010 .00010 .00010 .00010 .00010 .00010 .00010 .00010 .00010 .00010 .000010 .00010 .00001	21	.07283	.06700	.03000	.03000	.00000	.00000	.00010	.00057	.00010	.00000
24 .07283 .06700 .03000 .03000 .00000 .00010 .00077 .00010 .00001 25 .07283 .06700 .03000 .03000 .00100 .00010 .00017 .00010 .000075 .00010 .000075 .00010 .000075 .00010 .000075 .00010 .000075 .00010 .00000 .00000 .00010 .000081 .00010 .00000 .00000 .00010 .000081 .00010 .00000 .00000 .00000 .000010 .000081 .00010 .000081 .00010 .000081 .00010 .000081 .00010 .000081 .00010 .000081 .00010 .00000 .00010 .000081 .00010 .00000 .00010 .0000010 .000010 .000010	22	.07283	.06700	.03000	.03000	.00000	.00000	.00010	.00060	.00010	.00000
25 .07283 .06700 .03000 .00100 .00010 .00071 .00010 .00000 26 .07283 .06700 .03000 .03000 .00270 .00020 .00010 .00075 .00010 .00000 27 .07283 .06700 .03000 .03000 .00270 .00020 .00010 .00084 .00010 .00000 29 .07283 .06700 .03000 .00450 .00020 .00010 .00084 .00010 .00000 30 .07283 .06700 .03000 .00454 .00030 .00010 .00088 .00010 .00000 31 .07283 .06700 .03000 .00633 .00030 .00010 .00091 .00010 .00000 33 .07283 .06700 .03000 .03000 .00643 .00010 .00091 .00010 .00000 34 .07283 .06700 .03000 .00847 .00440 .00010 .00006 .0010 .00	23	.07283	.06700	.03000	.03000	.00000	.00000	.00010	.00063	.00010	.00000
26 .07283 .06700 .03000 .00180 .00010 .00075 .00010 .00007 27 .07283 .06700 .03000 .03000 .00270 .00010 .00018 .00010 .00000 28 .07283 .06700 .03000 .03000 .00360 .00020 .00010 .00084 .00010 .00008 29 .07283 .06700 .03000 .03000 .00444 .00020 .00010 .00088 .00010 .00088 .00010 .00088 .00010 .00098 .00010 .00008 .00010 .00008 .00010 .00000 .00010 .00000 .00010 .00000 .00010 .000000 .00010 .000000 .000101	24	.07283	.06700	.03000	.03000	.00000	.00000	.00010	.00067	.00010	.00000
27 .07283 .06700 .03000 .00270 .00010 .00010 .00010 28 .07283 .06700 .03000 .00360 .00020 .00010 .00084 .00010 .00006 30 .07283 .06700 .03000 .00450 .00020 .00010 .00084 .00010 .000084 .00010 .000084 .00010 .000084 .00010 .000084 .00010 .00000 .00000 .00010 .000084 .00010 .00000 .00000 .00010 .00000 .000010 .000010 .000010 .00000 .00010 .000000 .000110	25	.07283	.06700	.03000	.03000	.00100	.00020	.00010	.00071	.00010	.00000
28 .07283 .06700 .03000 .03000 .00020 .00010 .00081 .00010 .00000 29 .07283 .06700 .03000 .03000 .00020 .00010 .00084 .00010 .00000 31 .07283 .06700 .03000 .03000 .00644 .00020 .00010 .00088 .00010 .00000 32 .07283 .06700 .03000 .03000 .00658 .00030 .00010 .00091 .00010 .00000 34 .07283 .06700 .03000 .03000 .00683 .00040 .00010 .00091 .00010 .00002 36 .07283 .06700 .03000 .03000 .00870 .00040 .00010 .00093 .00010 .00000 37 .07283 .06700 .03000 .01878 .00900 .00050 .00020 .00096 .00010 .00000 38 .07283 .06700 .03000 .0157 .00	26	.07283	.06700	.03000	.03000	.00180	.00020	.00010	.00075	.00010	.00000
29 .07283 .06700 .03000 .00450 .00020 .00010 .00084 .00010 .00006 30 .07283 .06700 .03000 .03000 .00464 .00020 .00010 .00086 .00010 .00006 31 .07283 .06700 .03000 .03000 .00633 .00030 .00010 .00098 .00010 .00090 32 .07283 .06700 .03000 .03000 .00633 .00010 .00091 .00010 .00001 34 .07283 .06700 .03000 .03000 .00844 .00040 .00010 .00091 .00010 .00002 35 .07283 .06700 .03000 .01878 .00900 .00050 .00010 .000010 .000010 .000010 .00000 .00101 .00010 .00000 .00115 .00009 .00010 .00010 .00000 .00115 .00009 .00010 .00010 .00000 .00115 .00009 .00000 .0011	27	.07283	.06700	.03000	.03000	.00270	.00020	.00010	.00078	.00010	.00000
30 .07283 .06700 .03000 .03000 .00464 .00020 .00010 .00086 .00010 .00000 31 .07283 .06700 .03000 .03000 .00330 .00010 .00008 .00010 .00000 33 .07283 .06700 .03000 .03000 .00633 .00030 .00010 .00091 .00010 .00001 34 .07283 .06700 .03000 .03000 .00683 .00040 .00010 .00092 .00010 .00001 35 .07283 .06700 .03000 .03000 .00840 .00040 .00010 .00092 .00010 .00002 36 .07283 .06700 .03000 .01754 .00900 .00050 .00030 .00101 .00009 .00000 39 .07283 .06700 .03000 .01754 .00900 .00060 .00135 .00009 .00000 41 .07283 .06700 .03000 .01679 .0	28	.07283	.06700	.03000	.03000	.00360	.00020	.00010	.00081	.00010	.00000
31 .07283 .06700 .03000 .03000 .00548 .00010 .00088 .00010 .00000 32 .07283 .06700 .03000 .03000 .00658 .00030 .00010 .00000 34 .07283 .06700 .03000 .03000 .00658 .00030 .00010 .00091 .00010 .00002 35 .07283 .06700 .03000 .03000 .00870 .00040 .00010 .00093 .00010 .00003 36 .07283 .06700 .03000 .03000 .00870 .00040 .00010 .00093 .00010 .00003 38 .07283 .06700 .03000 .01878 .00900 .00050 .00030 .00101 .00000 40 .07283 .06700 .03000 .01754 .00907 .00040 .00115 .00009 .00000 41 .07283 .06700 .03000 .01757 .00030 .00147 .00099 .0	29	.07283	.06700	.03000	.03000	.00450	.00020	.00010	.00084	.00010	.00000
32 .07283 .06700 .03000 .00633 .00030 .00010 .00090 .00010 33 .07283 .06700 .03000 .03000 .00683 .00040 .00010 .00091 .00010 .00000 34 .07283 .06700 .03000 .03000 .00840 .00040 .00010 .00092 .00010 .00000 36 .07283 .06700 .03000 .03000 .00840 .00040 .00010 .00092 .00010 .00000 36 .07283 .06700 .03000 .01878 .00900 .00050 .00030 .00110 .00000 38 .07283 .06700 .03000 .0157 .00900 .00060 .00030 .00115 .00009 .00000 41 .07283 .06700 .03000 .0157 .00811 .00090 .00050 .00135 .00009 .00000 42 .07283 .06700 .03000 .00473 .00722 .001	30	.07283	.06700	.03000	.03000	.00464	.00020	.00010	.00086	.00010	.00000
33 .07283 .06700 .03000 .00658 .00030 .00010 .00091 .00010 .00001 34 .07283 .06700 .03000 .03000 .00840 .00040 .00010 .00091 .00010 .00000 35 .07283 .06700 .03000 .03000 .00840 .00040 .00010 .00093 .00010 .00003 36 .07283 .06700 .03000 .03000 .00900 .00050 .00020 .00096 .00010 .00000 38 .07283 .06700 .03000 .01754 .00900 .00060 .00030 .0118 .00000 40 .07283 .06700 .03000 .01754 .00900 .00040 .00115 .00009 .00000 41 .07283 .06700 .03000 .01757 .00871 .00080 .00140 .00145 .00009 .00000 43 .07283 .06700 .03000 .00473 .00752 .00	31	.07283	.06700	.03000	.03000	.00548	.00030	.00010	.00088	.00010	.00000
34 .07283 .06700 .03000 .03000 .00683 .00040 .00010 .00091 .00010 .00000 35 .07283 .06700 .03000 .03000 .00840 .00040 .00010 .00092 .00010 .00003 36 .07283 .06700 .03000 .03000 .00870 .00020 .00096 .00010 .00000 38 .07283 .06700 .03000 .01878 .00900 .00030 .00111 .00010 .00000 40 .07283 .06700 .03000 .01754 .00900 .00040 .00115 .00009 .00000 41 .07283 .06700 .03000 .01757 .00811 .00080 .00040 .00124 .00099 .00000 42 .07283 .06700 .03000 .00722 .00110 .00060 .00145 .00099 .00000 44 .07283 .06700 .03000 .00250 .00722 .00110 .0	32	.07283	.06700	.03000	.03000	.00633	.00030	.00010	.00090	.00010	.00000
35 .07283 .06700 .03000 .03000 .00840 .00040 .00010 .00092 .00010 .00000 36 .07283 .06700 .03000 .03000 .00870 .00040 .00010 .00093 .00010 .00000 37 .07283 .06700 .03000 .01878 .00900 .00050 .00030 .00110 .00000 38 .07283 .06700 .03000 .01754 .00900 .00060 .00030 .00118 .00010 .00000 40 .07283 .06700 .03000 .01157 .00841 .00080 .00040 .00112 .00009 .00000 41 .07283 .06700 .03000 .00175 .00881 .00080 .00145 .00099 .00000 43 .07283 .06700 .03000 .00473 .00752 .00100 .00170 .00170 .00099 .00000 44 .07283 .06700 .03000 .00250 .0	33	.07283	.06700	.03000	.03000	.00658	.00030	.00010	.00091	.00010	.00000
36 .07283 .06700 .03000 .03000 .00870 .00040 .00010 .00093 .00010 .00000 37 .07283 .06700 .03000 .03000 .00990 .00050 .00020 .00096 .00010 .00000 38 .07283 .06700 .03000 .01784 .00900 .00050 .00030 .00111 .00010 .00000 40 .07283 .06700 .03000 .01629 .00870 .00070 .00040 .00115 .00009 .00000 41 .07283 .06700 .03000 .00169 .00081 .00080 .00144 .00009 .00000 42 .07283 .06700 .03000 .00752 .00100 .00060 .00157 .00009 .00000 43 .07283 .06700 .03000 .00251 .00722 .00110 .00070 .00170 .00009 .00000 45 .07283 .06700 .03000 .00250 .0	34	.07283	.06700	.03000	.03000	.00683	.00040	.00010	.00091	.00010	.00000
37 .07283 .06700 .03000 .00900 .00050 .00020 .00096 .00010 .00000 38 .07283 .06700 .03000 .01878 .00900 .00050 .00030 .00101 .00010 .00000 40 .07283 .06700 .03000 .01157 .00900 .00070 .00040 .00115 .00000 40 .07283 .06700 .03000 .01157 .00870 .00040 .00115 .00009 .00000 41 .07283 .06700 .03000 .00769 .00811 .00090 .00050 .00135 .00009 .00000 42 .07283 .06700 .03000 .00452 .00781 .00100 .00060 .00157 .00009 .00000 43 .07283 .06700 .03000 .00251 .00722 .00110 .00070 .00185 .00009 .00000 44 .07283 .06700 .03000 .00250 .00722 .0	35	.07283	.06700	.03000	.03000	.00840	.00040	.00010	.00092	.00010	.00000
38 .07283 .06700 .03000 .01878 .00900 .00050 .00030 .00101 .00010 .00000 39 .07283 .06700 .03000 .01754 .00900 .00060 .00030 .00118 .00010 .00000 40 .07283 .06700 .03000 .01157 .00870 .00070 .00040 .00124 .00009 .00000 41 .07283 .06700 .03000 .00769 .00811 .00080 .00145 .00099 .00000 43 .07283 .06700 .03000 .00473 .00752 .00100 .00060 .00157 .00099 .00000 44 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00185 .00009 .00000 45 .07283 .06700 .03000 .00250 .00722 .00110 .00070 .00185 .00009 .00000 48 .07283 .06700 .03000 .0	36	.07283	.06700	.03000	.03000	.00870	.00040	.00010	.00093	.00010	.00000
39 .07283 .06700 .03000 .01754 .00900 .00060 .00030 .00108 .00010 .00000 40 .07283 .06700 .03000 .01529 .00870 .00070 .00040 .00115 .00009 .00000 41 .07283 .06700 .03000 .01157 .00841 .00090 .00040 .00124 .00009 .00000 42 .07283 .06700 .03000 .00769 .00811 .00090 .00050 .00135 .00009 .00000 43 .07283 .06700 .03000 .00473 .00752 .00100 .00060 .00157 .00009 .00000 45 .07283 .06700 .03000 .00250 .00722 .00110 .00070 .00185 .00009 .00000 46 .07283 .06700 .03000 .00250 .00722 .00130 .00204 .00009 .00204 .00009 .00000 48 .07283 .0	37	.07283	.06700	.03000	.03000	.00900	.00050	.00020	.00096	.00010	.00000
40 .07283 .06700 .03000 .01629 .00870 .00070 .00040 .00115 .00099 .00000 41 .07283 .06700 .03000 .01157 .00841 .00080 .00140 .00124 .00099 .00000 42 .07283 .06700 .03000 .00769 .00811 .00090 .00135 .00099 .00000 43 .07283 .06700 .03000 .00473 .00752 .00100 .00060 .00157 .00099 .00000 44 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00185 .00099 .00000 45 .07283 .06700 .03000 .00250 .00722 .00110 .00070 .00185 .00099 .00000 48 .07283 .06700 .03000 .00250 .00722 .00130 .00250 .00277 .00099 .00250 .00226 .00140 .00250 .000277 .00009	38	.07283	.06700	.03000	.01878	.00900	.00050	.00030	.00101	.00010	.00000
41 .07283 .06700 .03000 .01157 .00841 .00080 .00140 .00124 .00099 .00000 42 .07283 .06700 .03000 .00769 .00811 .00090 .00050 .00135 .00099 .00000 43 .07283 .06700 .03000 .00655 .00781 .00100 .00060 .00145 .00099 .00000 44 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00170 .00099 .00000 45 .07283 .06700 .03000 .00250 .00722 .00110 .00070 .00185 .00099 .00000 46 .07283 .06700 .03000 .00250 .00722 .00130 .00080 .00224 .00099 .00000 48 .07283 .06700 .03000 .00250 .00722 .00130 .00090 .00277 .00099 .00100 49 .07283 .06700 .0	39	.07283	.06700	.03000	.01754	.00900	.00060	.00030	.00108	.00010	.00000
42 .07283 .06700 .03000 .00769 .00811 .00090 .00150 .00135 .00099 .00000 43 .07283 .06700 .03000 .00605 .00781 .00100 .00060 .00145 .00099 .00000 44 .07283 .06700 .03000 .00366 .00722 .00110 .00070 .00170 .00099 .00000 45 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00185 .00099 .00000 46 .07283 .06700 .03000 .00250 .00722 .00110 .00070 .00185 .00099 .00000 47 .07283 .06700 .03000 .00250 .00722 .00130 .00266 .00099 .00000 .00260 .00099 .00000 .00250 .00723 .00130 .00260 .00099 .00100 .00399 .00099 .00100 .00250 .00099 .00100 .00309 .00210 </td <td>40</td> <td>.07283</td> <td>.06700</td> <td>.03000</td> <td>.01629</td> <td>.00870</td> <td>.00070</td> <td>.00040</td> <td>.00115</td> <td>.00009</td> <td>.00000</td>	40	.07283	.06700	.03000	.01629	.00870	.00070	.00040	.00115	.00009	.00000
43 .07283 .06700 .03000 .00605 .00781 .00100 .00060 .00145 .00009 .00000 44 .07283 .06700 .03000 .00473 .00752 .00100 .00060 .00157 .00099 .00000 45 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00185 .00099 .00000 46 .07283 .06700 .03000 .00250 .00722 .00120 .00080 .00244 .00099 .00000 48 .07283 .06700 .03000 .00250 .00722 .00130 .00080 .00226 .00099 .00000 49 .07283 .06700 .03000 .00250 .00722 .00130 .000290 .00000 .00250 .00250 .00250 .00277 .00009 .00100 .00309 .00009 .01304 .0226 .00099 .01305 .01100 .00346 .00009 .01305 .01212 .0535 <td>41</td> <td>.07283</td> <td>.06700</td> <td>.03000</td> <td>.01157</td> <td>.00841</td> <td>.00080</td> <td>.00040</td> <td>.00124</td> <td>.00009</td> <td>.00000</td>	41	.07283	.06700	.03000	.01157	.00841	.00080	.00040	.00124	.00009	.00000
44 .07283 .06700 .03000 .00473 .00752 .00100 .00060 .00157 .00099 .00000 45 .07283 .06700 .03000 .00366 .00722 .00110 .00070 .00170 .00099 .00000 46 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00185 .00099 .00000 47 .07283 .06700 .03000 .00250 .00722 .00120 .00080 .00226 .00099 .00000 48 .07283 .06700 .03000 .00250 .00722 .00130 .00080 .00226 .00099 .00000 49 .07283 .06700 .03000 .00250 .00722 .00130 .00277 .00099 .01222 51 .07283 .06700 .03000 .00240 .00598 .00140 .00100 .00346 .00099 .01335 53 .07283 .06700 .03000 .0	42	.07283	.06700	.03000	.00769	.00811	.00090	.00050	.00135	.00009	.00000
45 .07283 .06700 .03000 .00366 .00722 .00110 .00070 .00170 .00099 .00000 46 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00185 .00099 .00000 47 .07283 .06700 .03000 .00250 .00722 .00130 .00080 .00226 .00099 .00000 48 .07283 .06700 .03000 .00250 .00722 .00130 .00080 .00226 .00099 .00000 49 .07283 .06700 .03000 .00250 .00722 .00130 .00090 .00277 .00099 .00009 50 .07283 .06700 .03000 .00220 .00535 .00140 .00100 .00346 .00099 .01304 52 .07283 .06700 .03000 .00220 .00535 .00150 .00100 .00346 .00099 .01305 54 .07283 .06700 .0	43	.07283	.06700	.03000	.00605	.00781	.00100	.00060	.00145	.00009	.00000
46 .07283 .06700 .03000 .00261 .00722 .00110 .00070 .00185 .00009 .00000 47 .07283 .06700 .03000 .00250 .00722 .00120 .00080 .00204 .00009 .00000 48 .07283 .06700 .03000 .00250 .00722 .00130 .00080 .00226 .00099 .00000 49 .07283 .06700 .03000 .00250 .00722 .00130 .00090 .00226 .00099 .00000 50 .07283 .06700 .03000 .00250 .00660 .00140 .00090 .00277 .00099 .01202 51 .07283 .06700 .03000 .00220 .00535 .00140 .00100 .00346 .00099 .01335 53 .07283 .06700 .03000 .00200 .00406 .00160 .00120 .00385 .00009 .01305 54 .07283 .06700 .0	44	.07283	.06700	.03000	.00473	.00752	.00100	.00060	.00157	.00009	.00000
47.07283.06700.03000.00250.00722.00120.00080.00204.00009.0000048.07283.06700.03000.00250.00722.00130.00080.00226.00009.0000049.07283.06700.03000.00250.00722.00130.00090.00250.00009.0000050.07283.06700.03000.00250.00660.00140.00090.00277.00009.0212251.07283.06700.03000.00220.00535.00150.00100.00346.00099.0130452.07283.06700.03000.00200.00406.00160.00120.00385.00009.0133553.07283.06700.03000.00200.00406.00160.00120.00385.00099.0130554.07283.06700.03000.00160.00200.00180.00160.00476.00009.0906656.07283.06700.03000.00140.00132.00190.00180.00532.00009.0747858.07283.06700.03000.00070.00083.00220.00220.00677.00009.0808859.07283.06700.03000.00030.00083.00240.00260.00858.00010.1723261.07283.06700.03000.00000.00080.00260.00260.00858.00010.17244 <td>45</td> <td>.07283</td> <td>.06700</td> <td>.03000</td> <td>.00366</td> <td>.00722</td> <td>.00110</td> <td>.00070</td> <td>.00170</td> <td>.00009</td> <td>.00000</td>	45	.07283	.06700	.03000	.00366	.00722	.00110	.00070	.00170	.00009	.00000
48 .07283 .06700 .03000 .00250 .00722 .00130 .00080 .00226 .00009 .00000 49 .07283 .06700 .03000 .00250 .00722 .00130 .00090 .00250 .00009 .00000 50 .07283 .06700 .03000 .00240 .00598 .00140 .00090 .00277 .00009 .01304 51 .07283 .06700 .03000 .00220 .00535 .00150 .00100 .00346 .00009 .01335 53 .07283 .06700 .03000 .00200 .00406 .00160 .00120 .00385 .00009 .01305 54 .07283 .06700 .03000 .00160 .00200 .00180 .00140 .00428 .00009 .01305 55 .07283 .06700 .03000 .00140 .00120 .00385 .00009 .01706 56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .00009 .07668 57<	46	.07283	.06700	.03000	.00261	.00722	.00110	.00070	.00185	.00009	.00000
49.07283.06700.03000.00250.00722.00130.00090.00250.00009.0000050.07283.06700.03000.00250.00660.00140.00090.00277.00009.0212251.07283.06700.03000.00240.00598.00140.00100.00309.00009.0130452.07283.06700.03000.00220.00535.00150.00100.00346.00009.0133553.07283.06700.03000.00200.00406.00160.00120.00385.00009.0130554.07283.06700.03000.00160.00294.00170.00140.00428.00009.0170655.07283.06700.03000.00140.00200.00180.00160.00476.00009.0906656.07283.06700.03000.00140.00132.00190.00180.00532.00009.0747858.07283.06700.03000.00070.00083.00220.00220.00677.00009.0808859.07283.06700.03000.00030.00083.00240.00260.00858.00100.1723261.07283.06700.03000.00000.00080.00280.00280.00260.00858.00101.1723261.07283.06700.03000.00000.00080.00280.00280.00266.00101 <td< td=""><td>47</td><td>.07283</td><td>.06700</td><td>.03000</td><td>.00250</td><td>.00722</td><td>.00120</td><td>.00080</td><td>.00204</td><td>.00009</td><td>.00000</td></td<>	47	.07283	.06700	.03000	.00250	.00722	.00120	.00080	.00204	.00009	.00000
50 .07283 .06700 .03000 .00250 .00660 .00140 .00090 .00277 .00009 .02122 51 .07283 .06700 .03000 .00240 .00598 .00140 .00100 .00309 .00009 .01304 52 .07283 .06700 .03000 .00220 .00535 .00150 .00100 .00346 .00009 .01335 53 .07283 .06700 .03000 .00200 .00406 .00160 .00120 .00385 .00009 .01305 54 .07283 .06700 .03000 .00180 .00294 .00170 .00140 .00428 .00009 .01706 55 .07283 .06700 .03000 .00160 .00200 .00180 .00476 .00009 .09066 56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .00009 .07478 57 .07283 .06700 .03000 .0	48	.07283	.06700	.03000	.00250	.00722	.00130	.00080	.00226	.00009	.00000
51 .07283 .06700 .03000 .00240 .00598 .00140 .00100 .00309 .00009 .01304 52 .07283 .06700 .03000 .00220 .00535 .00150 .00100 .00346 .00009 .01305 53 .07283 .06700 .03000 .00200 .00406 .00160 .00120 .00385 .00009 .01305 54 .07283 .06700 .03000 .00160 .00294 .00170 .00140 .00428 .00009 .01700 55 .07283 .06700 .03000 .00160 .00200 .00180 .00160 .00476 .00009 .09066 56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .00009 .07668 57 .07283 .06700 .03000 .00100 .00073 .00200 .00200 .00600 .00009 .07478 58 .07283 .06700 .03000 .00070 .00083 .00220 .00220 .00677 .00009	49	.07283	.06700	.03000	.00250	.00722	.00130	.00090	.00250	.00009	.00000
52 .07283 .06700 .03000 .00220 .00535 .00150 .00100 .00346 .00009 .01335 53 .07283 .06700 .03000 .00200 .00406 .00160 .00120 .00385 .00009 .01305 54 .07283 .06700 .03000 .00180 .00294 .00170 .00140 .00428 .00009 .01305 55 .07283 .06700 .03000 .00160 .00294 .00170 .00140 .00428 .00009 .01700 55 .07283 .06700 .03000 .00160 .00200 .00180 .00476 .00009 .09066 56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .00009 .07668 57 .07283 .06700 .03000 .00070 .00083 .00220 .00220 .00677 .00009 .08088 59 .07283 .06700 .03000 .0	50	.07283	.06700	.03000	.00250	.00660	.00140	.00090	.00277	.00009	.02122
53 .07283 .06700 .03000 .00200 .00406 .00160 .00120 .00385 .00009 .01305 54 .07283 .06700 .03000 .00180 .00294 .00170 .00140 .00428 .00009 .01700 55 .07283 .06700 .03000 .00160 .00200 .00180 .00160 .00476 .00009 .09066 56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .00009 .07668 57 .07283 .06700 .03000 .00100 .00073 .00200 .00600 .00009 .07478 58 .07283 .06700 .03000 .00070 .00083 .00220 .00677 .00009 .08088 59 .07283 .06700 .03000 .00030 .00280 .00240 .00762 .00009 .10443 60 .07283 .06700 .03000 .00000 .00080 .0	51	.07283	.06700	.03000	.00240	.00598	.00140	.00100	.00309	.00009	.01304
54 .07283 .06700 .03000 .00180 .00294 .00170 .00140 .00428 .00009 .01700 55 .07283 .06700 .03000 .00160 .00200 .00180 .00160 .00476 .00009 .09066 56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .00009 .07668 57 .07283 .06700 .03000 .00100 .00073 .00200 .00200 .00600 .00009 .07478 58 .07283 .06700 .03000 .00070 .00083 .00220 .00677 .00009 .08088 59 .07283 .06700 .03000 .00030 .00083 .00240 .00762 .00009 .10443 60 .07283 .06700 .03000 .00000 .00080 .00260 .00288 .00010 .17232 61 .07283 .06700 .03000 .00000 .00080 .0	52	.07283	.06700	.03000	.00220	.00535	.00150	.00100	.00346	.00009	.01335
55 .07283 .06700 .03000 .00160 .00200 .00180 .00160 .00476 .00009 .09666 56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .00009 .07668 57 .07283 .06700 .03000 .00100 .00073 .00200 .00200 .00600 .00009 .07478 58 .07283 .06700 .03000 .00070 .00083 .00220 .00677 .00009 .08088 59 .07283 .06700 .03000 .00030 .00083 .00240 .00762 .00009 .10443 60 .07283 .06700 .03000 .00000 .00080 .00260 .00260 .00858 .00010 .17232 61 .07283 .06700 .03000 .00000 .00080 .00280 .00280 .00966 .00010 .17244 62 .07283 .06700 .03000 .00000 .0	53	.07283	.06700	.03000	.00200	.00406	.00160	.00120	.00385	.00009	.01305
56 .07283 .06700 .03000 .00140 .00132 .00190 .00180 .00532 .0009 .07668 57 .07283 .06700 .03000 .00100 .00073 .00200 .00200 .00600 .00009 .07488 58 .07283 .06700 .03000 .00070 .00083 .00220 .00277 .00009 .08088 59 .07283 .06700 .03000 .00030 .00083 .00240 .00762 .00009 .10443 60 .07283 .06700 .03000 .00000 .00080 .00260 .00260 .00858 .00010 .17232 61 .07283 .06700 .03000 .00000 .00080 .00280 .00266 .00966 .00010 .17232 62 .07283 .06700 .03000 .00000 .00080 .00300 .00300 .0010 .40643	54		.06700	.03000	.00180	.00294	.00170	.00140	.00428	.00009	.01700
57 .07283 .06700 .03000 .00100 .00073 .00200 .00200 .00600 .00009 .07478 58 .07283 .06700 .03000 .00070 .00083 .00220 .00220 .00677 .00009 .07478 59 .07283 .06700 .03000 .00030 .00083 .00240 .00240 .00762 .00009 .10443 60 .07283 .06700 .03000 .00000 .00080 .00260 .00260 .00858 .00010 .17232 61 .07283 .06700 .03000 .00000 .00080 .00280 .00266 .00966 .00010 .17244 62 .07283 .06700 .03000 .00000 .00080 .00300 .00300 .00101 .17244 62 .07283 .06700 .03000 .00000 .00080 .00300 .00300 .00101 .40643	55	.07283	.06700	.03000	.00160	.00200	.00180	.00160	.00476	.00009	.09066
58 .07283 .06700 .03000 .00070 .00083 .00220 .00220 .00677 .00009 .08088 59 .07283 .06700 .03000 .00030 .00083 .00240 .00240 .00762 .00009 .10443 60 .07283 .06700 .03000 .00000 .00080 .00260 .00260 .00858 .00010 .17232 61 .07283 .06700 .03000 .00000 .00080 .00280 .00280 .00966 .00010 .17724 62 .07283 .06700 .03000 .00000 .00080 .00300 .00101 .40643	56	.07283	.06700	.03000	.00140	.00132	.00190	.00180	.00532	.00009	.07668
59.07283.06700.03000.00030.00083.00240.00240.00762.00009.1044360.07283.06700.03000.00000.00080.00260.00260.00858.00010.1723261.07283.06700.03000.00000.00080.00280.00280.00966.00010.1772462.07283.06700.03000.00000.00080.00300.00300.01091.00010.40643	57	.07283	.06700	.03000	.00100	.00073	.00200	.00200	.00600	.00009	.07478
60.07283.06700.03000.00000.00080.00260.00260.00858.00010.1723261.07283.06700.03000.00000.00080.00280.00280.00966.00010.1772462.07283.06700.03000.00000.00080.00300.00300.01091.00010.40643	58	.07283	.06700	.03000	.00070	.00083	.00220	.00220	.00677	.00009	.08088
61 .07283 .06700 .03000 .00000 .00080 .00280 .00280 .00966 .00010 .17724 62 .07283 .06700 .03000 .00000 .00080 .00300 .00300 .00010 .17724	59	.07283	.06700	.03000	.00030	.00083	.00240	.00240	.00762	.00009	.10443
62 .07283 .06700 .03000 .00000 .00080 .00300 .01091 .00010 .40643	60	.07283	.06700	.03000	.00000	.00080	.00260	.00260	.00858	.00010	.17232
	61	.07283	.06700	.03000	.00000	.00080	.00280	.00280	.00966	.00010	.17724
63 .07283 .06700 .03000 .00000 .00080 .00320 .00320 .01234 .00010 .18524	62	.07283	.06700	.03000	.00000	.00080	.00300	.00300	.01091	.00010	.40643
	63	.07283	.06700	.03000	.00000	.00080	.00320	.00320	.01234	.00010	.18524
		.07283		.03000		.00080			.01391		.15285
		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.01563	.00010	.27670
66 .00000 .00000 .00000 .00000 .00000 .01746 .00010 .31133	66	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.01746	.00010	.31133
67 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .01939 .00010 .23942	67	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.01939	.00010	.23942
68 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .02135 .00010 .41043	68	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.02135	.00010	.41043
								.00000			.54724
70 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 1.0000	70	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000

Probabilities of Separation Prior to Retirement

GENERAL TIER 1 FEMALE MEMBERS

<u>Age</u>	<u>0<x<3< u=""></x<3<></u>	Withd <u>3<=X<4</u>	rawal <u>4<=X<5</u>	<u>5<=X</u>	Terminated <u>Vested</u>	Ordinary <u>Disability</u>	Duty <u>Disability</u>	Ordinary <u>Death</u>	Duty <u>Death</u>	Service <u>Retirement</u>
20	.10873	.07000	.03000	.03000	.00000	.00000	.00010	.00031	.00000	.00000
21	.10873	.07000	.03000	.03000	.00000	.00000	.00010	.00031	.00000	.00000
22	.10873	.07000	.03000	.03000	.00000	.00000	.00010	.00031	.00000	.00000
23	.10873	.07000	.03000	.03000	.00000	.00000	.00010	.00031	.00000	.00000
24	.10873	.07000	.03000	.03000	.00000	.00000	.00010	.00031	.00000	.00000
25	.10873	.07000	.03000	.03000	.00094	.00010	.00010	.00031	.00000	.00000
26	.10873	.07000	.03000	.03000	.00170	.00010	.00010	.00032	.00000	.00000
27	.10873	.07000	.03000	.03000	.00254	.00020	.00010	.00032	.00000	.00000
28	.10873	.07000	.03000	.03000	.00339	.00020	.00010	.00034	.00000	.00000
29	.10873	.07000	.03000	.03000	.00424	.00020	.00010	.00036	.00000	.00000
30	.10873	.07000	.03000	.02942	.00638	.00030	.00019	.00038	.00000	.00000
31	.10873	.07000	.03000	.02885	.00754	.00030	.00028	.00040	.00000	.00000
32	.10873	.07000	.03000	.02827	.00870	.00030	.00028	.00043	.00000	.00000
33	.10873	.07000	.03000	.02769	.00986	.00030	.00038	.00045	.00000	.00000
34	.10873	.07000	.03000	.02711	.01000	.00040	.00038	.00048	.00000	.00000
35	.10873	.07000	.03000	.02654	.01000	.00040	.00050	.00051	.00010	.00000
36	.10873	.07000	.03000	.02596	.01000	.00040	.00050	.00055	.00010	.00000
37	.10873	.07000	.03000	.02538	.01000	.00040	.00060	.00059	.00010	.00000
38	.10873	.07000	.03000	.01798	.01000	.00050	.00060	.00064	.00010	.00000
39	.10873	.07000	.03000	.01185	.01000	.00060	.00060	.00070	.00010	.00000
40	.10873	.07000	.03000	.00698	.00984	.00070	.00078	.00076	.00009	.00000
41	.10873	.07000	.03000	.00464	.00969	.00080	.00078	.00083	.00009	.00000
42	.10873	.07000	.03000	.00266	.00953	.00090	.00078	.00089	.00009	.00000
43	.10873	.07000	.03000	.00314	.00937	.00090	.00078	.00094	.00009	.00000
44	.10873	.07000	.03000	.00349	.00922	.00090	.00078	.00099	.00009	.00000
45	.10873	.07000	.03000	.00330	.00906	.00100	.00113	.00105	.00009	.00000
46	.10873	.07000	.03000	.00310	.00853	.00100	.00149	.00111	.00009	.00000
47	.10873	.07000	.03000	.00290	.00799	.00100	.00184	.00120	.00009	.00000
48	.10873	.07000	.03000	.00270	.00767	.00110	.00220	.00130	.00009	.00000
49 50	.10873	.07000	.03000	.00250	.00735	.00110	.00255	.00141	.00009	.00000
50	.10873	.07000	.03000	.00243	.00666	.00120	.00291	.00154	.00009 .00009	.03454
51	.10873	.07000	.03000	.00219	.00597	.00120	.00291	.00169		.02415
52 53	.10873 .10873	.07000 .07000	.03000 .03000	.00195 .00167	.00528 .00459	.00120 .00120	.00323 .00355	.00186 .00205	.00009 .00009	.02144 .02324
55 54	.10873	.07000	.03000	.00107	.00439	.00120	.00333	.00203	.00009	.02324
54 55	.10873	.07000	.03000	.00141	.00390	.00120	.00388	.00224	.00009	.02801
56	.10873	.07000	.03000	.00120	.00321	.00120	.00358	.00247	.00009	.05946
50 57	.10873	.07000	.03000	.000100	.00268	.00120	.00344	.00270	.00009	.07020
58	.10873	.07000	.03000	.00060	.00254	.00120	.00329	.00361	.00009	.09404
59	.10873	.07000	.03000	.00040	.00250	.00120	.00315	.00415	.00009	.09681
60	.10873	.07000	.03000	.00000	.00210	.00120	.00300	.00413	.00009	.19641
61	.10873	.07000	.03000	.00000	.00180	.00120	.00300	.00548	.00009	.18587
62	.10873	.07000	.03000	.00000	.00150	.00120	.00300	.00627	.00010	.21019
63	.10873	.07000	.03000	.00000	.00120	.00120	.00300	.00718	.00010	.18490
64	.10873	.07000	.03000	.00000	.00090	.00120	.00300	.00819	.00010	.08453
65	.00000	.00000	.00000	.00000	.00060	.00000	.00000	.00929	.00010	.25410
66	.00000	.00000	.00000	.00000	.00050	.00000	.00000	.01042	.00010	.22297
67	.00000	.00000	.00000	.00000	.00040	.00000	.00000	.01157	.00010	.31489
68	.00000	.00000	.00000	.00000	.00030	.00000	.00000	.01265	.00010	.19724
69	.00000	.00000	.00000	.00000	.00020	.00000	.00000	.01367	.00010	.46257
70	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000

Probabilities of Separation Prior to Retirement

GENERAL TIER 2 MALE MEMBERS

Age			Withd			Terminated		Duty	Ordinary	Duty	Service
	<u>0<x<1< u=""></x<1<></u>	<u>1<=X<2</u>	<u>2<=X<4</u>	<u>4<=X<5</u>	<u>5<=X</u>	<u>Vested</u>	<u>Disability</u>	<u>Disability</u>	<u>Death</u>	<u>Death</u>	Retirement
20	.14518	.08662	.06695	.03000	.03000	.10000	.00000	.00010	.00055	.00010	.00000
21	.14518	.08662	.06695	.03000	.03000	.10000	.00000	.00010	.00057	.00010	.00000
22	.14518	.08662	.06695	.03000	.03000	.10000	.00000	.00010	.00060	.00010	.00000
23	.14518	.08662	.06695	.03000	.03000	.10000	.00000	.00010	.00063	.00010	.00000
24	.14518	.08662	.06695	.03000	.03000	.10000	.00000	.00010	.00067	.00010	.00000
25	.14518	.08662	.06695	.03000	.03000	.10000	.00020	.00010	.00071	.00009	.00000
26	.14518	.08662	.06695	.03000	.03000	.09458	.00020	.00010	.00075	.00009	.00000
27	.14518	.08662	.06695	.03000	.03000	.06881	.00020	.00010	.00078	.00009	.00000
28	.14518	.08662	.06695	.03000	.03000	.04836	.00020	.00010	.00081	.00009	.00000
29	.14518	.08662	.06695	.03000	.03000	.03759	.00019	.00010	.00084	.00009	.00000
30	.14518	.08662	.06695	.03000	.03000	.03140	.00019	.00010	.00086	.00009	.00000
31	.14518	.08662	.06695	.03000	.02923	.02574	.00028	.00009	.00088	.00009	.00000
32	.14518	.08662	.06695	.03000	.02846	.02240	.00027	.00009	.00090	.00009	.00000
33	.14518	.08662	.06695	.03000	.02768	.02181	.00043	.00018	.00091	.00009	.00000
34	.14518	.08662	.06695	.03000	.02691	.02123	.00078	.00026	.00091	.00009	.00000
35	.14518	.08662	.06695	.03000	.02614	.02066	.00098	.00035	.00092	.00008	.00000
36	.14518	.08662	.06695	.03000	.02537	.02009	.00119	.00043	.00093	.00008	.00000
37	.14518	.08662	.06695	.03000	.02460	.02000	.00174	.00104	.00096	.00008	.00000
38	.14518	.08662	.06695	.03000	.02383	.02000	.00145	.00137	.00101	.00008	.00000
39	.14518	.08662	.06695	.03000	.02305	.02000	.00139	.00118	.00108	.00008	.00000
40	.14518	.08662	.06695	.03000	.02228	.02000	.00122	.00132	.00115	.00008	.00000
41	.14518	.08662	.06695	.03000	.02151	.02000	.00092	.00107	.00124	.00008	.00000
42	.14518	.08662	.06695	.03000	.02074	.02000	.00051	.00102	.00135	.00008	.00000
43	.14518	.08662	.06695	.03000	.01997	.02000	.00069	.00146	.00145	.00008	.00000
44	.14518	.08662	.06695	.03000	.01920	.02000	.00081	.00170	.00157	.00008	.00000
45	.14518	.08662	.06695	.03000	.01842	.02000	.00102	.00226	.00170	.00008	.00000
46	.14518	.08662	.06695	.03000	.01689	.02000	.00115	.00254	.00185	.00008	.00000
47	.14518	.08662	.06695	.03000	.01545	.02000	.00140	.00300	.00204	.00008	.00000
48	.14518	.08662	.06695	.03000	.01466	.02000	.00140	.00300	.00226	.00008	.00000
49	.14518	.08662	.06695	.03000	.01388	.02000	.00140	.00300	.00250	.00008	.00000
50	.14518	.08662	.06695	.03000	.01318	.02000	.00140	.00300	.00277	.00009	.01655
51	.14518	.08662	.06695	.03000	.01222	.02000	.00140	.00300	.00309	.00009	.01032
52	.14518	.08662	.06695	.03000	.01110	.01963	.00140	.00300	.00346	.00009	.01070
53	.14518	.08662	.06695	.03000	.01000	.01855	.00176	.00376	.00385	.00009	.01083
54	.14518	.08662	.06695	.03000	.01000	.01690	.00293	.00513	.00428	.00009	.01462
55	.14518	.08662	.06695	.03000	.01000	.01661	.00422	.00671	.00476	.00009	.03339
56	.14518	.08662	.06695	.03000	.01000	.01568	.00564	.00851	.00532	.00009	.02929
57	.14518	.08662	.06695	.03000	.01000	.01393	.00700	.00900	.00600	.00009	.02964
58	.14518	.08662	.06695	.03000	.01000	.01218	.00700	.00950	.00677	.00009	.04223
59	.14518	.08662	.06695	.03000	.01000	.00988	.00700	.01000	.00762	.00009	.06756
60	.14518	.08662	.06695	.03000	.01000	.00632	.00700	.01050	.00858	.00010	.18000
61	.14518	.08662	.06695	.03000	.01000	.00641	.00700	.01100	.00966	.00010	.10016
62	.14518	.08662	.06695	.03000	.01000	.00649	.00700	.01100	.01091	.00010	.28571
63	.14518	.08662	.06695	.03000	.01000	.00555	.00700	.01100	.01234	.00010	.18645
64	.14518	.08662	.06695	.03000	.01000	.00461	.00700	.01100	.01391	.00010	.10000
65	.00000	.00000	.00000	.00000	.00000	.00339	.00000	.00000	.01563	.00010	.24583
66	.00000	.00000	.00000	.00000	.00000	.00252	.00000	.00000	.01746	.00010	.18552
67	.00000	.00000	.00000	.00000	.00000	.00165	.00000	.00000	.01939	.00010	.14609
68	.00000	.00000	.00000	.00000	.00000	.00165	.00000	.00000	.02135	.00010	.25044
69	.00000	.00000	.00000	.00000	.00000	.00165	.00000	.00000	.02336	.00010	.33391
70	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000

Probabilities of Separation Prior to Retirement

GENERAL TIER 2 FEMALE MEMBERS

<u>Age</u>	<u>0<x<3< u=""></x<3<></u>	Withd <u>3<=X<4</u>	rawal <u>4<=X<5</u>	<u>5<=X</u>	Terminated <u>Vested</u>	Ordinary <u>Disability</u>	Duty <u>Disability</u>	Ordinary <u>Death</u>	Duty Death	Service Retirement
20	.10000	.07000	.03000	.03000	.05000	.00000	.00010	.00031	.00000	.00000
21	.10000	.07000	.03000	.03000	.05000	.00000	.00010	.00031	.00000	.00000
22	.10000	.07000	.03000	.03000	.05000	.00000	.00010	.00031	.00000	.00000
23	.10000	.07000	.03000	.03000	.05000	.00000	.00010	.00031	.00000	.00000
24	.10000	.07000	.03000	.03000	.05000	.00000	.00009	.00031	.00000	.00000
25	.10000	.07000	.03000	.03000	.05000	.00009	.00009	.00031	.00000	.00000
26	.10000	.07000	.03000	.03000	.04000	.00009	.00008	.00032	.00000	.00000
27	.10000	.07000	.03000	.03000	.03712	.00019	.00008	.00032	.00000	.00000
28	.10000	.07000	.03000	.03000	.03494	.00019	.00015	.00034	.00000	.00000
29	.10000	.07000	.03000	.03000	.03276	.00019	.00021	.00036	.00000	.00000
30	.10000	.07000	.03000	.03000	.03058	.00021	.00069	.00038	.00000	.00000
31	.10000	.07000	.03000	.02840	.02840	.00021	.00136	.00040	.00000	.00000
32	.10000	.07000	.03000	.02659	.02622	.00021	.00160	.00043	.00000	.00000
33	.10000	.07000	.03000	.02565	.02598	.00021	.00180	.00045	.00000	.00000
34	.10000	.07000	.03000	.02473	.02574	.00028	.00200	.00048	.00000	.00000
35	.10000	.07000	.03000	.02382	.02549	.00023	.00220	.00051	.00008	.00000
36	.10000	.07000	.03000	.02215	.02525	.00023	.00240	.00055	.00007	.00000
37	.10000	.07000	.03000	.02000	.02500	.00023	.00260	.00059	.00007	.00000
38	.10000	.07000	.03000	.02000	.02352	.00020	.00272	.00064	.00007	.00000
39	.10000	.07000	.03000	.02000	.02203	.00020	.00285	.00070	.00007	.00000
40	.10000	.07000	.03000	.02000	.02055	.00022	.00297	.00076	.00007	.00000
41	.10000	.07000	.03000	.02000	.02000	.00026	.00309	.00083	.00007	.00000
42	.10000	.07000	.03000	.02000	.02000	.00029	.00322	.00089	.00007	.00000
43	.10000	.07000	.03000	.01801	.02000	.00029	.00334	.00094	.00007	.00000
44	.10000	.07000	.03000	.01490	.02000	.00029	.00360	.00099	.00007	.00000
45	.10000	.07000	.03000	.01407	.02000	.00035	.00370	.00105	.00007	.00000
46	.10000	.07000	.03000	.01145	.02000	.00035	.00380	.00111	.00007	.00000
47	.10000	.07000	.03000	.01100	.02000	.00035	.00390	.00120	.00007	.00000
48	.10000	.07000	.03000	.01000	.02000	.00038	.00400	.00130	.00007	.00000
49	.10000	.07000	.03000	.01000	.01868	.00038	.00410	.00141	.00007	.00000
50	.10000	.07000	.03000	.01000	.01623	.00049	.00420	.00154	.00008	.01985
51	.10000	.07000	.03000	.01000	.01378	.00049	.00430	.00169	.00008	.01775
52	.10000	.07000	.03000	.01000	.01133	.00062	.00440	.00186	.00008	.02006
53	.10000	.07000	.03000	.00940	.01101	.00066	.00450	.00205	.00008	.01999
54	.10000	.07000	.03000	.00781	.01069	.00070	.00460	.00224	.00008	.02276
55	.10000	.07000	.03000	.00873	.01050	.00102	.00470	.00247	.00009	.04721
56	.10000	.07000	.03000	.00733	.01050	.00133	.00480	.00276	.00009	.03848
57	.10000	.07000	.03000	.00603	.01050	.00165	.00490	.00314	.00009	.04259
58	.10000	.07000	.03000	.00575	.01050	.00197	.00500	.00361	.00009	.05602
59	.10000	.07000	.03000	.00547	.01050	.00228	.00500	.00415	.00009	.05667
60	.10000	.07000	.03000	.00400	.01050	.00260	.00500	.00477	.00009	.08495
61	.10000	.07000	.03000	.00300	.01050	.00280	.00500	.00548	.00009	.10500
62	.10000	.07000	.03000	.00200	.01050	.00300	.00500	.00627	.00010	.21235
63	.10000	.07000	.03000	.00100	.01050	.00320	.00500	.00718	.00010	.18006
64	.10000	.07000	.03000	.00000	.01050	.00340	.00500	.00819	.00010	.19673
65	.00000	.00000	.00000	.00000	.00060	.00000	.00000	.00929	.00010	.32934
66	.00000	.00000	.00000	.00000	.00050	.00000	.00000	.01042	.00010	.31494
67	.00000	.00000	.00000	.00000	.00040	.00000	.00000	.01157	.00010	.45491
68	.00000	.00000	.00000	.00000	.00030	.00000	.00000	.01265	.00010	.64987
69	.00000	.00000	.00000	.00000	.00020	.00000	.00000	.01367	.00010	.77984
70	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000

Probabilities of Separation Prior to Retirement

SAFETY TIER 1 MEMBERS

Age	With	drawal	Terminated	Ordinary	Duty	Ordinary	Duty	Service
	<u>0<x<5< u=""></x<5<></u>	<u>5<=X</u>	Vested	Disability	Disability	Death	Death	Retirement
20	.15000	.15000	.10000	.00000	.00000	.00055	.00040	.00000
21	.13500	.13500	.10000	.00000.	.00000	.00057	.00040	.00000
22	.12000	.12000	.10000	.00000.	.00000	.00060	.00040	.00000
23	.11000	.11000	.10000	.00000.	.00000	.00063	.00040	.00000
24	.10200	.10200	.10000	.00000.	.00000	.00067	.00040	.00000
25	.09700	.09700	.10000	.00010	.00010	.00071	.00040	.00000
26	.09200	.09200	.10000	.00010	.00010	.00075	.00040	.00000
27	.08700	.08700	.10000	.00020	.00020	.00078	.00040	.00000
28	.08000	.08000	.09980	.00020	.00020	.00081	.00040	.00000
29	.07500	.07500	.09960	.00020	.00020	.00084	.00040	.00000
30	.06900	.06901	.04423	.00020	.00020	.00086	.00040	.00000
31	.06600	.06302	.03237	.00020	.00020	.00088	.00040	.00000
32	.06500	.05704	.02643	.00020	.00020	.00090	.00040	.00000
33	.06400	.05105	.01737	.00020	.00095	.00091	.00040	.00000
34	.06300	.04506	.01025	.00030	.00255	.00091	.00040	.00000
35	.06100	.03907	.00760	.00030	.00300	.00092	.00040	.00000
36	.05800	.03308	.00515	.00040	.00320	.00093	.00040	.00000
37	.05300	.02710	.00500	.00040	.00340	.00096	.00040	.00000
38	.04800	.02111	.00500	.00050	.00360	.00101	.00040	.00000
39	.04400	.01512	.00500	.00050	.00380	.00108	.00050	.00000
40	.04000	.00913	.00500	.00060	.00400	.00115	.00050	.00000
41	.03700	.00845	.00500	.00060	.00420	.00124	.00050	.00100
42	.03300	.00753	.00500	.00060	.00440	.00135	.00050	.00100
43	.03000	.00685	.00403	.00070	.00450	.00145	.00050	.00100
44	.02700	.00616	.00284	.00070	.00460	.00157	.00060	.00100
45	.02000	.00378	.00179	.00080	.00470	.00170	.00060	.00100
46	.01200	.00227	.00097	.00080	.00480	.00185	.00060	.00150
47	.00700	.00132	.00014	.00090	.00490	.00204	.00060	.00150
48	.00400	.00076	.00053	.00090	.00500	.00226	.00060	.00189
49	.00100	.00019	.00092	.00100	.00510	.00250	.00070	.00222
50	.00000	.00000	.00046	.00100	.00520	.00277	.00070	.06703
51	.00000	.00000	.00059	.00110	.00530	.00309	.00070	.02232
52	.00000	.00000	.00072	.00110	.00540	.00346	.00070	.02483
53	.00000	.00000	.00112	.00120	.00550	.00385	.00080	.04093
54	.00000	.00000	.00151	.00120	.00560	.00428	.00080	.12393
55	.00000	.00000	.00000	.00130	.00570	.00476	.00080	.27620
56	.00000	.00000	.00000	.00130	.00580	.00532	.00080	.22294
57	.00000	.00000	.00000	.00140	.00590	.00600	.00090	.23874
58	.00000	.00000	.00000	.00140	.00600	.00677	.00090	.23547
59	.00000	.00000	.00000	.00150	.00600	.00762	.00090	.61920
60	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
61	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
62	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
63	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
64	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
65	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
66	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
67	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
68	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
69 70	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
70	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000

Probabilities of Separation Prior to Retirement

SAFETY TIER 2 MEMBERS

Age	With	drawal	Terminated	Ordinary	Duty	Ordinary	Duty	Service
	<u>0<x<5< u=""></x<5<></u>	<u>5<=X</u>	Vested	Disability	Disability	<u>Death</u>	<u>Death</u>	Retirement
20	.03000	.01000	.00850	.00000	.00000	.00055	.00040	.00000
21	.03000	.01000	.00850	.00000	.00000	.00057	.00040	.00000
22	.03000	.01000	.00850	.00000	.00000	.00060	.00040	.00000
23	.03000	.01000	.00850	.00000	.00000	.00063	.00040	.00000
24	.03000	.01000	.00850	.00000	.00000	.00067	.00040	.00000
25	.03000	.01000	.00850	.00010	.00009	.00071	.00040	.00000
26	.03000	.01000	.00850	.00010	.00009	.00075	.00040	.00000
27	.03000	.01000	.00850	.00020	.00017	.00078	.00040	.00000
28	.03000	.01000	.00850	.00020	.00022	.00081	.00040	.00000
29	.03000	.01000	.00850	.00020	.00027	.00084	.00040	.00000
30	.03000	.01000	.00850	.00020	.00268	.00086	.00040	.00000
31	.03000	.01000	.00850	.00020	.00313	.00088	.00040	.00000
32	.03000	.01000	.00850	.00020	.00357	.00090	.00040	.00000
33	.03000	.01000	.00850	.00020	.00380	.00091	.00040	.00000
34	.03000	.01000	.00850	.00030	.00400	.00091	.00040	.00000
35	.03000	.01000	.00850	.00030	.00420	.00092	.00040	.00000
36	.03000	.01000	.00850	.00040	.00440	.00093	.00040	.00000
37	.03000	.01000	.00850	.00040	.00460	.00096	.00040	.00000
38	.03000	.01000	.00850	.00050	.00480	.00101	.00040	.00000
39	.03000	.01000	.00850	.00050	.00500	.00108	.00050	.00000
40	.03000	.01000	.00850	.00060	.00520	.00115	.00050	.00000
41	.03000	.00920	.00850	.00060	.00540	.00124	.00050	.00100
42	.03000	.00851	.00850	.00060	.00560	.00135	.00050	.00100
43	.03000	.00798	.00850	.00070	.00580	.00145	.00050	.00100
44	.03000	.00740	.00850	.00070	.00600	.00157	.00060	.00100
45	.03000	.00635	.00850	.00080	.00620	.00170	.00060	.00100
46	.03000	.00523	.00850	.00080	.00640	.00185	.00060	.00150
47	.03000	.00403	.00850	.00090	.00660	.00204	.00060	.00150
48	.03000	.00265	.00850	.00090	.00680	.00226	.00060	.00210
49	.03000	.00131	.00850	.00100	.00700	.00250	.00070	.00274
50	.00000	.00000	.00850	.00100	.00720	.00277	.00070	.04248
51	.00000	.00000	.00850	.00110	.00740	.00309	.00070	.01581
52	.00000	.00000	.00850	.00110	.00760	.00346	.00070	.01973
53	.00000	.00000	.00850	.00120	.00780	.00385	.00080	.02939
54	.00000	.00000	.00850	.00120	.00800	.00428	.00080	.08107
55	.00000	.00000	.00000	.00130	.00820	.00476	.00080	.14920
56	.00000	.00000	.00000	.00130	.00830	.00532	.00080	.11111
57	.00000	.00000	.00000	.00140	.00840	.00600	.00090	.25000
58	.00000	.00000	.00000	.00140	.00850	.00677	.00090	.10671
59	.00000	.00000	.00000	.00150	.00860	.00762	.00090	.27490
60	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
61	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
62	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
63	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
64	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
65	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
66	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
67	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
68	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
69	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000
70	.00000	.00000	.00000	.00000	.00000	.00000	.00000	1.00000

Statistical

Revenue by Source

Fiscal Year	Member Contributions (\$)	Employer Contributions (\$)	Net Investment Income (\$)	Miscellaneous Revenue (\$)	TOTAL (\$)
1993	29,367,914	38,952,790	135,625,162*	64,170	204,010,036
1994	29,512,801	44,154,192	96,685,846*	29,379	170,382,218
1995	30,238,340	33,360,976	159,421,850*	309,271,687**	532,292,853*
1996	31,196,550	21,153,565	200,920,413*	283,707,469**	536,977,997*
1997	32,684,638	23,471,769	480,486,364***	5,256	536,648,027
1998	35,748,407	24,389,376	471,624,158***	64,755	531,826,696

* Excludes appreciation In Fair Value of Investments

** Miscellaneous revenue for 1995 and 1996 includes pension obligation bond proceeds.

*** Net income includes increase in appreciation of Fair Value of Investments, \$245,970,821 and \$190,424,707 respectively, for December 31, 1998 and 1997.

Expenses by Type

Fiscal Year	Benefits	Administrative Expenses	Refunds	Other Benefits	TOTAL
	(\$)	(\$)	(\$)	(\$)	(\$)
1993	62,290,772	1,605,837	3,916,563	4,792,727	72,605,899
1994	66,635,507	1,484,426	3,795,036	5,015,845	76,930,814
1995	71,038,847	1,800,294	5,212,838	5,220,501	83,272,480
1996	75,276,328	2,225,036	4,276,394	5,123,852	86,901,610
1997	80,833,472	3,300,664	4,391,437	5,557,671	94,083,244
1998	88,794,029	4,890,004	4,095,621	12,693,075	110,472,729

Schedule of Benefit Expenses by Type

	1998	1997	1996	1995	1994	1993
Service Re	tirement Payroll:					
Basic COLA	\$57,750,840 17,761,164	\$52,688,796 16,232,076	\$49,230,000 14,941,000	\$46,961,000 13,807,000	\$44,343,000 12,800,000	\$43,282,704 11,628,216
Total	75,512,004	68,920,872	64,171,000	60,768,000	57,143,000	54,910,920
Disability R	tetiree Payroll:					
Basic COLA	\$5,106,996 1,263,576	\$4,632,744 1,195,800	\$4,197,000 1,082,000	\$3,587,000 991,000	\$2,822,000 906,000	\$2,732,412 828,420
Total	\$6,370,572	\$5,828,544	\$5,279,000	\$4,578,000	\$3,728,000	\$3,560,832
Beneficiarie	es and Survivors:					
Basic	\$4,904,460	\$4,449,600	\$4,101,000	\$3,905,000	\$3,560,000	\$3,268,080
COLA	2,937,072	2,669,184	2,415,000	2,175,000	1,961,000	1,771,080
Total	\$7,841,532	\$7,118,784	\$6,516,000	\$6,080,000	\$5,521,000	\$5,039,160
Total	\$89,724,108	\$81,868,200	\$75,966,000	\$71,426,000	\$66,392,000	\$63,510,912

Note: The above amounts were provided by the Actuary and do not reflect retroactive adjustment to year-end amounts.

Schedule of Retiree Members by Type of Benefit

Summary of Monthly Allowances Being Paid – As of December 31, 1998

	Monthly Allowance					
	Number	Basic	Cost of Living	Total		
General Members						
Service Retirement:						
Unmodified	3,509	\$3,686,195	\$1,218,867	\$4,905,062		
Option 1	109	105,166	29,153	134,319		
Option 2,3 & 4	157	172,356	36,635	208,991		
Total	3,775	3,963,717	1,284,655	5,248,372		
Ordinary Disability:	,					
Unmodified	119	59,833	28,155	87,988		
Option 1	7	3,175	1,979	5,154		
Option 2, 3 & 4	1	803	342	1,145		
Total	127	63,811	30,476	94,287		
Duty Disability:		00,011	00,110	01,201		
Unmodified	156	200,747	36,649	237,396		
Option 1	9	7,893	966	8,859		
Option 2, 3 & 4	1	966	39	1,005		
Total	166	209,606	37,654	247,260		
Beneficiaries:						
Ex-Spouse	26	13,155	5,881	19,036		
Death	730	331,657	202,607	534,264		
Total	756	344,812	208,488	553,300		
Total General	4,824	\$4,581,946	\$1,561,273	\$6,143,219		
Safety Members						
Service Retirement:						
Unmodified	361	\$804,164	\$189,018	\$ 993,182		
Option 1	4	6,250	1,945	8,195		
Option 2, 3 & 4	20	38,439	4,479	42,918		
Total	385	848,853	195,442	1,044,295		
Ordinary Disability:						
Unmodified	3	1,135	95	1,230		
Option 1	-	-	-	-		
Option 2, 3 & 4	-	-	-	-		
Total	3	1,135	95	1,230		
Duty Disability:	5	1,100	55	1,200		
Unmodified	83	142,146	35,367	177,513		
Option 1	2	4,294	66	4,360		
Option 2, 3 & 4	3	4,591	1,640	4,300		
Total	88	151,031	37,073	188,104		
Beneficiaries:	-					
Ex-Spouse	8	9,579	1,965	11,544		
Death		54,314	34,304	88,618		
Total	80	63,893	36,269	100,162		
Total Safety	556	\$1,064,912	\$268,879	\$1,333,791		

Participating Employers and Active Members

	1998	1997	1996	1995	1994	1993
County of Alameda:						
General Members	8,043	7,840	7,712	7,734	7,816	7,614
Safety Members	1,326	1,278	1,211	1,196	1,128	1,120
Total	9,369	9,118	8,923	8,930	8,944	8,734
Participating Agencies:						
(General Membership)						
Livermore Area Recreation & Park District		56	56	51	50	52
Housing Authority or Alameda County 64		65	67	67	59	52
Alameda County Schools	5	8	8	8	8	8
Alameda County Fire Patrol	-	-	-	-	-	12
Total	130	129	131	126	117	124
Total Active Membership:						
General Members	8,173	7,969	7,843	7,860	7,933	7,738
Safety Members	1,326	1,278	1,211	1,196	1,128	1,120
Total	9,499	9,247	9,054	9,056	9,061	8,858

Employer Contribution Rates

	County				District			
	General		Safety		General		Safety	
	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2	Tier 1	Tier 2
1993	12.35	11.65	21.17	19.66	12.35	11.65	N/A	N/A
1994	12.97	12.24	22.46	20.87	12.97	12.24	N/A	N/A
1995	5.14	4.11	10.15	8.36	14.31	13.28	N/A	N/A
1996	5.51	5.13	10.24	9.93	15.93	15.55	N/A	N/A
1997	5.12	4.76	9.28	9.02	15.15	14.79	N/A	N/A
1998	6.27	3.11	5.39	5.70	16.83	N/A	N/A	N/A