Public Employees' Retirement Association of Colorado

COMPREHENSIVE ANNUAL FINANCIAL REPORT FOR THE FISCAL YEAR ENDED DECEMBER 31

1987

PERA

The Public Employees' Retirement Association of Colorado provides retirement and survivor benefits for the employees of 331 state, school, and local government entities in Colorado.

1987 Statistical Highlights

• Benefit Recipients	30,105
• Contributing Members	100,808
• Service Retirements	2,807
• Disability Retirements	309
• Member Deaths	152
• Deaths After Retirement	878
• Benefits Paid	$ 274,235,000
• Refunds	$ 27,704,000
• Employer Contributions	$ 285,101,000
• Member Contributions	$ 198,543,000
• Investment Assets	$6,997,824,000
• Investment Income	$ 598,685,000
• Investment Rate of Return	2.9%
• Five-Year Rate of Return	12.0%

Public Employees' Retirement Association of Colorado Comprehensive Annual Financial Report

for the Fiscal Year Ended December 31, 1987

Robert J. Scott, Executive Director

1300 Logan Street
Denver, Colorado 80203
(303) 832-9550

Prepared by the Staff of PERA

Table of Contents

Introductory Section

June 24, 1988

Dear Members of the Board of Trustees:

I am pleased to present the Comprehensive Annual Financial Report of the Public Employees' Retirement Association of Colorado for the year ended December 31, 1987.

This Report consists of seven sections. The Introductory Section contains this Letter of Transmittal, the Board Chairman's Letter, a summary of the benefit programs, information about the Board of Trustees, the administrative organization and the consulting services used by PERA. The Financial Section contains the opinion of the independent certified public accountants, Arthur Andersen & Co, and the financial statements of the Association, followed by a Supporting Schedules Section. The Investment Section presents information regarding the fund's investments, including the Investment Policy and Summary, information about the fund's performance, a Colorado Investment Profile and listings of the Association's common stock holdings and brokers used.

The Actuarial Section contains the certification of the consulting actuary, Gabriel, Roeder, Smith & Company, along with the results of the actuarial valuation and other actuarial statistics. The Statistical Section contains tables of significant data pertaining to the Association. In the Other PERA Programs Section, the scope and activities of other programs in which the Association is involved for the good of its members and benefit recipients are explained. This includes the Health Care Program, the Life Insurance Program and the Voluntary Investment Program.

Accounting System and Reports

This Report has been prepared in accordance with generally accepted accounting principles applied on a consistent basis as agreed upon by the Governmental Accounting Standards Board (GASB) and the American Institute of Certified Public Accountants. The Financial Statements are presented in accordance with guidelines promulgated by the Financial Accounting Standards Board Statement No. 35 (FASB). The Notes to Financial Statements were prepared in accordance with GASB Statement No. 5.

Transactions of the Association are reported on the accrual basis of accounting for assets, liabilities, revenues and expenses. Revenues for PERA are taken into account when earned without regard to the date of collection. Expenses are recorded when the corresponding liabilities are incurred, regardless of when the payment is made. Fixed assets are recorded at cost and depreciated through charges to expense over the estimated useful lives of the assets.

In developing and evaluating the Association's accounting system, it was found that internal controls adequately safeguard assets and provide reasonable assurance of proper recording of financial transactions.

Contributions are based on the principles of level-cost financing, with current service financed on a current basis. Prior service is amortized over varying periods depending on the respective Division, i.e. 30 years for the State Division, 22 years for the School Division, 30 years for the Municipal Division and 35 years for the Judicial Division.

The Government Finance Officers Association (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to PERA for its financial report for the fiscal year ended December 31, 1986. To be awarded a Certificate of Achievement, a public employee retirement system must publish a readable and organized report that conforms to program standards. We believe our current Report continues to meet GFOA requirements, and we are submitting it to GFOA to determine its eligibility for another Certificate.

Revenues

The revenues needed to finance retirement benefits are accumulated through the collection of employer and member contributions and through income on investments reported at market value. Contributions and investment income, including unrealized gains and losses for 1987, totaled $660,256,000.

As a budget reduction measure, the State Legislature temporarily reduced employer contribution rates for the period of July 1, 1987 to June 30, 1988. For the State Division, the contribution was reduced from 12.2 to 10.2 percent of salary; for State Troopers, the contribution was reduced from 13.2 to 11.2 percent of salary; for the School Division, the contribution was reduced from 12.5 to 11.5 percent of salary; and for the Judicial Division, the contribution was reduced from 15 to 13 percent of salary. There was an increase in total contributions of approximately $11,814,000, resulting from increases in members and the amounts of their salaries.

Expenses

The primary expense of a retirement system relates to the purpose for which it is created, that is, the disbursement of retirement and survivor benefits. These recurring benefit payments, along with refunds of contributions to members who terminate employment, subsidies towards health care benefits and the cost of administering the Association comprise the total expense. In 1987, this totaled $307,092,000, an increase of 16.6 percent over 1986. This increase resulted primarily from a growth in the number and the average size of benefit payments, as well as from the annual increase provided to some benefit recipients.

Total revenues of $660,256,000 exceeded expenses of $307,092,000 by $353,164,000 during 1987. Administrative expenses are controlled by an annual budget approved by the Board of Trustees, and represent 0.1 percent of total assets.

Value of Accumulated Plan Benefits (Reserves)

Accumulated plan benefits as presented in our audited financial statements total $5,487,355,000. This amount is calculated in accordance with FASB Statement No. 35, which does not take into consideration the effect of future salary increases.

For clarification, we also present in the Actuarial Section a summary of PERA's unfunded actuarial accrued liabilities. These liabilities are calculated using assets on a historical cost basis, and include the effect of projected future salary increases on liabilities. The Notes to Financial Statements on pages 18 to 23 are governed by GASB Statement No. 5, and present actuarial valuations including future salary increases and assets at market value.

Investments

The investment portfolio is regarded as a major contributor to the Association. In 1987, realized income from both long and short-term investments amounted to $598,685,000. This exceeded the total revenue contributed by members and employers of $198,543,000 and $285,101,000, respectively.

Changes in the composition of the total portfolio during the year are reflected in the Investment Summary on page 37. Proper funding and healthy investment returns are very important to the financial soundness of PERA. The ratio of investment earnings to total revenue is evidence of the Association's continued strong financial management.

October Stock Market Decline

The Association is restricted by state law from investing more than 50 percent of its assets at cost in the stock market. About 43 percent of the fund was invested in the stock market at the time of the sharp decline in the market in October 1987.

While this decline adversely impacted the fund in regard to unrealized gains, PERA did not sell any stocks when the market declined or on succeeding days. Rather, the Association strengthened its holdings in blue chip companies by selectively buying additional shares. Also, since the fund is diversified over several types of investments, the total impact was lessened because the bond market (in which PERA was 35 percent invested) increased in value during and after the stock market decline.

Asset Allocation

In June 1987, the Board decided to have an asset allocation study conducted to determine what the advantages would be if such a study were adopted by the Association. Based on a thorough analysis which examined plan liabilities, projected future cash flows, market expectations and simulations of future inflation and investment performance, the committee recommended that PERA develop a long-term strategic asset allocation mix as an integral part of the investment policy.

The new asset mix differs from the Association's current asset allocation by a reduction of domestic equities, bonds and cash and an increase in equity real estate, international equities and alternative investments. Implementation of this new policy began in 1988.

Funding

The bottom line for a retirement system is its level of funding. If this level is adequate, the ratio of assets accumulated to total liabilities will be larger, and more income is available for investment purposes. Also, an adequate funding level gives the participants a higher degree of assurance that their pension benefits are secure.

The advantage of a well-funded plan is that participants can see assets which are irrevocably committed to the payment of promised benefits. Although the historical level of funding for PERA is good (as illustrated by the Solvency Test on page 54), continued effort is being directed at improving that level. Funding levels are presented in the Actuarial Section of this Report.

Professional Services

Professional consultants are hired to perform services essential to the efficient operation of PERA. Certifications from the Association's outside auditor and actuary are included in this Report. The Association's consultants are listed on page 11.

Review of Operations and Activities of 1987

The PERA staff is dedicated to professionally serving the Association's members, retirees and other benefit recipients.

In June 1987, legislation passed which instituted a Modified Rule of 75 for two months. Under this Rule, any member age 55 years or older could retire between July 1 and August 31, 1987, with an unreduced benefit according to actual years of service credit if the member's age plus years of service equaled 75 or more. This early retirement incentive caused 1987 to be a record retirement year for the Association, with a total of 2,807 retirements, 1.344 of which were under the provisions of the Modified Rule of 75.

Also, for the first time in 56 years, the law under which the Association operates was recodified. This legislation, which was drafted and supported by PERA, simplified and better organized the law so there will be consistent interpretation of its provisions by members, affiliated employers, PERA staff and legal representatives. The recodified law did not significantly change costs or benefits.

The Association devotes much attention to advising members on their current or future benefits, and assisting them in making personal data record changes. During 1987, the Association's staff met individually with more than 3,600 members and benefit recipients in the PERA office, and responded to more than 61,500 telephone inquiries and 31,000 letters. Also, 204 group meetings were held around Colorado to provide information about plan benefits; more than 6,800 members, retirees and other persons attended these sessions.

The PERA Voluntary Investment Program (VIP), a 401(k) tax-deferred supplemental retirement program, continues to grow. In 1987, assets grew \$2,541,678 — from \$1,750,673 at the end of 1986 to \$4,292,351 at the end of 1987, and membership increased from 902 in 1986 to 1,322 at the end of 1987.

The PERA Health Care Program began in 1986 for benefit recipients and their eligible dependents. At the end of 1987, more than 18,000 of the Association's benefit recipients and 6,900 dependents were covered by the Program.

In May 1987, Board of Trustee elections were held. As a result of new legislation, the size of the Board increased from 15 to 16 members, with the addition of one seat for a representative from the Judicial Division. Judge Donald P. Smith Jr. was elected to be the first Judicial Division representative. Also, Roberta Altenbern was re-elected to represent School Division members, George H. Meares was elected to represent State Division members and Carl S. Wilkerson was elected to represent retirees.

One key staff change was made. Norman G. Benedict became the Deputy Executive Director of Investments.

Acknowledgements

The cooperation of PERA-affiliated employers contributes significantly to the success of the Association. We thank them for their continuing support.

The compilation of the 1987 Report reflects the combined effort of the PERA staff. It is intended to provide complete and reliable information as a basis for making management decisions and as a means of determining compliance with legal provisions, and for determining responsible stewardship of assets contributed by the members and their employers. It is being mailed to all affiliated employers of the Association; a summary will be published in the next Member and Retiree Reports.

I would like to express my gratitude to the staff, consultants, Board and other associates who worked diligently to ensure the successful operation of PERA in 1987.

Respectively submitted,

Robert J. Scott

Robert J. Scott
Executive Director

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Public Employees' Retirement Association of Colorado

For its Comprehensive Annual Financial Report for the Fiscal Year Ended December 31, 1986

A Certificate of Achievement for Excellence in Financial Reporting is presented by the Government Finance Officers Association of the United States and Canada to governmental units and public employee retirement systems whose comprehensive annual financial reports (CAFR's) are judged to substantially conform to program standards.

President

Executive Director

PUBLIC EMPLOYEES' RETIREMENT ASSOCIATION OF COLORADO
1300 Logan Street Denver, Colorado 80203 (303) 832-9550

June 10, 1988

To all PERA Members, Retirees and Employers:

The 1987 Comprehensive Annual Financial Report of the Public Employees' Retirement Association of Colorado presents a detailed review of the financial and actuarial status of your retirement system. I hope you will be pleased with PERA's steady growth.

The Board of Trustees is dedicated to preserving the financial integrity of the fund through a sound fiscal management program. It takes its role very seriously, and has spent considerable time in becoming more knowledgeable in investment and asset allocation strategies and policies.

In the 1987 General Assembly, several bills were proposed by the Association and became law.

- Senate Bill 61 was submitted to the Legislature as a benefit improvement bill with a permanent Modified Rule of 80 provision. After some opposition from members of the Assembly, we compromised and agreed to the following:

    1) A permanent change in the benefit reduction formula for a reduced service retirement (from a 7 percent to a 4 percent reduction per year),

    2) An increase in the percent of Highest Average Salary from 1 to 1.25 for each year of service over 20, to a maximum of 75 percent,

    3) A second effective date (November 1) for annual benefit increases, and

    4) A temporary Modified Rule of 75 retirement provision which allowed persons age 55 and over whose age plus service equaled 75 or greater to retire with a "full" retirement benefit, instead of a reduced benefit.

- The staff revised and recodified the PERA law for the first time in history.

- A Judicial Division representative was added to the Board of Trustees.

In other action, the Legislature also passed a temporary, one year reduction in PERA-affiliated employer contribution rates; and member contributions to PERA became tax-deferred for state income tax purposes.

Finally, on the national level, Congress attempted to make the Medicare tax mandatory for all public employees. PERA lead the successful opposition to this initiative.

In closing, the Board and I send you our thanks for your support and interest. With it, PERA continues to be a leader in public employee retirement systems.

Sincerely,

Terry L. Lantry

Terry L. Lantry, J.D., C.P.A.
Chairman, Board of Trustees

Board of Trustees

By state law, the management of the public employees' retirement fund is vested in the Board of Trustees of the Public Employees' Retirement Association of Colorado.

The Board is composed of 16 members, including the State Auditor and State Treasurer. The 14 representative members are elected by mail ballot of their respective division members to serve on the Board for a four-year term. Five members are elected from the School Division, four from the State Division, two from the Municipal Division, two representing retirees and one from the Judicial Division. If a Board member resigns, a new member is appointed from the respective Division to complete the term.

Administrative Organization

BOARD OF TRUSTEES

Robert J. Scott
Executive Director

Administration

Steven Brown
Deputy Executive Director

Karl Greve
Director, Accounting

Donald Schaefer
Director, Communications

Ray Clarke
Director, Information Systems

Patricia Richards
Director, Personnel & Support Services

Rob Gray
Director, Government Relations

David Maurek
Internal Auditor

Benefits

Nancy Williams
Deputy Executive Director

Glenn Johnson
Actuarial Analyst

Rick Larson
Legal & Research Analyst

Claud Bays
Medical Advisor

Lana Calhoun
Director, Member Services

Paula Westerdahl
Director, Retirement Services

Investments

Norman Benedict
Deputy Executive Director

Bud Cosby
Director, Equities

Terry Maltarich
Director, Fixed Income

Daryl Roberts
Director, Operations

Keith Geddis
Director, Real Estate

CONSULTANTS

Auditor
Arthur Andersen & Co.
717 - 17th Street
Suite 1900
Denver, CO 80202

Health Care Actuary
Mercer-Meidinger-Hansen
1700 Lincoln Street
Suite 3303
Denver, CO 80203

International Equity Manager Search
Capital Trust
River Forum
Suite 450
4380 Southwest Macadam Avenue
Portland, OR 97201

Mercer-Meidinger-Hansen
2405 Grand
Suite 1100
Kansas City, MO 64108

Investment Counsel
Bankers Trust Company
280 Park Avenue
New York, NY 10017

Provident National Bank
Broad and Chestnut Streets
P.O. Box 7648
Philadelphia, PA 19101

Investment Performance Analysts
R.V. Kuhns & Associates, Inc.
1211 Southwest Fifth Avenue
Suite 2850
Portland, OR 97204

Long-Range Planning Consultant
Touche-Ross
1700 Lincoln Street
Suite 4100
Denver, CO 80203

Pension Actuary
Gabriel, Roeder, Smith & Company
407 East Fort Street
Suite 200
Detroit, MI 48226

Risk Management
Marsh & McLennan, Inc.
1700 Lincoln Street
Suite 2900
Denver, CO 80203

The Plan Summary

The Public Employees' Retirement Association plan was established in 1931 and began by covering state employees only. Since then, membership has expanded and includes employees of the State of Colorado, school districts except Denver, and numerous municipalities, special districts, public health departments and other local government entities, as well as the State's judges.

The Plan's purpose is to provide income to members and their families at retirement or in case of death or disability. Funding for the Plan operates on an actuarial reserve basis, with money being set aside for retirement benefits while the benefits are being earned and before they will be paid.

Administration of the Plan

The Association operates by authority of the Colorado General Assembly with benefits and administration defined under Title 24, Article 51 of the Colorado Revised Statutes. PERA is governed by a 16-member Board of Trustees, 14 of whom are elected by the membership for four-year terms and serve without compensation except for necessary expenses. The State Auditor and the State Treasurer serve as ex-officio members.

The Board appoints an Executive Director, who is responsible for the daily operation of the Association. The legal advisor to the Board is the Colorado Attorney General. An actuary who makes annual valuations to determine the adequacy of the funding of retirement benefit liabilities accrued under the Plan is employed. Also, various advisory committees such as Audit, Insurance, Investments and Legislative are appointed by the Board.

Investments

The Board of Trustees has the responsibility for the investment of the Association's funds. These funds are invested in corporate bonds, U.S. Treasury and other government securities, common stocks of top-rated companies, real estate mortgages, direct ownership of real estate property and alternative investments including venture capital.

Member Contributions

Members contribute 8 percent of their annual gross earnings to an individual account. State Troopers contribute 9 percent. Gross earnings include pay for overtime and additional duties, but not reimbursement for expenses and contributions to an employer-sponsored IRC 125 plan as defined by the Internal Revenue Code. The accumulated amount in each account will be used to fund the member's retirement benefit if service is not discontinued.

These contributions are tax-deferred, and are not considered as income for federal and state income tax purposes until they are withdrawn through a refund or a benefit.

Employer Contributions

Affiliated employers also contribute a percentage of their total payroll to the fund. The rates of employer contributions are calculated by the Association's consulting actuary and are set by law: State Division, 12.2 percent; State Troopers, 13.2 percent; School Division, 12.5 percent; Municipal Division, 10.2 percent; and Judicial Division, 15.0 percent.

As a budget reduction measure, the State Legislature temporarily reduced employer contribution rates for the period of July 1, 1987 to June 30, 1988, to 10.2 percent for the State Division, 11.2 percent for State Troopers, 11.5 percent for the School Division and 13 percent for the Judicial Division.

Termination

A member who terminates PERA-affiliated employment is entitled to a refund of all of the contributions he or she made to PERA. Refunds do not include interest or employer contributions since this income is used to fund other benefits.

If the member has five or more years of service, he or she may leave the money in the account and, without further payment, receive a lifetime monthly benefit payable when qualified for service or reduced service retirement.

Retirement

PERA benefits are calculated as a percentage of Highest Average Salary (HAS). This is one-twelfth of the average of the three highest annual salaries earned during calendar year periods on which PERA contributions were paid. A 15 percent limitation applies to annual salary increases used in the calculation.

Service retirement benefits are calculated at 2.5 percent of HAS for each year of service through 20 years, and 1.25 percent of HAS for each year between 20 and 40 years up to a maximum benefit of 75 percent.

Reduced service retirement is calculated the same as service retirement, then decreased by 0.333 percent for each month prior to the first eligible service retirement date. This reduction equals 4 percent per year.

A member is eligible to receive a reduced service retirement benefit as early as age 55 with 20 years of PERA service credit, or at age 60 with as few as 5 years of service.

Service retirement benefits, without reduction, are available to members at age 55 with at least 30 years of service, age 60 with at least 20 years of service or at age 65 with at least 5 years of service.

Disability Retirement

Members with five or more consecutive years of service credit may qualify for disability retirement if determined to be permanently disabled. The disability retirement benefit is a percentage of HAS, based on actual service credit and projected service to age 65 or 20 years of service, whichever is less. Many disabled members receive 50 percent of their HAS, although certain exceptions do exist.

Survivor Benefits

If a member dies before retirement with at least one year of PERA service credit, his or her eligible, unmarried children will receive monthly survivor benefits. Children are eligible until age 18 or, if enrolled full-time in an accredited institute of higher education, until they reach age 23.

If there are no eligible children, or after benefits to children have ceased, the member's surviving spouse receives a monthly benefit at age 60 if the member had less than 10 years of service credit, or immediately if the member had more than 10 years of service at the time of death.

If the member's death was service incurred, the service credit minimum does not apply. If there are no eligible survivors, the named beneficiary, or estate if no beneficiary was named, will receive a single payment refund of any remaining contributions.

Financial Section

Auditor's Report

ARTHUR ANDERSEN & CO.

DENVER, COLORADO

To the Participants and Board of Trustees of
The Public Employees' Retirement Association of Colorado
and the Legislative Audit Committee of the State of Colorado:

We have examined the combined statements of net assets available for benefits and of accumulated plan benefits of the PUBLIC EMPLOYEES' RETIREMENT ASSOCIATION OF COLORADO (a public association of the State of Colorado) as of December 31, 1987 and 1986, and the related combined statements of changes in net assets available for benefits and of changes in accumulated plan benefits for the years then ended. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements referred to above present fairly the net assets and accumulated plan benefits of the Public Employees' Retirement Association of Colorado as of December 31, 1987 and 1986, and the changes in its net assets and accumulated plan benefits for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Our examination was made for the purpose of forming an opinion on the basic financial statements taken as a whole. Schedules I, II, III, and IV are presented for purposes of additional analysis and are not a required part of the basic financial statements. This information has been subjected to the auditing procedures applied in our examination of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

Denver, Colorado,
June 2, 1988.

Arthur Andersen & Co.

Combined Statements of Net Assets Available for Benefits

As of December 31, 1987 and 1986

(In Thousands of Dollars)

	1987	1986
ASSETS		
Investments, at fair market value:		
U.S. Government obligations	$2,015,775	$1,678,294
Corporate bonds	445,928	518,455
Common stocks	2,984,001	2,653,482
Guaranteed note	139,399	122,115
Mortgages	636,365	667,709
Real estate	347,929	301,476
Municipal bonds	22,866	25,117
Total investments	6,592,263	5,966,648
Receivables:		
Employers	15,482	14,775
Members	11,123	9,649
Interest and dividends	59,556	70,128
Other	5,061	55,115
Total receivables	91,222	149,667
Cash and short-term investments	405,561	713,480
Property and equipment, at cost, net of accumulated depreciation of $2,492 and $2,199, respectively	4,841	4,563
Total assets	7,093,887	6,834,358
LIABILITIES AND RESERVES		
Refunds payable and other	22,235	115,870
Reserves:		
Insurance dividend reserve	12,228	11,758
Health care fund	32,517	24,501
Total reserves	44,745	36,259
Total liabilities and reserves	66,980	152,129
Commitments and contingencies (Note 5)		
Net assets available for benefits	$7,026,907	$6,682,229

The accompanying notes to combined financial statements are an integral part of these statements.

Combined Statements of Changes in Net Assets Available for Benefits

For the Years Ended December 31, 1987 and 1986

(In Thousands of Dollars)

	1987	1986
Investment Income:		
Realized gains on investments	$ 172,952	$ 488,493
Interest	306,604	305,407
Dividends	103,026	85,297
Unrealized appreciation (depreciation) in fair market value of investments	(422,073)	(55,322)
Real estate income, net	9,386	4,969
Other	6,717	220
Total investment income	176,612	829,064
Contributions:		
Employers	285,101	284,810
Members	198,543	187,020
Total contributions	483,644	471,830
Transfers:		
Benefits paid to retirees	(247,963)	(217,403)
Benefits paid to survivors	(9,431)	(8,818)
Benefits paid to health care participants	(16,841)	(5,031)
Refunds of contributions	(27,704)	(28,237)
Other, net	3,501	3,812
Total transfers	(298,438)	(255,677)
Administrative expenses	(8,654)	(7,754)
Net increase credited to insurance dividend reserve net of administrative fees	(470)	(684)
Net increase credited to reserve for health care fund	(8,016)	(24,501)
Net increase	344,678	1,012,278
Net assets available for benefits:		
Beginning of year	6,682,229	5,669,951
End of year	$7,026,907	$6,682,229

The accompanying notes to combined financial statements are an integral part of these statements.

Combined Statements of Accumulated Plan Benefits

As of December 31, 1987 and 1986

(In Thousands of Dollars)

	1987	1986
Actuarial present value of accumulated plan benefits:		
Vested benefits		
Benefit recipients	$2,692,772	$2,179,458
Other members	2,271,958	2,290,203
Total vested benefits	4,964,730	4,469,661
Non-vested benefits	522,625	500,347
Total actuarial present value of accumulated plan benefits	$5,487,355	$4,970,008

The accompanying notes to combined financial statements are an integral part of these statements.

Combined Statements of Changes in Accumulated Plan Benefits

For the Years Ended December 31, 1987 and 1986

(In Thousands of Dollars)

	1987	1986
Actuarial present value of accumulated plan benefits at beginning of year	$4,970,008	$4,235,618
Increase (decrease) during the year attributable to:		
Change in actuarial assumptions	—	268,100
Benefits accumulated and interest amortization, net of refunds	630,741	692,511
Change in plan provisions resulting from legislation	144,000	—
Benefits paid	(257,394)	(226,221)
Actuarial present value of accumulated plan benefits at end of year	$5,487,355	$4,970,008

The accompanying notes to combined financial statements are an integral part of these statements.

December 31, 1987 and 1986

(1) GENERAL DESCRIPTION OF PLAN

Organization

The Public Employees' Retirement Association of Colorado (the "Association") was established under Title 24, Article 51, Section 102 of the Colorado Revised Statutes, as amended. It was created in 1931 as a public association for the purpose of providing present and future retirement, disability or survivor benefits for persons who are employed by public employers (most of whom do not participate under Social Security) located in the State of Colorado and affiliated with the Association. This is accomplished through its operations as a cost-sharing multiple-employer defined benefit pension plan (the "Plan"). Responsibility for the organization and administration of the Plan is vested in the Public Employees' Retirement Association Board of Trustees (the "Board"). The State Division Trust Fund was established in 1931, the School and Municipal Division Trust Funds in 1944 and the Judicial Division Trust Fund in 1949.

The numbers of participating public employers for the four divisions are as follows:

	As of December 31	
	1987	**1986**
State	77	78
School	198	198
Municipal	50	47
Judicial	6	6
Total employers	331	329

The participants of the Association consisted of the following as of December 31, 1987 and 1986:

					Combined Total	
	State	**School**	**Municipal**	**Judicial**	**1987**	**1986**
Retirees and beneficiaries currently receiving benefits, and terminated members entitled to benefits but not yet receiving them	14,698	15,796	1,548	168	32,210	29,973
Members						
Vested	21,117	34,444	3,673	170	59,404	59,192
Non-vested	15,127	22,717	3,494	66	41,404	40,785
Totals	50,942	72,957	8,715	404	133,018	129,950

Reporting Entity

The combined financial statements of the Association include all funds over which the Board has the ability to exercise oversight responsibility. This oversight responsibility includes designation of management, the ability to significantly influence operations and accountability for fiscal matters.

By law, the Association is not an agency of state government, nor is it subject to administrative direction by any department, commission, board, bureau or agency of the state. Accordingly, the Association's financial statements are not included in the financial statements of any other organization.

Contributions and Members' Accounts

Employer and member contributions are defined by state statute based upon actuarial valuations performed annually, using the methods prescribed by National Council on Governmental Accounting Statement No. 1. Members are required to contribute 8 percent of their annual salary to the Association, except for State Patrol Troopers ("State Troopers"), who contribute 9 percent.

Contributions are tax-deferred to the members for federal and state income tax purposes effective July 1, 1984 and January 1, 1987, respectively. Prior to those dates, contributions were made on an after-tax basis. These contributions are credited directly to their "active member" accounts. Members' contributions are fully refundable, without interest, upon request at termination of employment from Association-affiliated employers. If members have at least five years of credited service, they are eligible to receive a future monthly retirement benefit. Any refund of contributions waives all future rights to any benefits. However, eligible members with one or more years of credited service who previously refunded their contributions may reinstate withdrawn service through lump-sum or installment payments. Any member of the Association who has non-covered public service time may purchase credit for that service through lump-sum or installment payments to receive additional credited service which will increase future retirement benefits.

The Association's funding policy also requires contributions by employers. Contributions during 1987 and 1986 were as follows:

		Contributions as a Percent of Members' Salaries	
Division	**Membership**	**January 1, 1986 through June 30, 1987**	**July 1, 1987 through December 31, 1987**
State	All members except State Troopers	12.2%	10.2%
	State Troopers	13.2	11.2
School	All members	12.5	11.5
Municipal	All members	10.2	10.2
Judicial	All members	15.0	13.0

These contributions are credited to the member's division for the purpose of creating actuarial reserves so each member's benefits will be fully provided for upon retirement.

Benefits

Members are eligible for service retirement benefits upon reaching (a) age 65 with five or more years of credited service, (b) age 60 with 20 or more years of credited service, (c) age 55 with 30 or more years of service or by (d) earning 35 or more years of credited service. In addition, State Troopers are eligible for retirement benefits upon (a) reaching age 55 with 20 or more years of credited service or (b) earning 30 or more years of credited service. Such benefits are equivalent to 2.5 percent of their Highest Average Salary ("HAS"), the average of their three highest annual salaries earned during calendar year periods, prior to retirement for each year of service up to 20 years, and 1.25 percent for each year over 20 years. The maximum benefit available is 75 percent of their HAS. The Plan also permits reduced service retirement at age 55 (age 50 for State Troopers) with 20 or more years of credited service, or at age 60 with five or more years of credited service. Members may elect to receive their benefits in the form of single life or joint life payments. As a result of changes in legislation, certain benefits changed during 1987, resulting in an increase in the actuarial present value of accumulated plan benefits as of December 31, 1987, of $144,000,000.

The Plan also provides for disability retirement and survivor benefits. Members who become permanently disabled with at least five years of credited service since the beginning of the most recent period of membership can receive disability benefits that are based on service credit projected to age 65, to a maximum of 20 years of credit. The HAS calculation is the same as that used for service retirement. There are also provisions for a partial disability retirement benefit when the member is disabled from regular but not comparable employment.

If an active member dies after accumulating at least one year of service credit, a benefit based upon the accumulated credited service as of the time of death and the number and relationship of family survivors, is payable to such survivors.

Termination of the Association

The law provides that should the Association be terminated or partially terminated for any reason, the rights of all members and former members to all benefits accrued to the date of such termination, to the extent then funded, shall become nonforfeitable.

(2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting and Presentation

The accompanying financial statements are prepared using the accrual basis of accounting, in accordance with generally accepted accounting principles applicable to governmental accounting for a pension trust fund. The various funds have been presented on a combined basis, with all interfund balances and transactions eliminated in the combined financial statements.

Fund Accounting

The financial activities of the Association are recorded in separate divisions (State, School, Municipal and Judicial) established by statute with investments owned by the divisions recorded in the Combined Investment Fund. A Cost of Living Stablization Fund, Health Care Fund, Common Operating Fund and Insurance Dividend Reserve are also maintained. Each division maintains separate accounts and all actuarial determinations are made on the basis of each division's separate information.

The Cost of Living Stabilization Fund (the "CLSF") was created on May 1, 1980, through the enactment of Senate Bill 62 to offset inflation by providing increased benefits payable to retirees of the Association. The CLSF is funded by payments from employers equal to 2 percent of member salaries. Such payments are collected by each division on behalf of the CLSF. The increased benefits to retirees are paid directly by each division to the retirees and then reimbursed by transfer from the CLSF. The net assets of the CLSF as of December 31, 1987 and 1986, amounting to $32,232,000 and $27,772,000, respectively, are included in net assets available for benefits presented in the Combined Statements of Net Assets Available for Benefits. Conversely, the computation of the total actuarial present value of accumulated plan benefits included in the Combined Statements of Accumulated Plan Benefits and Combined Statements of Changes in Accumulated Plan Benefits does not include a provision for cost of living increases from the CLSF, in accordance with the Statement of Financial Accounting Standards No. 35.

The Health Care Fund (the "HCF") was created on July 1, 1985, through the enactment of Senate Bill 67 to provide group health insurance to Association retirees. The HCF is funded by payments from employers equal to 0.8 percent of member salaries. Such payments are collected by each division on behalf of the HCF. Beginning July 1, 1986, the HCF began contributing towards enrolled retirees and benefit recipients' health care premiums by making payments directly to insurance companies and Health Maintenance Organizations selected for this program.

The Common Operating Fund (the "COF") accounts for all administrative activities common to the divisions. Operating assets and liabilities which are held for the benefit of all divisions are also recorded in the COF. The expenses incurred by the Association are allocated from the COF to the various divisions on the basis of the relationship of the number of members in the division to the total membership in the Association.

The Insurance Dividend Reserve (the "IDR") is an accumulation of dividends received from an insurance company as a return of the premiums paid, adjusted for actual historical experience by members. In addition, the IDR receives income from its investment in the Combined Investment Fund. The IDR is used to purchase paid-up life insurance for eligible members when they retire and additional paid-up insurance for insured members.

Investments

Plan investments (excluding the guaranteed investment contract with an insurance company and short-term investments) are presented at fair market value. Securities, which are traded on a national securities exchange, are valued at the last reported sales price during the year. For other investments which do not have an established market, estimated fair values are presented. Corporate bonds are valued based on yields currently available on comparable securities of issuers with similar credit ratings. Mortgages are valued on the basis of their future principal and interest payments discounted at prevailing interest rates for similar instruments. The fair market value of real estate investments is based upon estimates prepared by independent appraisers.

In addition, the guaranteed Aetna Life and Casualty Note (Notes 3 and 4) is valued at contract value, representing principal plus accrued interest at the stated contract rate. Short-term investments are carried at cost, which approximates fair market value.

The change in the market value of investments held as of year-end is reflected in the Combined Statements of Changes in Net Assets Available for Benefits as unrealized appreciation or depreciation.

On October 1, 1985, plan investments (and investment-related amounts) owned by the divisions were transferred to the Combined Investment Fund (the "CIF"). Upon transfer, each division received ownership units in the CIF based upon the fair market value of each division's investment portfolio (and investment-related amounts) held on September 30, 1985. On March 1 and July 1, 1986, investments (and investment-related amounts) of the HCF and CLSF, respectively, were transferred to the CIF in exchange for ownership units in the CIF. The IDR investments (and investment-related amounts) were transferred to the CIF on January 1, 1987, in exchange for ownership units in the CIF. Under this system, each fund's ownership units in the CIF are adjusted upward or downward based upon the fund's activity. Results of investment performance and the value of the CIF are allocated among the funds based upon each fund's ownership units as a percentage of the total units outstanding. As of December 31, 1987 and 1986, the ownership units of each fund are as follows:

	Units as of December 31	
	1987	**1986**
State	42,102,241	41,440,270
School	58,107,233	56,513,183
Municipal	5,507,325	5,308,042
Judicial	599,432	600,384
HCF	563,036	407,375
CLSF	427,207	372,070
IDR	147,192	—
Total	107,453,666	104,641,324

Actuarial Valuation

Accumulated plan benefits are those future periodic payments, plus lump-sum distributions, which are attributable under the Plan's provisions to the service members have rendered. Accumulated plan benefits include benefits expected to be paid to (a) retired or terminated members or their beneficiaries, (b) beneficiaries of members who have died and (c) present members or their beneficiaries.

The actuarial present value of accumulated plan benefits included in the Combined Statements of Accumulated Plan Benefits and Combined Statements of Changes in Accumulated Plan Benefits is presented in accordance with the Statement of Financial Accounting Standards No. 35.

The actuarial present value of accumulated plan benefits was determined by the firm of Gabriel, Roeder, Smith and Company on the basis of the "entry age normal" cost method. The resulting amount adjusts accumulated plan benefits to reflect the time value of money (through discounts for interest) and the probability of payment (by means of decrements for death, disability, withdrawal or retirement) between the valuation date and the expected date of payment. The following summarizes the significant actuarial assumptions underlying the actuarial computations as of December 31, 1987 and 1986:

	Valuation as of December 31	
Actuarial Assumptions	**1987**	**1986**
Investment return	7.5% compounded annually	7.5% compounded annually
Average retirement age		
Men	Ranging from 60 to 65	Ranging from 61 to 66
Women	Ranging from 60 to 65	Ranging from 60 to 65
Life Expectancy	1971 Group Annuity Mortality Table projected to 1984	1971 Group Annuity Mortality Table projected to 1984

These actuarial assumptions are based on the presumption that the Association will continue. If the Plan were to terminate, different actuarial assumptions and other factors might be applicable in determining the actuarial present value of accumulated plan benefits.

Unfunded Actuarial Accrued Liabilities

The unfunded actuarial accrued liability calculation compares the present value of future benefits less the Association's assets. The accompanying financial statements reflect plan assets on a fair market value basis. If the plan assets had been presented on a historical cost basis and future salary increases were considered, the unfunded actuarial accrued liabilities for the various divisions as of December 31, 1987 and 1986, would be as follows:

	1987	**1986**
State	$ 593,228,108	$495,305,322
School	542,935,499	386,552,691
Municipal	44,957,260	16,874,024
Judicial	6,206,946	2,339,842
Total	$1,187,327,813	$901,071,879

Contributions were made to the divisions in accordance with actuarially calculated contribution requirements determined through actuarial valuations performed as of December 31, 1987 and 1986. The following summarizes the contributions made during 1987 and 1986:

	1987	**1986**
Contributions made by:		
Employers	$216,089,000	$218,520,000
Members	198,543,000	187,020,000
Total contributions	$414,632,000	$405,540,000

	1987	**1986**
Contributions consisted of:		
Normal cost	$330,070,000	$324,256,000
Amortization of the unfunded actuarial accrued liabilities	84,562,000	81,284,000
Total contributions	$414,632,000	$405,540,000
Amortization periods computed to fund unfunded actuarial accrued liabilities	22 to 35 years	5 to 16 years

Property and Equipment

Property and equipment are carried at cost. Costs of major additions and improvements are capitalized. Expenditures for maintenance and repairs are charged to operations as incurred. Depreciation is computed on the straight-line method using estimated lives ranging from three to 50 years.

Federal Income Tax Status

During the years ended December 31, 1987 and 1986, the Association continued to receive from the Internal Revenue Service a favorable determination for exemption from federal income taxes.

(3) GUARANTEED NOTE

In 1980, the Association acquired a guaranteed note from the Aetna Life and Casualty Insurance Company for $50,000,000. The note earns interest annually at a rate of 14.3 percent which is guaranteed through 1989.

(4) INVESTMENTS

Investment Authority

By statute, the Board has complete control and authority to invest the funds of the Association. The law allows any kind of investments with the following limitations: (a) The aggregate amount of moneys invested in corporate stocks or corporate bonds, notes or debentures which are convertible into stock or in investment trust shares shall not exceed 50 percent of the then book value of the fund; and (b) no investment of the fund in common or preferred stock, or both, of any single corporation shall be of an amount which exceeds 5 percent of the then book value of the fund, nor shall the fund acquire more than 7 percent of the outstanding stock or bonds of any single corporation.

Cash and Short-Term Investments

The following table presents cash and short-term investments held by the Association at December 31, 1987:

	(In Thousands of Dollars) Carrying Value	Bank Balance
Deposits with banks (fully insured by federal depository insurance)	$ 7,550	$(315,997)
Repurchase agreements (held by the Association's agent in the Association's name)	291,458	291,458
Money market funds (fully collateralized by the underlying securities)	106,553	106,553
Total cash and short-term investments	$405,561	$ 82,014

The differences between carrying amounts and bank balances are due to checks and deposits not yet processed by the bank and an error made by the bank on December 31, 1987, which was corrected by the bank on the first business day of 1988.

The state statute allows the Association to enter into repurchase agreements. These are agreements in which the Association transfers cash for securities to a dealer who agrees to repurchase the securities at a stated price, which includes interest, at a stated time. The repurchase agreements the Association was invested in at December 31, 1987, had underlying securities with a market value of $298,623,000, or 102 percent of the cash transferred to the dealer. The Association's collateral interest in the underlying securities is perfected by delivery of the securities to the Association's safekeeping account.

Other Investments

The following table presents the remaining investments held by the Association at December 31, 1987, categorized to give an indication of the level of risk assumed by the Association at year-end. The categories are:

(1) Insured or registered, or securities which are held by the Association in the Association's name or its agent's name.

(2) Uninsured and unregistered, with securities held by the counterparty's trust department or agent in the Association's name.

(3) Uninsured and unregistered, with the securities held by the counterparty, or by its trust department or agent but not in the Association's name.

Investments in real estate cannot be categorized because securities are not used as evidence of the investment.

	Category 1	Category 2	Category 3	(In Thousands of Dollars) Amortized Cost	Market Value
U.S. Government obligations	$2,063,034	$ —	$ —	$2,063,034	$2,015,775
Corporate bonds	452,830	—	—	452,830	445,928
Common stocks	2,973,118	—	—	2,973,118	2,984,001
Guaranteed note	139,399	—	—	139,399	139,399
Mortgages	631,960	—	—	631,960	636,365
Municipal bonds	25,000	—	—	25,000	22,866
Subtotal	$6,285,341	$ —	$ —	6,285,341	6,244,334
Non-categorized real estate				350,774	347,929
Total				$6,636,115	$6,592,263

Securities Lending

The Association enters into various short-term arrangements whereby investments are loaned to various brokers. The lending arrangements are collateralized by cash, letters of credit and marketable securities. These agreements provide for the return of the investments and for a payment of: (a) A fee when the collateral is marketable securities or letters of credit, or (b) interest earned when the collateral is cash on deposit. The securities on loan to the broker are presented in the Combined Statements of Net Assets Available for Benefits at fair market value. As of December 31, 1987, the Association had lending arrangements outstanding with a total market value of $1,084,176,000 and a total collateral value of $1,107,797,000 or 102 percent of the total market value outstanding.

(5) COMMITMENTS AND CONTINGENCIES

At December 31, 1987, the Association was committed to the future purchase of investments at an aggregate cost of approximately $95,600,000. In addition, various legal proceedings are pending against the Association which are the result of the normal activities of the Association. Based on the facts presently available, the Association, with advice from legal counsel, has concluded that the aggregate liability, if any, of the Association resulting therefrom will not have an adverse impact on the financial condition of the Association.

(6) FUNDING STATUS AND PROGRESS

The amount shown below as the "pension benefit obligation" is a standardized disclosure measure of the present value of pension benefits adjusted for the effects of projected salary increases and estimated to be payable in the future as a result of member service-to-date. The measure is the actuarial present value of credited projected benefits and is intended to (a) help users assess the Plan's funding status on a going concern basis, (b) assess progress being made in accumulating sufficient assets to pay benefits when due and (c) allow for comparisons among public employee retirement plans. The measure is independent of the actuarial funding method used to determine contributions to the Plan.

The pension benefit obligation was determined as part of an actuarial valuation of the Plan as of December 31, 1987 and 1986. Significant actuarial assumptions used in determing the pension benefit obligation include (a) a rate of return on the investment of present and future assets of 7.5 percent per year compounded annually; (b) projected salary increases of 5.5 percent per year compounded annually, attributable to inflation; (c) additional projected salary increases ranging from 0 percent to 7.4 percent per year depending on age, attributable to seniority/merit; and (d) projected benefit increases ranging from 1.5 percent to 3 percent per year after retirement.

At December 31, 1987 and 1986, assets in excess of pension benefit obligation, as determined in accordance with generally accepted accounting principles prescribed by Statement No. 5 of the Governmental Accounting Standards Board, were as follows:

	(In Thousands of Dollars)					
	State	**School**	**Municipal**	**Judicial**	**1987 Total**	**1986 Total**
Pension benefit obligation:						
Retirees and beneficiaries currently receiving benefits	$1,318,824	$1,229,743	$121,978	$22,227	$2,692,772	$2,179,458
Terminated members not yet receiving benefits	17,234	34,744	1,523	586	54,087	54,783
Current members:						
Accumulated member contributions including allocated investment income	480,845	665,180	74,024	5,791	1,225,840	1,131,426
Employer financed — vested	1,146,196	1,829,375	147,274	12,188	3,135,033	2,776,466
Employer financed — non-vested	43,677	50,518	7,999	528	102,722	81,603
Total pension benefit obligation	3,006,776	3,809,560	352,798	41,320	7,210,454	6,223,736
Net assets available for benefits, at fair market value (net of CLSF net assets) and including ratable all allocation of COF net assets	2,764,035	3,827,629	363,291	39,720	6,994,675	6,654,457
Assets in excess of (or less than) pension benefit obligation	$ (242,741)	$ 18,069	$ 10,493	$ (1,600)	$ (215,779)	$ 430,721

(7) TEN-YEAR HISTORICAL TREND INFORMATION

Ten-year historical trend information designed to provide information about the Association's progress made in accumulating sufficient assets to pay benefits when due is presented on pages 33, 61 and 62 of the Comprehensive Annual Financial Report.

Schedule I

Combining Statement of Net Assets Available For Benefits

December 31, 1987, With Comparative Combined Totals For 1986

(In Thousands of Dollars)

ASSETS	State Division Trust Fund	School Division Trust Fund
Investments, at fair market value:		
U.S. Government obligations	$ 789,816	$1,090,062
Corporate bonds	174,722	241,142
Common stocks	1,169,184	1,613,645
Guaranteed note	54,619	75,382
Mortgages	249,339	344,124
Real estate	136,325	188,148
Municipal bonds	8,959	12,365
Total investments	2,582,964	3,564,868
Receivables:		
Employers	2,678	11,275
Members	2,101	7,843
Interest and dividends	23,335	32,206
Other	1,405	1,714
Total receivables	29,519	53,038
Cash and short-term investments	158,917	219,328
Property and equipment, at cost, net of accumulated depreciation of $2,492 and $2,199, respectively	—	—
Total assets	2,771,400	3,837,234
LIABILITIES AND RESERVE		
Refunds payable and other	7,960	10,427
Reserves:		
Insurance dividend reserve	—	—
Health care fund	—	—
Total reserves	—	—
Total liabilities and reserve	7,960	10,427
Commitments and contingencies (Note 5)		
Net assets available for benefits	$2,763,440	$3,826,807

The assets and liabilities of the Combined Investment Fund have been allocated to the trust funds on a pro rata basis.

Municipal Division Trust Fund	Judicial Division Trust Fund	Cost of Living Stabilization Fund	Health Care Fund	Common Operating Fund	Insurance Dividend Reserve	Combined Total 1987	Combined Total 1986
$ 103,315	$ 11,245	$ 8,014	$ 10,562	$ —	$ 2,761	$2,015,775	$1,678,294
22,855	2,488	1,773	2,337	—	611	445,928	518,455
152,939	16,646	11,864	15,636	—	4,087	2,984,001	2,653,482
7,145	778	554	730	—	191	139,399	122,115
32,616	3,550	2,530	3,334	—	872	636,365	667,709
17,832	1,941	1,383	1,823	—	477	347,929	301,476
1,172	128	91	120	—	31	22,866	25,117
337,874	36,776	26,209	34,542	—	9,030	6,592,263	5,966,648
1,412	117	—	—	—	—	15,482	14,775
1,107	72	—	—	—	—	11,123	9,649
3,052	332	237	312	—	82	59,556	70,128
246	231	12	317	640	496	5,061	55,115
5,817	752	249	629	640	578	91,222	149,667
20,788	2,263	1,613	2,125	(28)	555	405,561	713,480
—	—	—	—	4,841	—	4,841	4,563
364,479	39,791	28,071	37,296	5,453	10,163	7,093,887	6,834,358
1,266	80	(4,161)	4,779	3,949	(2,065)	22,235	115,870
—	—	—	—	—	12,228	12,228	11,758
—	—	—	32,517	—	—	32,517	24,501
—	—	—	32,517	—	12,228	44,745	36,259
1,266	80	(4,161)	37,296	3,949	10,163	66,980	152,129
$ 363,213	$ 39,711	$ 32,232	$ —	$ 1,504	$ —	$7,026,907	$6,682,229

Combining Statement of Changes in Net Assets Available for Benefits

Year Ended December 31, 1987, With Comparative Combined Totals for 1986

(In Thousands of Dollars)

	State Division Trust Fund	School Division Trust Fund
Investment Income:		
Realized gains on investments	$ 68,071	$ 93,435
Interest	120,676	165,640
Dividends	40,550	55,659
Unrealized appreciation (depreciation) in fair market value of investments	(164,339)	(228,487)
Real estate income, net	3,694	5,071
Other	320	389
Total investment income	68,972	91,707
Contributions:		
Employers	83,022	119,167
Members	79,757	104,176
Total contributions	162,779	223,343
Transfers:		
Benefits paid to retirees	(121,237)	(114,514)
Benefits paid to survivors	(4,862)	(3,680)
Benefits paid to health care participants	—	—
Refunds of contributions	(13,735)	(11,108)
Other, net	25,520	21,077
Total transfers	(114,314)	(108,225)
Administrative expenses	(2,993)	(4,318)
Net increase credited to insurance dividend reserve net of administrative fees	—	—
Net increase credited to reserve for health care fund	—	—
Net increase	114,444	202,507
Net assets available for benefits:		
Beginning of year	2,648,996	3,624,300
End of year	$2,763,440	$3,826,807

The investment income of the Combined Investment Fund has been allocated to the trust funds on a pro rata basis.

Municipal Division Trust Fund	Judicial Division Trust Fund	Cost of Living Stabilization Fund	Health Care Fund	Common Operating Fund	Insurance Dividend Reserve	Combined Total 1987	Combined Total 1986
$ 8,819	$ 981	$ 630	$ 779	$ —	$ 237	$ 172,952	$ 488,493
15,633	1,738	1,117	1,381	—	419	306,604	305,407
5,253	584	375	464	—	141	103,026	85,297
(21,858)	(2,298)	(1,861)	(2,630)	—	(600)	(422,073)	(55,322)
479	53	34	42	—	13	9,386	4,969
42	7	—	5,446	(11)	524	6,717	220
8,368	1,065	295	5,482	(11)	734	176,612	829,064
12,693	1,207	49,294	19,718	—	—	285,101	284,810
13,738	872	—	—	—	—	198,543	187,020
26,431	2,079	49,294	19,718	—	—	483,644	471,830
(10,163)	(2,049)	—	—	—	—	(247,963)	(217,403)
(697)	(192)	—	—	—	—	(9,431)	(8,818)
—	—	—	(16,841)	—	—	(16,841)	(5,031)
(2,690)	(171)	—	—	—	—	(27,704)	(28,237)
2,006	291	(45,129)	—	(11,758)	11,494	3,501	3,812
(11,544)	(2,121)	(45,129)	(16,841)	(11,758)	11,494	(298,438)	(255,677)
(516)	(22)	—	(343)	(462)	—	(8,654)	(7,754)
—	—	—	—	11,758	(12,228)	(470)	(684)
—	—	—	(8,016)	—	—	(8,016)	(24,501)
22,739	1,001	4,460	—	(473)	—	344,678	1,012,278
340,474	38,710	27,772	—	1,977	—	6,682,229	5,669,951
$ 363,213	$ 39,711	$ 32,232	$ —	$ 1,504	$ —	$7,026,907	$6,682,229

Schedule III

Combining Statement of Accumulated Plan Benefits

December 31, 1987, With Comparative Combined Totals for 1986

(In Thousands of Dollars)

	State Division Trust Fund
Actuarial present value of accumulated plan benefits:	
Vested benefits	
Benefit recipients	$1,318,824
Other members	874,741
Total vested benefits	2,193,565
Non-vested benefits	235,548
Total actuarial present value of accumulated plan benefits	$2,429,113

Schedule IV

Combining Statement of Changes in Accumulated Plan Benefits

Year Ended December 31, 1987, With Comparative Combined Totals for 1986

(In Thousands of Dollars)

	State Division Trust Fund
Actuarial present value of accumulated plan benefits at beginning of year	$2,202,884
Increase (decrease) during the year attributable to:	
Change in actuarial assumptions	—
Benefits accumulated and interest amortization, net of refunds	297,328
Change in plan provisions resulting from legislation	55,000
Benefits paid	(126,099)
Actuarial present value of accumulated plan benefits at end of year	$2,429,113

School Division Trust Fund	Municipal Division Trust Fund	Judicial Division Trust Fund	Combined Total	
			1987	1986
$1,229,743	$ 121,978	$ 22,227	$2,692,772	$2,179,458
1,290,555	95,959	10,703	2,271,958	2,290,203
2,520,298	217,937	32,930	4,964,730	4,469,661
241,160	43,298	2,619	522,625	500,347
$2,761,458	$ 261,235	$ 35,549	$5,487,355	$4,970,008

School Division Trust Fund	Municipal Division Trust Fund	Judicial Division Trust Fund	Combined Total	
			1987	1986
$2,518,630	$ 219,222	$ 29,272	$4,970,008	$4,235,618
—	—	—	—	268,100
283,022	45,873	4,518	630,741	692,511
78,000	7,000	4,000	144,000	—
(118,194)	(10,860)	(2,241)	(257,394)	(226,221)
$2,761,458	$ 261,235	$ 35,549	$5,487,355	$4,970,008

Supporting Schedules for Financial Section*

*unaudited

Schedule of Administrative Expenses

For the Years Ended December 31, 1987 and 1986

	1987	1986
Personnel Services		
Salaries	$3,959,147	$3,530,324
Employee Benefits	837,454	810,142
Total Personnel Services	4,796,601	4,340,466
Staff Education		
Personal Improvement Program	17,359	19,769
PERA Required Education	44,887	22,776
Other	—	198
Total Staff Education	62,246	42,743
Professional Contracts		
Actuarial Contracts	77,389	217,686
Audits	78,587	65,900
Medical Exams	118,695	125,179
Investment Counsel	278,951	76,432
Legal and Legislative Counsel	134,975	103,025
Construction Superintendent	—	26,450
Other	353,778	149,379
Total Professional Contracts	1,042,375	764,051
Miscellaneous		
Equipment Rental & Service	157,882	202,743
Memberships	21,779	11,438
Publications & Subscriptions	19,998	21,942
Travel and Local Expense	162,315	67,213
Board Expense	60,699	100,242
Board Fiduciary Expense	353,829	225,000
Auto Expense	7,770	7,134
Telephone	89,806	64,435
Postage	163,052	139,491
Insurance	192,531	227,287
Printing	240,435	156,040
Office Supplies	90,579	81,856
Building Rent, Supplies & Utilities	398,030	519,596
Other	65,769	22,763
Total Miscellaneous	2,024,474	1,847,180
Total Budgeted Expense	7,925,696	6,994,440
Depreciation Expense	462,266	381,061
Health Care Operating Expense	343,057	437,773
Total Expense	8,731,019	7,813,274
Interfund Transactions	(76,790)	(59,930)
Total Administrative Expense	8,654,229	7,753,344
Allocation of Administrative Expense		
State Division	2,993,016	2,809,766
School Division	4,317,609	4,014,703
Municipal Division	515,797	470,165
Judicial Division	22,484	20,937
Health Care Fund	343,057	437,773
Common Operating Fund	462,266	—
Total Allocation	$8,654,229	$7,753,344

Schedule of Cash Receipts and Disbursements

For the Years Ended December 31, 1987 and 1986
(In Thousands of Dollars)

	1987	1986
Cash Balance at Beginning of Year	$ 28,714	$ 18,080
Add Cash Receipts:		
Investment Sales	7,280,952	18,376,584
Contributions:		
Members	198,543	186,050
Employers	216,089	217,471
Cost of Living Stabilization Fund	49,220	68,109
Health Care Fund	20,380	23,915
Investment Income	587,912	852,365
Other Receipts	2,020	15,952
Total Cash Receipts	$8,355,116	$19,740,446
Less Cash Disbursements:		
Investment Purchases	$8,082,288	$19,467,033
Benefit Payments	257,342	226,284
Refunds	28,801	29,344
Administrative Expenses	7,849	7,151
Total Cash Disbursements	$8,376,280	$19,729,812
Cash Balance at End of Year	$ 7,550	$ 28,714

Schedule of Funding Progress*

Analysis of the dollar amounts of net assets available for benefits, pension benefit obligation and pension benefit obligation in excess of assets in isolation can be misleading. Expressing the net assets available for benefits as a percentage of the pension benefit obligation provides one indication of the Association's funding status on a going concern basis. Analysis of this percentage over time indicates whether the system is becoming financially stronger or weaker. Generally, the greater the percentage, the stronger the retirement system. Trends in pension benefit obligation in excess of assets and annual covered payroll are both affected by inflation. Expressing the assets in excess of inflation aids analysis of PERA's progress made in accumulating sufficient assets to pay benefits when due.

(In Millions of Dollars)

Fiscal Year	(1) Net Assets Available for Benefits**	(2) Pension Benefit Obligation	(3) Percentage Funded (1) ÷ (2)	(4) Pension Benefit Obligation In Excess of Assets (2) − (1)	(5) Annual Covered Payroll	(6) Pension Benefit Obligation in Excess of Assets as a Percentage of Covered Payroll (4) ÷ (5)
1986	$6,654	$6,224	106.91%	$(430)	$2,409	(17.85%)
1987	$6,995	$7,210	97.02%	$ 215	$2,531	8.49%

*The information for this schedule is for 1986 and 1987 only; previous years are unavailable.
**At market.

Investments Section*

*unaudited

The function of the Public Employees' Retirement Association is to provide retirement or survivor benefits for its members. Thus, the preservation of capital is of paramount importance.

The future investment performance of the fund directly affects its future financial strength. Earnings on portfolio assets in excess of the assumed actuarial rate of return (7.5 percent) reduce unfunded actuarial liabilities. However, the greater the expected return, the higher the risk and thus, the greater the volatility of actual versus expected returns.

Investment Decisions

The fund is long-term in nature. The selection of investments is regulated by statutory limitations, investment time horizons, limits of acceptable risk and the objective of optimizing the total rate of return for the portfolio.

Approval of all purchases and sales of investments is vested by law in the PERA Board of Trustees. The Deputy Executive Director of Investments is authorized to execute transactions on behalf of the Board, as permitted under policy and procedure statements.

Investment decisions are made within the framework of the goal established for the rate of return, limits of acceptable risk and fund objectives. The goal is to optimize the return of the portfolio as opposed to maximizing the rate of return. The optimal portfolio mix is one that carefully equates expected rate of return with expected risk of all investment categories used in the portfolio.

State law limits the amount of the fund to be invested in equity stock to 50 percent at book value. It also prohibits the investment of more than 5 percent of PERA assets at the then book value in any single company, and limits PERA to own no more than 7 percent of any single corporation's outstanding stocks or bonds.

The portfolio will be managed using the expertise of both internal and external management. No holding will be considered a "permanent" part of the portfolio. Any security can be sold at any time either to increase gains or decrease losses.

In making investment decisions, the Board will use the highest caliber advice available, both internally and externally. This advice may include the internal investment staff, outside investment managers selected for both traditional and nontraditional asset classes and investment consultants selected by the Board for expertise in implementing and carrying out the portfolio process.

Asset Allocation

During 1987, the Board approved a formal strategic (long-term) asset allocation study to diversify PERA's assets. This policy change allows the fund to invest up to 15 percent of its assets in foreign securities. This will be accomplished by using external international equity managers commencing in 1988.

The targeted strategic asset allocation is designed to provide the optimal mix of asset categories which emphasize diversification over the investment time horizon of the portfolio. In doing so, the characteristics of risk, expected return and their correlation to the various asset categories have been carefully projected. Both traditional (cash, bonds, domestic equities, fixed income and mortgages) and nontraditonal assets (real estate, guaranteed investment contract, international equities, venture capital and alternative investments) will be incorporated into the strategic asset mix.

Since the investment time horizon of the portfolio is long-term and the portfolio is constructed to avoid the necessity of liquidating holdings to meet benefit payments, liquidity is not the first consideration. However, every reasonable effort will be made to provide protection for the portfolio in any future deteriorating market.

The Board recognizes that individual investment holdings contain higher risk than portfolios constructed of such holdings. Primary effort will be made to diversify the risk of the total portfolio through an optimal diversification, as opposed to concentrating on individual issues. The Board also recognizes that the use of certain nontraditional asset categories such as venture capital, international equities and real estate may result in individual holdings within those nontraditional asset categories which contain greater risk than individual holdings within traditional asset categories.

South Africa Policy

Divestment from companies which do business in South Africa will not be made solely because of those operations. U.S. businesses operating there are, and can continue to be, a force for positive change.

PERA representatives continue to propose resolutions at corporate stockholder meetings urging companies that operate in South Africa to implement or improve their compliance rating with the Statement of Principles for South Africa (formerly called the Sullivan Principles). Additionally, when considering new investments which are equally promising, companies doing business in South Africa will not be selected.

Colorado Investments

State law provides that preference shall be given to Colorado investments, consistent with a sound investment policy. However, to provide optimal portfolio diversification by geographical location and asset class, and to maintain fiduciary responsibility, investments located within the State of Colorado will not exceed 20 percent of the combined portfolio at cost.

Within the 20 percent limitation, every effort will be made to diversify investments among the available asset classes — commercial real estate mortgages, common stocks, corporate debt, equity real estate, etc.

Review and Reporting

Generally accepted accounting principles (GAAP) will be followed in accounting for the portfolio, however, GAAP should not restrict investment decisions. The completed transaction method will be used to account for gains and losses. Securities recorded at original cost, adjusted cost and market value will be reported to the Board. The accounting firm conducting the annual audit will be consulted when questions concerning procedures arise.

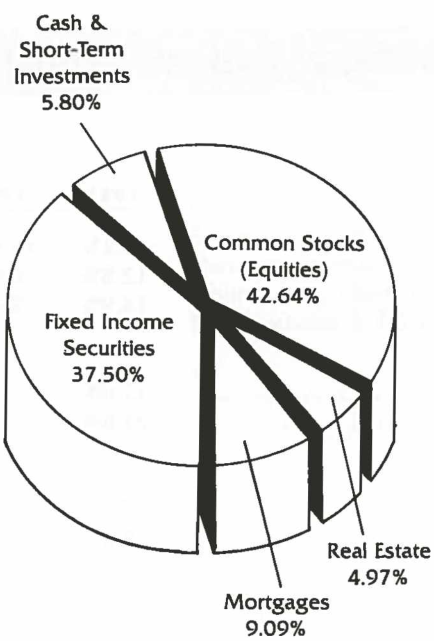
An annual evaluation will be conducted by a performance evaluation service from the investment industry. In addition, the annual external audit and the annual actuarial valuations will be reviewed in conjunction with the evaluations of investment performance. All evaluations will be related to the Association's stated goals. Because these goals are long-term, cumulative performance results are considered more important than performance in any one year.

Investment Summary

(In Thousands of Dollars)

Type of Investment	January 1, 1987 Book Value	January 1, 1987 Market Value	Purchases	Reductions	December 31, 1987 Book Value	December 31, 1987 Market Value	% Total Market	Yield at Market
Cash & Short-Term Investments	$ 713,480	$ 713,480	$2,433,827	$2,741,746	$ 405,561	$ 405,561	5.80%	6.73%
Fixed Income Securities:								
Corporate Bonds:								
Public Utilities	81,943	77,623	205		82,148	70,617	1.01%	8.82%
Industrials	145,607	159,570	415	3,258	142,764	147,623	2.11%	10.19%
Bank & Finance	75,802	82,081	55		75,857	77,552	1.11%	11.27%
Non-Publicly Traded	195,562	199,181	2,000	45,501	152,061	150,136	2.14%	9.74%
Total Corporate Bonds	498,914	518,455	2,675	48,759	452,830	445,928	6.37%	10.01%
Municipal Bonds	25,000	25,117			25,000	22,866	0.33%	9.84%
Government Securities:								
U.S. Bonds & Notes	923,368	999,486	15,833	14,897	924,304	926,922	13.25%	9.09%
U.S. Agency Obligations	671,280	678,808	648,744	181,293	1,138,731	1,088,853	15.56%	9.24%
Total Government Securities	1,594,648	1,678,294	664,577	196,190	2,063,035	2,015,775	28.81%	9.17%
Guaranteed Investment Contract	122,115	122,115	17,284		139,399	139,399	1.99%	14.39%
Total Fixed Income Securities	2,240,677	2,343,981	684,536	244,949	2,680,264	2,623,968	37.50%	9.60%
Common Stocks	2,423,092	2,653,482	1,418,576	868,550	2,973,118	2,984,001	42.64%	3.68%
Mortgages	606,520	667,709	157,251	131,811	631,960	636,365	9.09%	10.34%
Real Estate	308,300	301,476	143,819	101,344	350,775	347,929	4.97%	4.80%
Total Investments	$6,292,069	$6,680,128	$4,838,009	$4,088,400	$7,041,678	$6,997,824	100.00%	6.74%

Investments
(At Market)
As of December 31, 1987



Fund Performance Evaluation

The Association retains R.V. Kuhns & Associates to evaluate the PERA fund performance.

In their analysis, R.V. Kuhns includes all investments within the portfolio, including cash and accrued income. They also make the calculations using post-closing amounts for annual rates of return.

Asset Allocation

During 1987, the assets (at market value) were allocated within the following ranges: Equities — 42.38 to 51.09 percent, Bonds — 30.62 to 36.88 percent, Other Assets — 13.40 to 16.61 percent and Cash and Equivalents — 2.42 to 9.74 percent.

Total Portfolio Results

For the year ended December 31, 1987, the total fund had a positive rate of return of 2.9 percent. This was the lowest return for the last five years, primarily due to the sharp stock market decline in October and a complete reappraisal of the real estate portfolio during the year. However, the fund's average rate of return for the last five years is 12 percent, well above the return needed to meet the Association's actuarial requirements.

The Association's actuarial consultants have included in their calculation assumptions the requirement that the fund must realize an average rate of return of 7.5 percent yearly to pay promised benefits. Even with the market decline, the Association has averaged a 10.2 percent rate of return over the last 10 years.

The impact of the stock market decline on the fund was lessened because the bond market (in which the Association was 35 percent invested) experienced a coincidental rally. Because of the fund's position in bonds, the total market value decline of the fund was limited to about 10 percent.

Equities

The 1987 rate of return for the equity portfolio was 6.9 percent. In three of the last five years, the average return on the Association's equity portfolio has out-performed the Standard and Poors 500 Index, a measure of stock market performance.

Even with the increased market volatility during 1987 and the substantial decline in October, the equity portfolio return surpassed Standard and Poors by 1.7 percent. This was accomplished, in part, by not selling any stock during the October decline, by adding to selected, undervalued stocks after the decline and by diversifying into various industry categories which were considered to be undervalued at that time.

The PERA fund is restricted by law from investing more than 50 percent of its assets in the stock market at cost. When the October 19 decline occurred, only 43 percent of the fund was invested in the stock market.

Bonds

PERA bond performance is compared to the Shearson Lehman Bond Index. For 1987, the Association achieved a 2.7 percent rate of return. In three of the last five years, PERA bonds have equaled the Shearson Index. This was, in large part, due to changing various maturity schedules and improving the quality of the Association's bond holdings during that time period.

Real Estate

The Association's real estate portfolio underperformed the Wilshire Real Estate Median Fund during 1987, primarily due to the results of a complete reappraisal of all real estate portfolio holdings.

Considering the economic environment in which the majority of the Association's real estate is located (Colorado and Texas), a complete appraisal to market was deemed appropriate. Through portfolio diversification and a stabilizing economy, future returns are expected to improve.

Annual Rate of Return

	1983	1984	1985	1986	1987	Annualized
PERA Portfolio:	12.2%	10.4%	21.5%	13.8%	2.9%	12.0%
PERA Fund (Excluding Real Estate)	12.8%	9.0%	22.3%	14.4%	3.9%	12.3%
Wilshire Median Fund	14.9%	9.0%	24.9%	15.8%	4.0%	13.6%
Equities:						
PERA	17.6%	6.3%	29.8%	15.6%	6.9%	14.9%
Standard & Poors 500	22.6%	6.3%	31.7%	18.5%	5.2%	16.4%
Bonds:						
PERA	8.6%	13.2%	20.9%	16.8%	2.7%	12.2%
Shearson Lehman Bond Index	8.0%	15.0%	21.3%	15.6%	2.2%	12.2%

Average Percent of Asset Allocation

	1983	1984	1985	1986	1987
Equities	43.4%	36.8%	40.9%	38.5%	42.2%
Bonds	35.8%	32.5%	31.6%	35.6%	37.8%
Other Assets	14.3%	15.7%	15.7%	14.6%	14.2%
Cash and Equivalents	6.5%	15.0%	11.8%	11.3%	5.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Colorado Investment Profile

The Association continues to seek out high-quality Colorado investments such as mortgages and equity real estate, and common stock, corporate bonds and venture capital in Colorado-based companies. Total PERA investments in Colorado are valued at more than $642 million, an increase of $99 million over 1986.

Commercial Mortgages	$190,824,000
Committed to Future Funding	95,600,000
Corporate Bonds and Notes	40,226,000
State and Local Bonds	22,865,750
Common Stock of Companies Headquartered in Colorado	35,307,451
Real Estate	198,296,000
Residential Mortgage Pools	45,659,000
Venture Capital	13,949,095
Total	$642,727,296

Investment Brokers

Boettcher & Co. Inc.
Capitol Markets Corp.
Dean Witter Reynolds Inc.
The First Boston Corporation
Goldman Sachs & Co.
Hanifen Imhoff Inc.
Kidder Peabody & Co. Inc.
Merrill Lynch Capital Markets
Morgan Stanley & Co. Inc.
Paine Webber Incorporated
Salomon Brothers Inc.
Shearson Lehman Hutton Inc.
Smith Barney Harris Upham & Co. Inc.
Stifel Nicholas & Co. Inc.

Common Stock

Issue Description	Shares Held	Cost	Market Value
Abbott Laboratories	600,000	$ 18,188,873	$ 28,950,000
Aetna Life & Casualty Co.	35,000	16,247,834	15,837,500
Air Products & Chemicals	675,000	26,757,875	27,506,250
Allied-Signal Inc.	718,900	21,633,129	20,308,925
Aluminum Co. of America	500,000	26,313,873	23,375,000
American Cyanamid Co.	750,000	25,756,578	30,937,500
American Express Co.	1,165,000	25,908,667	26,649,375
American Home Products Corp.	400,000	29,518,096	29,100,000
American Telephone & Telegraph Co.	1,200,000	30,610,837	32,400,000
Ameritech	380,000	33,974,270	32,157,500
Amoco Corp.	510,000	35,209,930	35,190,000
AMP Inc.	565,000	22,527,031	26,413,750
Atlantic Richfield Co.	385,000	26,809,668	26,565,000
Automatic Data Processing, Inc.	636,600	17,430,170	28,567,425
Bankers Trust New York Corp.	875,000	39,427,230	27,781,250
Barnett Banks, Inc.	562,200	19,407,377	15,952,425
Baxter Travenol Laboratories, Inc.	700,000	14,406,109	15,925,000
Bellsouth Corp.	900,000	36,531,423	32,737,500
Boeing Co.	130,000	6,645,028	4,810,000
Boise Cascade Corp.	110,000	7,645,338	7,480,000
Bristol-Myers Co.	800,000	29,812,885	33,300,000
British Petroleum Co. PLC.	1,000,000	17,495,552	15,625,000
Caterpillar, Inc.	530,000	24,042,573	32,860,000
Chevron Corp.	745,000	32,393,839	29,520,625
Chrysler Corp.	575,750	21,023,641	12,738,469
Citicorp.	1,240,000	33,542,025	23,095,000
Coca-Cola Co.	600,000	19,609,303	22,875,000
Colgate-Palmolive Co.	600,000	23,434,560	23,550,000
Cooper Industries, Inc.	600,000	26,899,493	33,300,000
CSX Corp.	1,037,800	33,035,066	30,225,925
Diamond Shamrock R&M, Inc.	608,550	10,160,832	5,324,813
Digital Equipment Corp.	160,300	14,634,296	21,640,500
Dominion Resources, Inc.	955,000	46,208,385	39,513,125
Donnelley (R.R.) and Sons	775,000	26,282,337	25,284,375
Dover Corp.	490,000	19,243,109	30,686,250
Dow Chemical Co.	325,000	19,350,841	29,250,000
Dresser Industries, Inc.	1,230,300	29,403,490	32,295,375
duPont (EI) deNemours & Co.	250,000	21,997,111	21,843,750
Eastman Kodak Co.	600,000	23,147,092	29,400,000
Eaton Corp.	260,000	18,296,707	20,605,000
Emerson Electric Co.	950,000	26,068,608	32,893,750
Exxon Corp.	899,400	29,541,365	34,289,625
Fireman's Fund Corp.	416,900	13,595,237	10,735,175
First Interstate Bancorp	400,000	18,418,123	15,700,000
Ford Motor Co.	150,000	13,000,572	11,306,250
FPL Group, Inc.	1,042,800	35,825,236	29,850,150
General Electric Co.	625,000	16,123,286	27,578,125
General Mills, Inc.	172,500	8,507,391	8,560,313
General Motors Corp.	550,000	41,594,177	33,756,250
General RE Corp.	380,000	15,999,202	21,232,500
General Signal Corp.	450,000	21,426,812	21,150,000
Genuine Parts Co.	567,000	14,287,208	19,915,875
Georgia-Pacific Corp.	500,000	21,191,751	17,250,000

Issue Description	Shares Held	Cost	Market Value
Halliburton Co.	1,075,000	$ 29,743,428	$ 26,606,250
Hewlett-Packard Co.	465,000	16,163,906	27,086,250
Ingersoll-Rand Co.	397,000	15,175,502	14,093,500
Intel Corp.	600,000	21,000,000	15,900,000
International Business Machines Corp.	340,000	36,314,809	39,270,000
International Paper Co.	420,000	19,011,706	17,745,000
Johnson & Johnson	400,000	25,094,342	29,950,000
K Mart Corp.	810,000	27,981,984	24,097,500
Knight-Ridder, Inc.	450,000	19,749,161	18,056,250
Louisiana Land & Exploration Co.	1,075,000	40,926,500	36,818,750
Maxus Energy Corp.	2,584,200	32,267,312	18,089,400
McDermott International, Inc.	1,242,000	35,424,112	18,319,500
McDonald's Corp.	898,500	36,753,172	39,534,000
McGraw-Hill, Inc.	80,000	5,701,500	3,860,000
Melville Corp.	300,000	16,327,352	15,900,000
Merck & Co., Inc.	215,000	19,441,570	34,077,500
MiniScribe Corp.	65,498	532,259	622,231
Minnesota Mining & Manufacturing Co.	460,000	24,021,344	29,612,500
Mobil Corp.	825,000	37,275,162	32,278,125
Motorola, Inc.	700,000	29,352,823	34,825,000
Northrop Corp.	450,000	22,945,937	11,475,000
Pacific Enterprises Corp.	575,700	30,898,249	28,641,075
Parker-Hannifin Corp.	619,600	23,571,147	22,537,950
Penney (J.C.) Co., Inc.	450,000	16,531,385	19,518,750
Pepsico, Inc.	989,200	22,460,778	33,014,550
Pfizer, Inc.	475,000	23,365,862	22,146,875
Philip Morris Companies, Inc.	400,000	24,903,522	34,150,000
Pillsbury Co.	729,400	26,973,289	25,620,175
Procter & Gamble Co.	340,000	24,505,118	29,027,500
Public Service Enterprises Group Inc.	1,500,000	43,621,929	35,812,500
Ralston Purina Co.	314,100	25,223,247	20,063,138
RJR Nabisco, Inc.	625,000	22,742,113	28,125,000
Royal Dutch Petroleum Co.	280,000	28,209,898	31,325,000
Sears, Roebuck & Co.	825,500	32,501,618	27,654,250
Southern California Edison Co.	1,000,000	35,694,242	30,500,000
Tandy Corp.	615,600	23,362,318	20,314,800
Texas Instruments, Inc.	300,000	13,448,780	16,725,000
Time, Inc.	470,700	40,709,436	38,715,075
Toys R Us	598,600	22,619,185	18,855,900
Union Camp Corp.	435,000	16,588,528	15,768,750
Union Pacific Corp.	498,500	32,931,436	26,919,000
Union Texas Petroleum Holdings, Inc.	1,000,000	14,221,250	8,000,000
Unisys Corp.	580,000	22,914,387	19,502,500
United Technologies Corp.	750,000	31,777,591	25,406,250
Unocal Corp.	738,500	23,112,050	20,862,625
US West, Inc.,	604,200	32,266,056	30,889,725
Weyerhaeuser Co.	527,300	24,363,014	20,432,875
Centennial Business Development Fund	140,000	1,408,905	1,408,905
Centennial Fund Ltd.	500,000	4,199,591	4,146,756
Centennial Fund II	350,000	3,117,750	3,403,010
Centennial Fund III	500,000	4,987,941	4,987,941
S&P 500 Index Fund	14,591,514	522,142,048	545,513,088
Total		$2,973,117,985	$2,984,001,339

Actuarial Section*

*unaudited

GABRIEL, ROEDER, SMITH & COMPANY
Actuaries & Consultants

200 Globe Building • 407 East Fort • Detroit, Michigan 48226 • 313-961-3346

May 19, 1988

The Board of Trustees
Public Employees' Retirement
Association of Colorado
1300 Logan Street
Denver, Colorado 80203

Ladies and Gentlemen:

The basic financial objective of PERA is to establish and receive contributions which, expressed as percents of active member payroll, will remain approximately level from generation to generation of Colorado citizens.

In order to measure progress toward this fundamental objective, PERA has annual actuarial valuations to (i) measure present financial position, and (ii) test the adequacy of established contribution rates. The latest completed actuarial valuations were based upon data and assumptions as of December 31, 1987. Conditions and results are shown in our reports. These valuations indicate that the contribution rates, established by the Retirement Board for benefits then in effect, meet the basic financial objective.

Actuarial valuations are based upon assumptions of future experience in various risk areas. Assumptions are adopted by the Board after consulting with the actuary and were last revised in 1986. We believe the assumptions used in the December 31, 1987 valuations produce results which are reasonable.

The relationship between assumed experience and actual experience in each risk area is then observed annually by an actuarial gain/loss analysis. Since 1982, actual experience has been more favorable than assumed, primarily as the result of historically high real rates of investment return. (During the decade prior to 1982, experience was less favorable due to high rates of inflation which are damaging to financial security programs such as PERA.)

Based upon the valuation results, it is our opinion that the Public Employees' Retirement Association of Colorado continues in sound condition in accordance with actuarial principles of level cost financing.

Respectfully submitted,

Norman L. Jones — R.G. Roeder

Norman L. Jones — Richard G. Roeder

Once vested in the Plan, each PERA member acquiring a year of service credit is, in effect, given an "IOU" by PERA which says: "The Public Employees' Retirement Association of Colorado owes the member one year of retirement benefits to be paid when the member retires." The law governing PERA financing intends that 1987 members and taxpayers contribute the money to cover the IOU's being handed out this year. By following this principle, the contribution rates will remain approximately level from generation to generation.

An inevitable by-product of the level cost design is the accumulation of reserve assets and investment income from those assets. Invested assets increase as contributions accumulate and income is earned. Investment income then becomes the third contributor for benefits and is directly related to the contribution amounts required from members and employers. The chart below depicts this level-cost design.

In actuarial terminology, this level-cost objective means that the contribution rates must total at least the current cost of the service being given this year, and the interest on unfunded actuarial accrued liabilities (UAAL). UAAL is the difference between actuarial liabilities for service rendered and the accrued assets of PERA.

Computing Contributions to Support Fund Benefits

From a given schedule of benefits and from the member and asset data furnished, the actuary determines the contribution rates to support the benefits by means of an actuarial valuation and funding method.

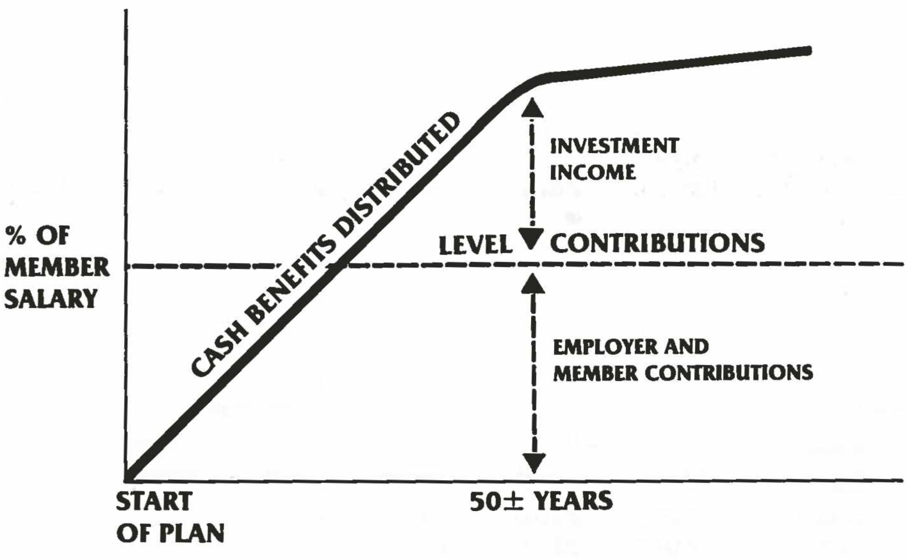
An actuarial valuation uses the rate of investment income which plan assets will earn, the rates of withdrawal of members who leave covered employment before qualifying for any monthly benefit, the rates of mortality, the rates of disability, the rates of salary increases and the assumed ages at actual retirement.

In making an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. Only the subsequent actual experience of the Plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed and Actual Experience

Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions or the skill of the actuary and the many calculations made. The future can be predicted with considerable precision (except for inflation) but not with 100 percent accuracy.

PERA copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is continuing adjustments in financial position.



Level Contribution Line: Determining the level contribution line requires detailed assumptions concerning experiences in future decades, including: rate of withdrawal of members (turnover), rates of mortality, rates of disability, ages at actual retirement, rates of pay increases, investment income and change in member group size.

Cash Benefits Line: This relentlessly increasing line is the fundamental reality of retirement plan financing. As the ratio of retirees to members rises, the benefits paid rise as a percent of salary. The line increases over time, even if new benefits are not added, and regardless of the financing method being followed.

Summary of Actuarial Assumptions

The following economic and non-economic actuarial assumptions were adopted by the Board of Trustees after consulting with the actuary and first used with the December 31, 1986, actuarial valuation. The assumptions are reviewed in depth every five years and are established to make projections for the Plan's experience decades into the future.

Economic Assumptions

The investment return rate used in making the valuations was 7.5 percent per year compounded annually (net after administrative expenses). The real rate of return is the portion of total investment return which is more than the inflation rate. Considering other financial assumptions, the 7.5 percent investment return rate translates into an assumed real rate of return of 2 percent.

The overall member payroll is assumed to increase 5.5 percent annually. Pay increase assumptions for individual members are shown for sample ages in Exhibits A, B, C, and D. Part of the assumption for each age is for a merit and/or seniority increase, and the other 5.5 percent recognizes inflation.

The number of members is assumed to continue at the present number.

Non-Economic Assumptions

The 1971 Group Annuity Mortality Table, projected to 1984, was used in evaluating the cost of benefits to be paid. Related values are shown in Exhibit F.

The probabilities of age and service retirement are shown in Exhibit G.

The probabilities of withdrawal from service, disability and death-in-service are shown for sample ages in Exhibits A, B, C, D and E. For disability retirement, impaired longevity was recognized by basing benefit values on an adjusted age midway between attained age and normal retirement age. For other withdrawal it was assumed that all members terminating before age 35 with less than five years of service and 25 percent of members terminating after 35 with over five years of service would withdraw their contributions and forfeit their monthly benefit at retirement age.

The entry age normal actuarial cost method of valuation was used in determining liabilities and normal cost. Differences in the past between assumed experience and actuarial experience ("actuarial gains and losses") become part of actuarial accrued liabilities. Unfunded actuarial accrued liabilities are amortized to produce payments (principal and interest) which are level percents of payroll contributions.

Employer contribution dollars were assumed to be paid in equal installments throughout the employer fiscal year. Present assets (cash and investments) were used at book value.

The data about persons now covered and about present assets was furnished by PERA's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary. The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).

Separations From Employment Before Retirement & Individual Pay Increase Assumptions

Exhibit A — State Division

Sample Ages	Withdrawal Men	Withdrawal Women	Death Men	Death Women	Disability Men	Disability Women	Merit & Seniority	Base (Economy)	Increase Next Year
STATE DIVISION MEMBERS CONTRIBUTING 8%									
20	7.70%	11.00%	0.05%	0.02%	0.01%	0.01%	7.40%	5.50%	12.90%
25	7.70%	10.40%	0.06%	0.03%	0.04%	0.04%	5.00%	5.50%	10.50%
30	6.50%	9.50%	0.07%	0.04%	0.06%	0.05%	3.40%	5.50%	8.90%
35	5.00%	8.00%	0.10%	0.05%	0.20%	0.12%	2.20%	5.50%	7.70%
40	4.50%	5.90%	0.15%	0.08%	0.27%	0.19%	1.40%	5.50%	6.90%
45	4.50%	5.00%	0.27%	0.12%	0.43%	0.32%	0.90%	5.50%	6.40%
50	4.50%	5.00%	0.49%	0.18%	0.83%	0.76%	0.60%	5.50%	6.10%
55	4.50%	5.00%	0.78%	0.27%	1.12%	1.10%	0.50%	5.50%	6.00%
60	4.50%	5.00%	1.21%	0.46%	1.20%	1.20%	0.30%	5.50%	5.80%
65	4.50%	5.00%	1.95%	0.81%	1.20%	1.20%	— %	5.50%	5.50%

Percent of Members Separating Within the Next Year (Withdrawal, Death, Disability); Pay Increase Assumptions For An Individual Member (Merit & Seniority, Base (Economy), Increase Next Year)

Sample Ages	Withdrawal Men	Withdrawal Women	Death Men	Death Women	Disability Men	Disability Women	Merit & Seniority	Base (Economy)	Increase Next Year
STATE DIVISION MEMBERS CONTRIBUTING 9% (State Troopers)									
20	7.94%	7.94%	0.05%	0.02%	0.06%	0.06%	7.40%	5.50%	12.90%
25	7.72%	7.72%	0.06%	0.03%	0.06%	0.06%	5.00%	5.50%	10.50%
30	7.22%	7.22%	0.07%	0.04%	0.06%	0.06%	3.40%	5.50%	8.90%
35	6.28%	6.28%	0.10%	0.05%	0.07%	0.07%	2.20%	5.50%	7.70%
40	5.15%	5.15%	0.15%	0.08%	0.10%	0.10%	1.40%	5.50%	6.90%
45	3.98%	3.98%	0.27%	0.12%	0.17%	0.17%	0.90%	5.50%	6.40%
50	2.56%	2.56%	0.49%	0.18%	0.31%	0.31%	0.60%	5.50%	6.10%
55	0.94%	0.94%	0.78%	0.27%	0.56%	0.56%	0.50%	5.50%	6.00%
60	0.09%	0.09%	1.21%	0.46%	1.19%	1.19%	0.30%	5.50%	5.80%
65	— %	— %	1.95%	0.81%	— %	— %	— %	5.50%	5.50%

Exhibit B — School Division

Percent of Members Separating Within the Next Year (Withdrawal, Death, Disability); Pay Increase Assumptions For An Individual Member (Merit & Seniority, Base (Economy), Increase Next Year)

Sample Ages	Withdrawal Men	Withdrawal Women	Death Men	Death Women	Disability Men	Disability Women	Merit & Seniority	Base (Economy)	Increase Next Year
20	6.40%	8.00%	0.05%	0.02%	0.02%	0.02%	5.00%	5.50%	10.50%
25	6.40%	8.00%	0.06%	0.03%	0.02%	0.02%	3.70%	5.50%	9.20%
30	5.60%	8.00%	0.07%	0.04%	0.02%	0.02%	2.70%	5.50%	8.20%
35	4.20%	6.30%	0.10%	0.05%	0.04%	0.04%	2.00%	5.50%	7.50%
40	3.50%	4.50%	0.15%	0.08%	0.10%	0.10%	1.40%	5.50%	6.90%
45	3.50%	4.00%	0.27%	0.12%	0.24%	0.20%	1.00%	5.50%	6.50%
50	3.50%	4.00%	0.49%	0.18%	0.49%	0.30%	0.80%	5.50%	6.30%
55	3.50%	4.00%	0.78%	0.27%	0.88%	0.57%	0.60%	5.50%	6.10%
60	3.50%	4.00%	1.21%	0.46%	1.42%	1.00%	0.40%	5.50%	5.90%
65	3.50%	4.00%	1.95%	0.81%	1.65%	1.00%	— %	5.50%	5.50%

Exhibit C — Municipal Division

Sample Ages	Percent of Members Separating Within the Next Year: Withdrawal Men	Withdrawal Women	Death Men	Death Women	Disability Men	Disability Women	Pay Increase Assumptions For An Individual Member: Merit & Seniority	Base (Economy)	Increase Next Year
20	8.00%	12.00%	0.05%	0.02%	0.01%	0.01%	7.40%	5.50%	12.90%
25	8.00%	12.00%	0.06%	0.03%	0.04%	0.04%	5.00%	5.50%	10.50%
30	8.00%	10.50%	0.07%	0.04%	0.06%	0.05%	3.40%	5.50%	8.90%
35	6.30%	9.00%	0.10%	0.05%	0.20%	0.12%	2.20%	5.50%	7.70%
40	4.50%	6.90%	0.15%	0.08%	0.27%	0.19%	1.40%	5.50%	6.90%
45	4.00%	5.30%	0.27%	0.12%	0.43%	0.32%	0.90%	5.50%	6.40%
50	4.00%	5.00%	0.49%	0.18%	0.83%	0.76%	0.60%	5.50%	6.10%
55	4.00%	5.00%	0.78%	0.27%	1.12%	1.10%	0.50%	5.50%	6.00%
60	4.00%	5.00%	1.21%	0.46%	1.20%	1.20%	0.30%	5.50%	5.80%
65	4.00%	5.00%	1.95%	0.81%	1.20%	1.20%	— %	5.50%	5.50%

Exhibit D — Judicial Division

Sample Ages	Percent of Members Separating Within the Next Year: Withdrawal Men	Withdrawal Women	Death Men	Death Women	Disability Men	Disability Women	Pay Increase Assumptions For An Individual Member: Merit & Seniority	Base (Economy)	Increase Next Year
20	5.00%	5.00%	0.05%	0.02%	0.06%	0.06%	5.00%	5.50%	10.50%
25	5.10%	5.10%	0.06%	0.03%	0.06%	0.06%	3.70%	5.50%	9.20%
30	4.90%	4.90%	0.07%	0.04%	0.06%	0.06%	2.70%	5.50%	8.20%
35	4.40%	4.40%	0.10%	0.05%	0.07%	0.07%	2.00%	5.50%	7.50%
40	3.60%	3.60%	0.15%	0.08%	0.10%	0.10%	1.40%	5.50%	6.90%
45	2.80%	2.80%	0.27%	0.12%	0.17%	0.17%	1.00%	5.50%	6.50%
50	2.00%	2.00%	0.49%	0.18%	0.31%	0.31%	0.80%	5.50%	6.30%
55	1.30%	1.30%	0.78%	0.27%	0.56%	0.56%	0.60%	5.50%	6.10%
60	1.00%	1.00%	1.21%	0.46%	1.19%	1.19%	0.40%	5.50%	5.90%
65	— %	— %	1.95%	0.81%	— %	— %	— %	5.50%	5.50%

Exhibit E

Percent of Members With Less Than Five Years of Service Withdrawing from Employment Next Year

Years of Service	State & Municipal Divisions: Men	State & Municipal Divisions: Women	School Division: Men	School Division: Women
0	25.00%	30.00%	30.00%	30.00%
1	15.00%	18.00%	18.00%	18.00%
2	12.00%	16.00%	14.00%	14.00%
3	10.00%	14.00%	10.00%	10.00%
4	8.00%	12.00%	8.00%	8.00%

Single Life Retirement Values

Based on 1971 Group Annuity Mortality Projected to 1984 and 7.5 Percent Interest

Exhibit F — State, School, Municipal and Judicial Divisions

Sample Attained Ages	Present Value of $1.00 Monthly for Life		Present Value of $1.00 Mo. the First Year Increasing $.03 Yearly		Future Life Expectancy (Years)	
	Men	Women	Men	Women	Men	Women
40	$148.30	$155.13	$194.49	$207.11	36.69	43.22
45	142.21	151.24	183.78	199.50	32.01	38.41
50	134.71	146.05	171.18	189.88	27.53	33.66
55	125.72	139.18	156.74	177.86	23.28	28.99
60	114.86	130.21	140.21	163.11	19.27	24.44
65	102.12	118.98	121.85	145.70	15.55	20.09
70	88.28	105.19	102.90	125.66	12.25	15.99
75	74.58	89.73	84.92	104.45	9.49	12.33
80	60.87	74.20	67.78	84.16	7.17	9.28
85	49.24	59.13	53.73	65.36	5.43	6.78

Percent of Eligible Members Retiring Next Year

Exhibit G

Retirement Ages	State Division	School Division	Municipal Division	Judicial Division
55	13%	12%	13%	—%
56	13%	12%	13%	—%
57	13%	12%	13%	—%
58	13%	12%	13%	—%
59	13%	12%	13%	—%
60	17%	20%	17%	15%
61	17%	20%	17%	10%
62	17%	20%	17%	10%
63	17%	20%	17%	10%
64	17%	20%	17%	10%
65	40%	60%	40%	40%
66	40%	40%	40%	20%
67	40%	50%	40%	20%
68	40%	60%	40%	20%
69	40%	80%	40%	20%
70	100%	100%	100%	40%
71	100%	100%	100%	60%
72 and over	100%	100%	100%	100%

Schedule of Retirees and Survivors by Type of Benefit

December 31, 1987

Division	Number of Benefit Recipients	Type of Benefit 1	2	3	4	5	6
State	14,218	11,104	2,219	79	751	65	461
School	14,764	12,518	1,414	39	699	94	1,020
Municipal	1,503	1,050	288	7	139	19	44
Judicial	164	129	14	1	18	2	4

	Option Selected 1	2	3	4	Surviving Retiree	Surviving Cobeneficiary
State	7,323	1,407	2,619	601	1,067	306
School	9,273	1,325	1,958	445	630	301
Municipal	624	176	311	74	133	20
Judicial	28	14	57	13	25	6

Benefit Types:
1 — Age and service retirement.
2 — Disability retirement.
3 — Survivor payment — Option 3.
4 — Survivor payment — children, spouse or dependent parent.
5 — Surviving spouse with deferred future benefit.
6 — Former member with deferred future benefit.

Option Selection: Age and service retirees and disability retirees select an option at retirement to provide death benefits. They are as follows:

1 — Single life benefit.
2 — Joint benefit with ½ to surviving cobeneficiary.
3 — Joint and survivor benefit.
4 — Joint benefit with ½ to either survivor:
Surviving retiree — cobeneficiary has pre-deceased the retiree.
Surviving cobeneficiary — retiree has pre-deceased the cobeneficiary.

Schedule of Member Valuation Data

Year	Number of Members	Annual Payroll	Annual Average Salary	% Increase in Average Pay
1977	88,243	$1,141,555,008	12,936	7.13%
1978	89,783	1,237,221,852	13,780	6.52%
1979	91,131	1,361,116,764	14,936	8.39%
1980	93,741	1,518,107,964	16,195	8.43%
1981	91,672	1,649,921,520	17,998	11.13%
1982	92,076	1,802,596,767	19,577	8.77%
1983	92,346	1,923,936,063	20,834	6.42%
1984	94,766	2,091,707,220	22,072	5.94%
1985	98,315	2,270,948,105	23,092	4.62%
1986	99,977	2,409,384,090	24,099	4.36%
1987	100,808	2,531,357,702	25,110	4.20%

Total of 331 employers in 1987.

Schedule of Retirees and Beneficiaries Added to and Removed from Benefit Payroll*

Year Ended	Added to Payroll No.	Added to Payroll Annual Benefits	Removed from Payroll No.	Removed from Payroll Annual Benefits	Payroll — End of Year No.	Payroll — End of Year Annual Benefits	Cost of Living Stabilization Fund	Average Annual Benefits	Increase In Average Benefits
6/30/77......	1,672	$ 7,915,392	492	$1,366,137	14,953	$ 48,671,648	$ 2,365,600	$3,413	7.2%
7/1/77- 12/31/77......	1,048	4,883,337	219	668,998	15,782	52,942,700	2,792,076	3,532	3.5%
12/31/78......	1,725	8,365,952	494	1,451,876	17,013	60,999,693	4,410,064	3,845	8.9%
12/31/79......	1,634	9,730,250	497	1,540,411	18,150	69,189,637	5,363,952	4,108	6.8%
12/31/80......	1,673	11,514,467	503	1,450,894	19,320	79,257,635	20,747,124	5,176	26.0%
12/31/81......	1,595	11,760,232	599	2,174,169	20,316	88,843,513	20,057,160	5,360	3.6%
12/31/82......	2,413	21,263,055	673	2,523,386	22,056	107,582,521	39,978,816	6,690	24.8%
12/31/83......	2,202	21,365,407	736	3,048,446	23,522	125,899,802	38,624,028	6,994	4.6%
12/31/84......	2,247	23,813,326	717	3,009,065	25,052	146,704,999	45,747,060	7,682	9.8%
12/31/85......	2,275	27,050,513	567	3,565,127	26,760	170,190,060	42,286,322	7,940	3.4%
12/31/86......	2,293	28,173,779	857	4,386,095	28,196	193,978,656	44,138,479	8,445	6.4%
12/31/87......	3,408	46,690,933	955	4,928,698	30,649	235,742,208	45,122,863	9,164	8.5%

*Numbers derived on an accrual basis.

Member-Retiree Comparison

The number of persons receiving monthly retirement benefits has grown steadily in relation to membership. This trend will continue for many years into the future.

The level-cost financing principle ensures that contribution rates will not have to be raised to meet the benefit load. The current percentages of salaries will be sufficient to meet the increasing retirement payroll if the benefit provisions contained in state law are not changed.

The retirement benefit disbursements shown in the right-hand column include cost-of-living increases paid in years since 1970. Figures shown are for the State, School and Municipal Divisions. Prior to 1981, figures are for years ended June 30.

Year	Number of retirees on 12/31[1]	Number of member accounts on 12/31[2]	Retirees as % of members on 12/31	Total benefits paid - yr. ended 12/31*
1940..................	93	3,715	2.5%	$ 72,588
1945..................	171	5,585	3.1%	137,442
1950..................	280	11,853	2.4%	237,866
1955..................	747	21,185	3.5%	745,679
1960..................	1,775	33,068	5.4%	2,055,139
1965..................	3,631	49,701	7.3%	5,486,225
1970..................	6,308	65,586	9.6%	13,115,234
1975..................	11,650	84,781	13.7%	32,820,433
1980..................	17,301	96,473	17.9%	71,289,456
1985..................	24,842	101,409	24.5%	192,456,029
1986..................	26,217	104,460	25.1%	217,402,612
1987..................	28,657	107,116	26.8%	247,891,967

*Numbers derived on a cash basis.
[1]Excludes cobeneficiaries of retirees.
[2]Includes inactive members.

Members in Valuation

By Attained Age and Years of Service — 12-31-87

State Division

Members included in the State Division valuation totaled 36,244 involving annual salaries totaling $1,001,286,804.

Attained Age	Years of Service to Valuation Date: 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals: No.	Valuation Payroll
Under 20	30							30	$ 315,144
20-24	850	33						883	14,050,836
25-29	2,642	627	27					3,296	67,555,920
30-34	3,218	1,634	533	17				5,402	130,004,268
35-39	3,102	1,817	1,350	311	8			6,588	179,419,092
40-44	2,300	1,532	1,285	894	228	10		6,249	183,832,716
45-49	1,408	1,028	852	899	561	156	4	4,908	151,399,980
50-54	781	668	657	663	602	316	86	3,773	119,148,060
55-59	499	528	570	600	374	185	108	2,864	88,608,324
60-64	242	326	364	370	227	111	82	1,722	51,426,072
65-69	46	87	119	115	49	29	36	481	14,234,172
70 and Over	9	10	8	12	4	1	4	48	1,292,220
Totals	15,127	8,290	5,765	3,881	2,053	808	320	36,244	$1,001,286,804

The average age for State Division members was 42 years, and the average service was 8.46 years.

School Division

Members included in the School Division valuation totaled 57,161 involving annual salaries totaling $1,340,485,368.

Attained Age	Years of Service to Valuation Date: 0-4	5-9	10-14	15-19	20-24	25-29	30+	Totals: No.	Valuation Payroll
Under 20	27							27	$ 233,112
20-24	966	20						986	14,225,904
25-29	3,938	629	11					4,518	81,566,628
30-34	4,026	2,528	598	11				7,163	144,689,592
35-39	4,749	2,801	2,760	606				10,916	251,427,204
40-44	4,171	2,612	2,228	2,237	349	1		11,598	292,820,784
45-49	2,350	1,950	1,534	1,462	1,165	208		8,669	225,177,420
50-54	1,258	1,227	1,228	1,099	868	766	92	6,538	172,980,504
55-59	752	712	807	823	442	414	179	4,129	102,674,112
60-64	367	397	391	392	232	101	87	1,967	43,451,400
65-69	93	114	104	92	56	23	22	504	9,722,484
70 and Over	20	20	17	11	7	7	4	86	1,516,224
Totals	21,751	13,010	9,678	6,733	3,119	1,520	384	57,161	$1,340,485,368

The average age for School Division members was 42 years, and the average service was 8.7 years.

By Attained Age and Years of Service — 12-31-87

Municipal Division

Members included in the Municipal Division valuation totaled 7,167 involving annual salaries totaling $178,819,730.

	Years of Service to Valuation Date							Totals	
Attained Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Valuation Payroll
Under 20	23							23	$ 208,215
20-24	246	10						256	3,922,313
25-29	767	202	9					978	20,225,238
30-34	843	457	115	2				1,417	33,733,769
35-39	699	434	239	88	2			1,462	38,155,012
40-44	423	307	205	128	42			1,105	30,752,260
45-49	225	181	137	85	61	13		702	19,507,678
50-54	107	127	97	82	62	27	15	517	14,517,486
55-59	96	69	85	87	22	21	11	391	10,395,431
60-64	45	59	42	40	20	12	9	227	5,499,669
65-69	13	16	14	14	4	4	1	66	1,593,256
70 and Over	7	10	1	3		1	1	23	309,403
Totals	3,494	1,872	944	529	213	78	37	7,167	$178,819,730

The average age for Municipal Division members was 39 years, and the average service was 7 years.

Judicial Division

Members included in the Judicial Division valuation totaled 236 involving annual salaries totaling $10,765,800.

	Years of Service to Valuation Date							Totals	
Attained Age	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Valuation Payroll
Under 30									$ —
30-34	5							5	152,412
35-39	17	9	3					29	1,078,128
40-44	24	20	7	2				53	2,451,672
45-49	11	19	18	4				52	2,542,344
50-54	2	6	8	6	2	1		25	1,123,296
55-59	4	10	8	5	4	1		32	1,568,376
60-64	3	7	8	5	5			28	1,344,312
65-69			3	2	2			7	268,464
70 and Over	—	—	4	1	—	—		5	236,796
Totals	66	71	59	25	13	2		236	$ 10,765,800

The average age for Judicial Division members was 49 years, and the average service was 9 years.

Solvency Test

The PERA funding objective is to be able to pay long-term benefit promises through contributions that remain approximately level from year to year as a percent of salaries earned by members. In this way, members and taxpayers in each year pay their fair share for retirement service accrued in that year by PERA members. Occasionally rates are increased, but only to add or improve benefit provisions.

If the retirement system follows level contribution rate financing principles, the system will pay all promised benefits when due — the ultimate test of financial soundness.

A short-term solvency test is one means of checking PERA's funding progress. In a short-term solvency test, the retirement plan's present assets (investments and cash) are compared with: 1) member contributions on deposit, 2) the liabilities for future benefits to persons who have retired and 3) the liabilities for service already rendered by active members. In a system that has been following the discipline of level contribution rate financing, the liabilities for member contributions on deposit (liability 1) and the liabilities for future benefits to present retirees (liability 2) will be fully covered by present assets except in rare circumstances.

In addition, the liabilities for service already rendered by members (liability 3) will be partially covered by the remainder of present assets. Generally, if the system has been using level contribution rate financing, the funded portion of liability 3 will increase over time. Liability 3 being fully funded is very rare.

The schedule below illustrates the progress in funding liability 3 of PERA and is indicative of PERA's policy to follow the discipline of level contribution rate funding.

TOTAL ACTUARIAL LIABILITIES

Valuation Date	Member Contributions (1)	Retirees and Beneficiaries (2)	Members (Employer Financed Portion) (3)	Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
12/31/77	$ 421,131,834	$ 626,256,830	$1,364,206,936	$1,539,589,373	100%	100%	36.1%
12/31/78	475,439,269	686,029,604	1,395,583,599	1,769,105,963	100%	100%	43.5%
12/31/79	536,381,823	798,562,567	1,579,233,427	2,090,081,827	100%	100%	47.8%
12/31/80	600,657,499	926,253,210	1,978,725,621	2,438,498,055	100%	100%	46.1%
12/31/81	674,778,335	1,039,344,715	2,236,428,561	2,731,317,956	100%	100%	45.5%
12/31/82	752,901,555	1,261,240,932	2,527,282,001	3,199,623,171	100%	100%	46.9%
12/31/83	843,058,135	1,505,814,909	2,751,961,085	3,752,861,340	100%	100%	51.0%
12/31/84	937,173,328	1,753,309,252	3,084,444,755	4,393,831,995	100%	100%	55.2%
12/31/85	1,042,574,126	2,020,932,989	3,405,202,669	5,194,918,164	100%	100%	62.6%
12/31/86	1,160,217,971	2,216,934,541	3,771,614,184	6,247,694,817	100%	100%	76.1%
12/31/87	1,259,278,057	2,734,034,675	4,213,269,209	7,019,254,128	100%	100%	71.8%

Summary of Unfunded Actuarial Accrued Liabilities

Unfunded actuarial accrued liabilities are the difference between actuarially calculated liabilities for service already rendered and the assets of the retirement fund. It is natural for unfunded liabilities to exist for PERA and other retirement plans.

The law governing PERA requires that these liabilities be financed systematically over future years. The period for amortizing unfunded actuarial accrued liabilities is currently under the 60-year limit specified in state law in all divisions of PERA. (The law requires that contribution rates be set at a level which, if actuarial experience matches plan assumptions, will pay off unfunded liabilities over 60 years or less.) The amortization periods have shown stability over the last decade.

Benefits to retirees are "fully funded" — assets reserved for benefits currently being paid equal liabilities for those benefits. Liabilities for members are based on service rendered toward their retirement benefits which will be payable in the future. Unfunded actuarial accrued liabilities exist because liabilities for such service by members exceed assets currently on hand for such future benefits.

Because inflation continues, though at a much lower rate in the last few years, the value of dollars is decreasing. Looking at just the dollar amounts of assets, benefits paid, member salaries and unfunded actuarial accrued liabilities will be misleading.

While no one or two measures can fully describe the financial condition of the plan, unfunded actuarial accrued liability dollars divided by member salary dollars provides a meaningful index. The smaller the ratio, the stronger the system. Observation of this relative index over a period of years will give an indication of whether the system is becoming financially stronger or weaker.

This ratio has increased at times over the last decade, but the recent trend shows stability. Actuarial assumptions were revised in 1986 to recognize higher investment returns expected over the long term. The high investment returns in the last two years have helped to increase assets, reduce unfunded actuarial accrued liabilities and lower the ratio of unfunded liabilities to member salaries.

UNFUNDED ACTUARIAL ACCRUED LIABILITIES

Valuation Date	Total Actuarial Accrued Liabilities	Valuation Assets	Assets as a % of Accrued Liabilities	Unfunded Actuarial Accrued Liabilities	Member Salaries	UAAL as a % of Member Salaries
12/31/77	$2,411,595,600	$1,539,589,373	63.8%	$ 872,006,227	$1,141,555,008	76.4%
12/31/78	2,557,052,472	1,769,105,963	69.2%	787,946,509	1,237,221,852	63.7%
12/31/79	2,914,177,817	2,090,081,827	71.7%	824,095,990	1,361,116,760	60.6%
12/31/80	3,505,636,330	2,438,498,055	69.6%	1,067,138,275	1,518,107,964	70.3%
12/31/81	3,950,551,611	2,731,317,956	69.1%	1,219,233,655	1,649,921,520	73.9%
12/31/82	4,541,424,488	3,199,623,171	70.5%	1,341,801,317	1,802,596,767	74.4%
12/31/83	5,100,834,129	3,752,861,340	73.6%	1,347,972,789	1,923,936,078	70.1%
12/31/84	5,774,927,335	4,393,831,995	76.1%	1,381,095,340	2,091,707,220	66.0%
12/31/85	6,468,709,784	5,194,918,164	80.3%	1,273,791,620	2,270,948,105	56.1%
12/31/86	7,148,766,696	6,247,694,817	87.4%	901,071,879	2,409,384,090	37.4%
12/31/87	8,206,581,941	7,019,254,128	85.5%	1,187,327,813	2,531,357,702	46.9%

Schedule of Gains and Losses in Accrued Liabilities

Years Ended December 31
Resulting From Differences Between Assumed Experience and Actual Experience

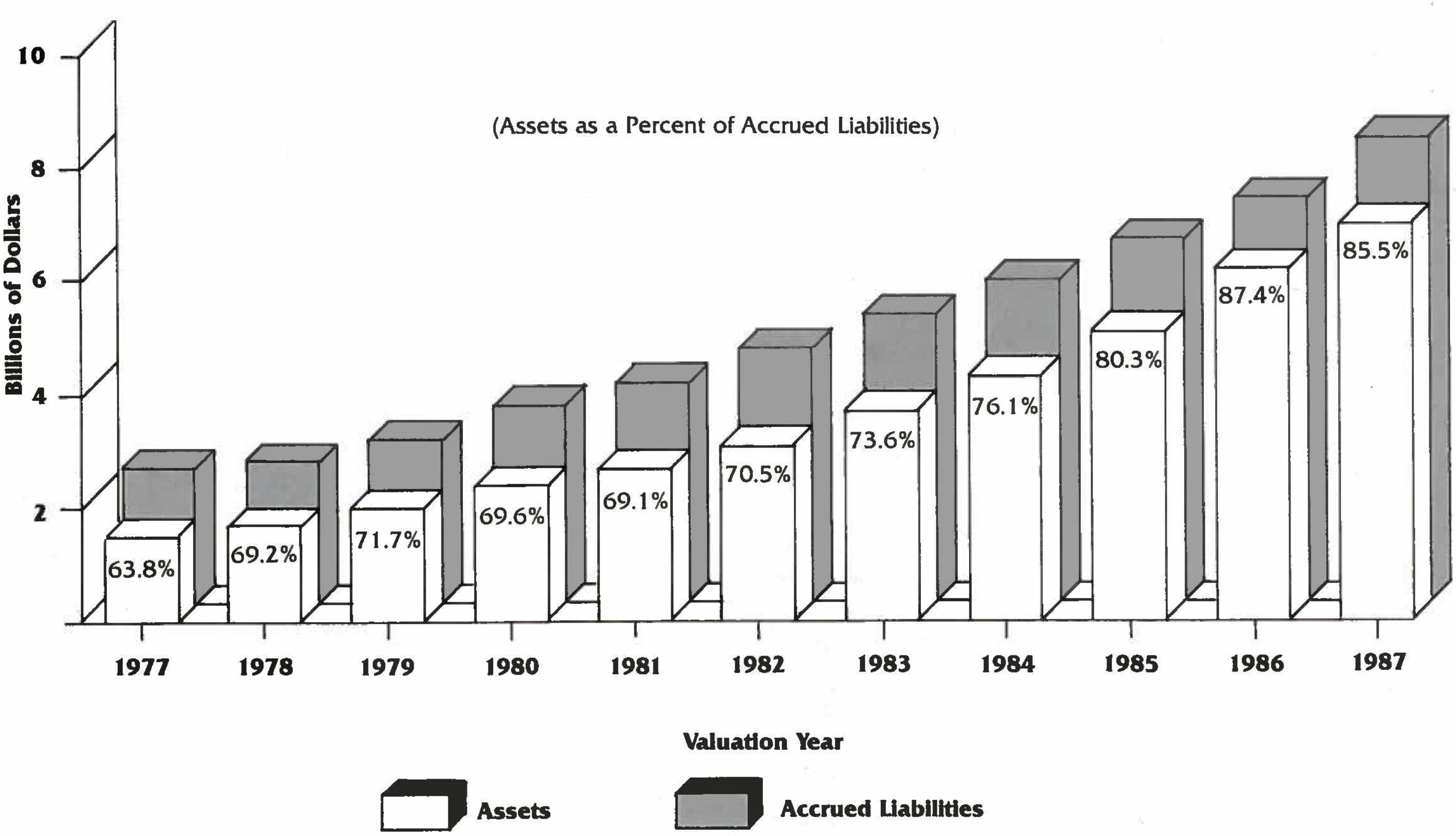
(In Millions of Dollars)

$ Gain (or Loss) For Year

Type of Activity	1987[1]	1986[1]	1985[1]	1984	1983
Age and service retirements	$ 0.00	$ (5.30)	$ (5.60)	$ (5.14)	$ (8.10)
Disability retirements	9.70	(2.12)	(2.77)	(3.58)	(16.57)
Death-in-service benefits	3.70	2.36	1.66	4.34	4.04
Withdrawal from employment	(24.60)	20.31	(51.24)	(47.48)	(13.04)
Pay increases	44.50	25.30	(31.61)	(33.08)	(37.93)
Investment income	121.20	471.26	293.16	174.30	126.42
Other	(116.70)	38.18	(20.77)	(30.06)	0.03
Gain (or loss) during year from financial experience	37.80	549.99	182.83	59.30	54.85
Non-recurring items[2]	(327.50)[3]	(138.54)	(48.38)	(63.23)	(16.55)
Composite gain (or loss) during year	$(289.70)	$411.45	$134.45	$ (3.93)	$ 38.80

[1]Plan amended.
[2]Non-recurring items include changes due to amendments, changes in actuarial method or assumptions and special transfers to retired life funds.
[3]Effect of law changes.

Assets and Accrued Liabilities 1977 – 1987



Computed Employer Contribution Rate

	Expressed as Percents of Member Payroll			
	State Division	**School Division**	**Municipal Division**	**Judicial Division**
Contributions:				
Age and service retirements	10.48%	12.15%	9.97%	14.12%
Disability retirements	1.68	0.88	1.57	1.29
Survivor benefits	0.73	0.57	0.73	1.67
Future refunds	1.89	1.72	1.99	0.81
Total	14.78	15.32	14.26	17.89
Member contributions	(8.02)[1]	(8.00)	(8.00)	(8.00)[2]
Employer normal cost	6.76	7.32	6.26	9.89
Unfunded actuarial accrued liabilities	2.66	2.38	1.14	2.31
(Amortization period)	30 years	22 years	30 years	35 years
Total employer contribution rate for actuarially funded benefits	9.42%	9.70%	7.40%	12.20%
Cost of living stabilization fund[3]	2.00	2.00	2.00	2.00
Health care fund[4]	0.80	0.80	0.80	0.80
Statutory Employer Contribution Rate	12.22%	12.50%	10.20%	15.00%

[1]Weighted average of more than one statutory rate.
[2]Assumes no judge will elect a refund of contributions made during the 17th and through the 20th years of service.
[3]Used to provide ad-hoc increases to retirees and beneficiaries.
[4]Used to pay a portion of health care premium for retirees and beneficiaries.

Statistical Section*

*unaudited

Schedule of Disbursements by Function

(In Thousands of Dollars)

	Refunds	Benefits Payments	Administrative Expenses	Total Expenses
STATE DIVISION				
1978	$ 9,522	$ 28,131	$ 862	$ 38,515
1979	13,435	32,293	1,030	46,758
1980[1]	13,980	29,586	1,037	44,603
1981	16,550	53,094	1,161	70,805
1982	17,091	65,067	1,358	83,516
1983	12,934	77,262	1,782	91,978
1984	14,951	87,948	1,960	104,859
1985	15,246	99,239	2,248	116,733
1986[2]	13,358	111,483	2,810[3]	127,651
1987[2]	13,735	126,099	2,993[3]	142,827
SCHOOL DIVISION				
1978	10,448	26,333	1,163	37,944
1979	12,240	29,958	1,385	43,583
1980[1]	12,525	26,000	1,424	39,949
1981	14,597	47,181	1,570	63,348
1982	13,242	58,369	1,885	73,496
1983	12,280	71,506	2,486	86,272
1984	13,868	81,989	2,726	98,583
1985	13,290	92,511	3,173	108,974
1986[2]	12,152	103,500	4,015[3]	119,667
1987[2]	11,108	118,194	4,318[3]	133,620
MUNICIPAL DIVISION				
1978	1,666	2,185	115	3,966
1979	2,136	2,555	142	4,833
1980[1]	2,134	2,318	126	4,578
1981	2,304	4,040	167	6,511
1982	1,911	4,937	198	7,046
1983	2,122	5,989	273	8,384
1984	2,715	7,137	314	10,166
1985	2,796	8,008	365	11,169
1986[2]	2,661	9,352	470[3]	12,483
1987[2]	2,690	10,860	516[3]	14,066
JUDICIAL DIVISION				
1978	14	499	6	519
1979	13	618	8	639
1980[1]	53	398	8	459
1981	84	927	8	1,019
1982	27	1,072	10	1,109
1983	13	1,367	14	1,394
1984	41	1,496	15	1,552
1985	85	1,664	17	1,766
1986[2]	66	1,886	21[3]	1,973
1987[2]	171	2,241	22[3]	2,434

[1]The fiscal year was changed in 1980 to a calendar year. Amounts prior to that time have been allocated on calendar-year basis.

[2]Information for 1986 and 1987 is on an accrual basis; prior years on a cash basis.

[3]Total for 1986 and 1987 does not include the Health Care Fund or the Common Operating Fund.

Schedule of Receipts by Source

(In Thousands of Dollars)

	Member Contribution	Employer Contribution	Investment Income	Misc. Income[2]	Total Revenues
STATE DIVISION					
1978	$ 40,019	$ 54,806	$ 48,763	$116	$143,704
1979	43,716	59,876	59,042	150	162,784
1980[1]	48,140	68,435	75,553	141	192,269
1981	53,153	83,369	50,932	158	187,612
1982	58,995	89,973	114,948	117	264,033
1983	61,865	94,148	146,782	26	302,821
1984	66,838	101,341	178,807	26	347,012
1985	71,777	108,263	251,086	34	431,160
1986	75,086	87,901[3]	333,992[4]	41	497,020
1987	79,757	83,022[3]	68,972[4]	41	231,792
SCHOOL DIVISION					
1978	45,910	71,228	63,635	264	181,037
1979	50,448	78,244	76,707	300	205,699
1980[1]	56,083	87,375	98,027	235	241,720
1981	62,747	100,234	64,749	259	227,989
1982	67,985	110,520	148,913	255	327,673
1983	74,736	118,813	192,869	56	386,474
1984	80,604	126,826	243,906	30	451,366
1985	89,181	138,009	329,785	49	557,024
1986	98,030	117,210[3]	447,388[4]	47	662,675
1987	104,176	119,167[3]	91,707[4]	13	315,063
MUNICIPAL DIVISION					
1978	4,948	6,289	5,261	10	16,508
1979	5,667	7,204	6,602	16	19,489
1980[1]	6,542	8,329	8,088	10	22,969
1981	7,438	9,762	4,774	18	21,992
1982	8,882	11,347	13,867	14	34,110
1983	9,888	12,604	18,493	10	40,995
1984	10,977	13,938	21,744	8	46,667
1985	12,033	15,305	30,812	7	58,157
1986	13,029	12,044[3]	41,087[4]	7	66,167
1987	13,738	12,693[3]	8,368[4]	7	34,806
JUDICIAL DIVISION					
1978	442	757	805	—	2,004
1979	498	854	951	—	2,303
1980[1]	533	971	1,203	3	2,710
1981	476	1,224	749	1	2,450
1982	722	1,366	1,882	—	3,970
1983	736	1,380	2,541	—	4,657
1984	874	1,476	2,831	—	5,181
1985	879	1,623	3,469	—	5,971
1986	875	1,365[3]	4,438[4]	—	6,678
1987	872	1,207[3]	1,065[4]	—	3,144

[1]The fiscal year was changed in 1980 to a calendar year. Amounts prior to that time have been allocated on calendar-year basis.
[2]Membership fees not available for benefits.
[3]Contribution in 1986 and 1987 is net of Health Care Fund and Cost of Living Stabilization Fund contributions.
[4]Investment income for 1986 and 1987 does not include the Health Care Fund, Cost of Living Stabilization Fund and Common Operating Fund.

Schedule of Benefit Disbursements by Type

(In Thousands of Dollars)

Year Ended	Retirement Benefits	Survivor Benefits	Refunds	Total
6/30/78	$ 50,842	$2,315	$22,639	$ 75,796
6/30/79	58,378	2,661	24,370	85,409
6/30/80	66,703	2,987	29,454	99,144
7/1-12/31/80*	47,184	1,946	14,921	64,051
12/31/81	101,108	4,134	32,794	138,036
12/31/82	124,494	4,951	27,733	157,178
12/31/83	150,378	5,746	28,843	184,967
12/31/84	171,980	6,385	34,519	212,884
12/31/85	193,936	7,485	32,069	233,490
12/31/86	217,403	8,818	28,237	254,458
12/31/87	247,963	9,431	27,704	285,098

*Fiscal year changed

Membership and Benefit Recipient Statistics*

	State Division	School Division	Municipal Division	Judicial Division	Total
Active members — Dec. 31, 1987	36,244	57,161	7,167	236	100,808
Retirements during 1987:					
Disability retirements	156	117	33	3	309
Service retirements	1,276	1,384	130	17	2,807
Total	1,432	1,501	163	20	3,116
Retirement benefits:					
Total receiving retirement benefits on Dec. 31, 1986	12,266	12,741	1,210	125	26,342
Total retiring during 1987	1,432	1,501	163	20	3,116
Cobeneficiaries continuing after retiree's death	111	99	14	1	225
Returning to retirement rolls from suspension	29	34	9	0	72
Total	13,838	14,375	1,396	146	29,755
Retirees deceased during year	(439)	(394)	(43)	(2)	(878)
Retirees returning to work	(28)	(39)	(9)	(0)	(76)
Total receiving retirement benefits— Dec. 31, 1987	13,371	13,942	1,344	144	28,801
Total paid in retirement benefits in 1987	$121,212,030	$114,472,263	$10,155,915	$2,051,759	$247,891,967
Average monthly benefit on Dec. 31, 1987	$ 815	$ 746	$ 690	$ 1,268	$ 778
Average monthly benefit for members retired during 1987	$ 1,130	$ 1,036	$ 945	$ 1,609	$ 1,078
Survivor benefits:					
Total survivor benefit accounts on Dec. 31, 1987	$ 635	$ 542	$ 110	$ 17	$ 1,304
Total survivor benefits paid in 1987	$ 4,859,945	$ 3,677,576	$ 697,519	$ 196,397	$ 9,431,437
Deferred benefits:					
Deferred retirements to age 60 or 65	461	1,020	44	4	1,529
Total annual future benefits	$ 2,950,657	$ 6,093,995	$ 294,089	$ 34,709	$ 9,373,450
Future survivor beneficiaries	19	12	1	0	32
Total annual future benefits	$ 37,519	$ 25,069	$ 3,302	$ 0	$ 65,890

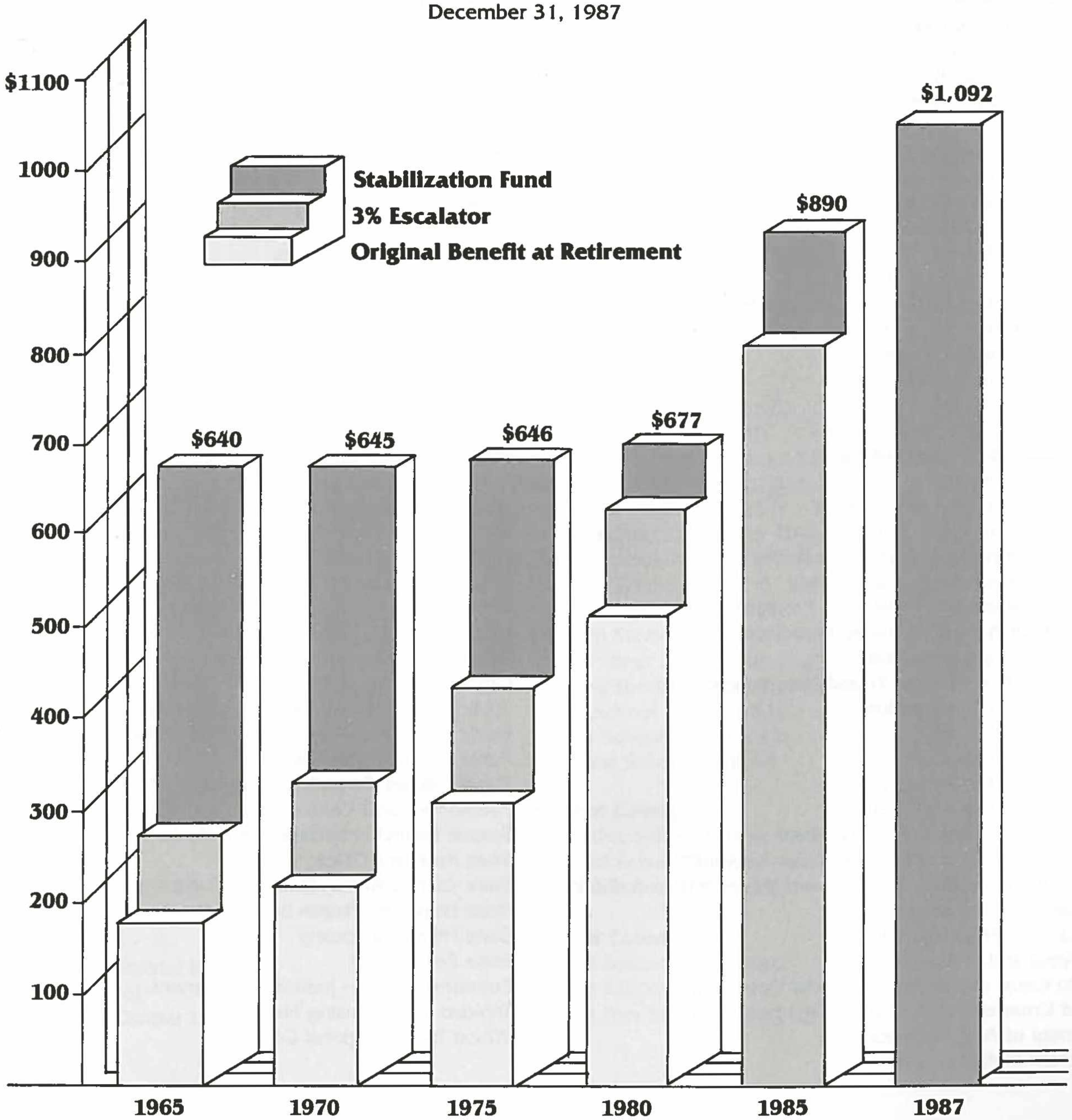
*Numbers derived on a cash/calendar year basis and include Cost of Living Stabilization and death benefits.

Schedule of Average Retirement Benefits Payable

Year Ending	Average Monthly Benefit	Average Age at Retirement	Average Current age of Retirees	Average Years of Service at Retirement
December 31, 1981	$457	62.7	70.2	16.4
December 31, 1982	570	62.5	70.0	16.7
December 31, 1983	596	62.3	70.0	17.0
December 31, 1984	648	62.1	70.0	17.2
December 31, 1985	676	61.8	70.1	17.4
December 31, 1986	727	61.6	70.1	17.5
December 31, 1987	778	61.4	69.7	17.8

Average Monthly Benefit by Year of Retirement

December 31, 1987



Schedule of Participating Employers

STATE DIVISION

Institutions of High Education
Adams State College
Arapahoe Community College
Auraria Higher Education Center
Aurora Community College
Colorado Advanced Technical Institute
Colorado School of Mines
Colorado State University
Commission on Higher Education
Community College of Denver
Fort Lewis College
Front Range Community College
Lamar Community College
Mesa College
Metro State College
Morgan Community College
Otero Junior College
Pikes Peak Community College
Pueblo Vocational Community College
Red Rocks Community College
School for the Deaf and Blind
State Board for Community Colleges and Occuptional Education
Trinidad State Junior College
Trustees of State Colleges
University of Colorado
University of Colorado at Denver
University of Colorado Health Sciences Center
University of Colorado at Colorado Springs
University of Northern Colorado
University of Southern Colorado
Western State College

Agencies and Instrumentalities
Civil Rights Commission
Civil Service Personnel Department
Colorado Association of School Boards
Colorado Council on Arts and Humanities
Colorado Department of Public Safety
Colorado Guarantee Student Loan Program Office
Colorado High School Activities Association
Colorado Lottery Commission
Colorado Medical Services Foundation Incorporated
Colorado Racing Commission
Colorado State Fair
Colorado State Hospital
Colorado State Reformatory
Colorado State Veterans Center
Colorado State Veterans Nursing Home
Colorado Supreme Court Board of Law Examiners
Colorado Water Resources and Power Development Authority
Commission on Consumer Credit
Coordinator of Highway Safety
Correctional and Industries
Colorado Court of Appeals — Judicial Department
Deferred Compensation, Risk Management Office
Department of Administration
Department of Agriculture
Department of Corrections
Department of Education
Department of Institutions
Department of Labor and Employment
Department of Law
Department of Local Affairs
Department of Military Affairs
Department of Natural Resources
Department of Planning and Budgeting
Department of Regulatory Agencies
Department of Revenue
Department of Social Services
Department of the Treasury
District Courts — Judicial Department
Division of Adult Parole
Division of Banking
Division of Insurance
Division of Labor
Division of Land Commission
Division of Parks
Division of Savings and Loan
Division of Securities
Division of Water Resources
Division of Wildlife
Division of Youth Services
Fire and Police Pension Association
Fort Logan Mental Health Center
General Assembly
Governor's Job Training Office
Governor's Office, Medicaid Fraud Control Unit
Grand Junction Regional Center
Highway Department
Joint Budget Committee
Judicial Administration
Legislative Council
Legislative Drafting Office
Moffat Tunnel Commission
Office of the District Attorneys
Office of the Governor and Executive Mansion
Office of the Lieutenant Governor
Office of the Revisor of Statutes
Office of the Secretary of State
Public Defender — Judicial Department
Public Employees' Retirement Association
Public Health Department
Public Utilities Commission
Pueblo Regional Center
Special District Association of Colorado
State Auditor's Office
State Compensation Insurance Fund
State Employee Health Insurance
State Historical Society
State Penitentiary
Supreme Court — Judicial Department
Trinidad State Nursing Home
Wheat Ridge Regional Center

SCHOOL DIVISION

Adams County
Adams County School District 14
Bennett School District 29J
Brighton School District 27J
Mapleton School District 1
Northglenn-Thornton School District 12
Strasburg School District 31J
Westminster School District 50

Alamosa County
Alamosa County School District Re-11J
Sangre De Cristo School District Re-22J

Arapahoe County
Aurora School District 28J (Adams-Arapahoe)
Byers School District 32J
Cherry Creek School District 5
Dear Trail School District 26J
Englewood School District 1
Littleton School District 6
Sheridan School District 2

Archuleta County
Archuleta County School District 50 Jt

Baca County
Campo School District RE-J
Pritchell School District RE-3
Springfield School District RE-4
Vilas School District RE-5
Walsh School District RE-1

Bent County
Las Animas School District Re-1
McClave School District Re-2

Boulder County
Boulder Valley School District Re-2
St. Vrain Valley School District Re1J

Chaffee County
Buena Vista School District R-31
Salida School District R-32(J)

Cheyenne County
Cheyenne County School District Re-5
Kit Carson School District R-1

Clear Creek County
Clear Creek School District RE-1

Conejos County
North Conejos School District Re1J
Sanford School District 6J
South Conejos School District 10

Costilla County
Centennial School District R-1
Sierra Grande School District R-30

Crowley County
Crowley County School District Re-1-J

Custer County
Custer County Consolidated School District C-1

Delta County
Delta County School District 50(J)

Dolores County
Dolores County School District Re-1

Douglas County
Douglas County School District Re 1

Eagle County
Eagle County School District Re-50

Elbert County
Agate School District 300
Big Sandy School District 100J
Elbert School District 200
Elizabeth School District C-1
Kiowa School District C-2

El Paso County
Academy School District 20
Calhan School District RJ1
Cheyenne Mountain School District 12
Colorado Springs School District 11
Edison School District 54 Jt
Ellicott School District 22
Falcon School District 49
Fountain School District 8
Hanover School District 28
Harrison School District 2
Lewis-Palmer School District 38
Manitou Springs School District 14
Miami School District 60 Jt
Peyton School District 23 Jt
Widefield School District 3

Fremont County
Canon City School District Re-1
Cotopaxi School District Re-3
Florence School District Re-2

Garfield County
Garfield School District Re-2
Garfield School District 16
Roaring Fork School District Re-1

Gilpin County
Gilpin County School District Re-1

Grand County
East Grand County District 2
West Grand County District 1

Gunnison County
Gunnison Watershed School District Re1J

Hinsdale County
Hinsdale County School District Re-1

Huerfano County
Huerfano School District Re-1
La Veta School District Re-2

Jackson County
North Park School District R-1

Jefferson County
Jefferson County School District R-1

Kiowa County
Eads School District Re-1
Plainview School District Re-2

Kit Carson County
Arriba-Flagler Consolidated School District 20
Bethune School District R-5
Burlington School District Re-6J
Hi-Plains School District R-23
Stratton School District R-4
Vona School District R-3

Lake County
Lake County School District R-1

La Plata County
Bayfield School District 10Jt-R
Durango School District 9-R
Ignacio School District 11 Jt

Larimer County
Park School District R-3
Poudre School District R-1
Thompson School District R-2J

Las Animas County
Aguilar Reorganized School District 6
Branson Reorganized School District 82
Hoehne Reorganized School District 3
Kim Reorganized School District 88
Primero Reorganized School District 2
Trinidad School District 1

Lincoln County
Genoa/Hugo School District Re-113
Karval School District Re-23
Limon School District Re-4J

Logan County
Buffalo School District Re-4
Frenchman School District Re-3
Plateau School District Re-5
Valley School District Re-1

Mesa County
De Beque School District 49 Jt
Mesa County Valley School District 51
Plateau Valley School District 50

Mineral County
Creede Consolidated School District 1

Moffat County
Moffat County School District Re-1

Montezuma County
Dolores School District Re-4A
Mancos School District Re-6
Montezuma-Cortez School District Re-1

Montrose County
Montrose County School District Re-1J
West End School District Re-2

Morgan County
Brush School District Re-2 (J)
Fort Morgan School District Re-3
Weldon Valley School District Re-20 (J)
Wiggins School District Re-50 (J)

Otero County
Cheraw School District 31
East Otero School District R-1
Fowler School District R-4J
Manzanola School District 3J
Rocky Ford School District R2
Swink School District 33

Ouray County
Ouray School District R-1
Ridgway School District R-2

Park County
Park County School District Re-2
Platte Canyon School District 1

Phillips County
Haxtun School District Re-2J
Holyoke School District Re-1J

Pitkin County
Aspen School District 1

Prowers County
Granada School District Re-1
Holly School District Re-3
Lamar School District Re-2
Wiley School District Re-13 Jt

Pueblo County
Pueblo City School District 60
Pueblo County School District 70

Rio Blanco County
Meeker School District RE-1
Rangely School District RE-4

Rio Grande County
Del Norte School District C-7
Monte Vista School District C-8
Sargent School District Re-33J

Routt County
Hayden School District Re-1
South Routt School District Re-3
Steamboat Springs School District Re-2

Saguache County
Center Consolidated School District 26J
Moffat School District 2
Mountain Valley School District Re-1

San Juan County
Silverton School District 1

San Miguel County
Egnar School District 18
Norwood School District R-2J
Telluride School District R-1

Sedgwick County
Julesburg School District Re-1
Platte Valley School District Re-1

Summit County
Summit School District Re-1

Teller County
Cripple Creek-Victor School District Re-1
Woodland Park School District Re-2

Washington County
Akron School District R-1
Arickaree School District R-2
Lone Star School District 101
Otis School District R-3
Woodlin School District R-104

Weld County
Ault-Highland School District Re-9
Briggsdale School District Re-10
Eaton School District Re-2
Fort Lupton School District Re-8
Gilcrest School District Re-1
Greeley School District 6
Johnstown School District Re-5J
Keenesburg School District Re-3
Pawnee School District Re-12
Platte Valley School District Re-7
Prairie School District Re-11
Windsor School District Re-4

Yuma County
East Yuma County School District R-J-2
West Yuma County School District R-J-1

Boards of Cooperative Education Services (BOCES)
Adams County BOCES
Arkansas Valley BOCES
East Central BOCES
Northeast Colorado BOCES
Northern Colorado BOCES
South Central BOCES
South Platte Valley BOCES
Southeast Metropolitan BOCES
Southeastern BOCES
Weld BOCES

Boards of Cooperative Services
Delta-Montrose BOCS
Larimer County BOCS
Montezuma BOCS
Mountain BOCS
Northwest Colorado BOCS
Pikes Peak BOCS
San Juan BOCS
San Luis Valley BOCS
Southwest BOCS

Vocational Schools
Boulder Valley Vocational Technical Center
Delta-Montrose Area Vocational School
Larimer County Vocational Technical Center
San Juan Basin Area Vocational School
San Luis Valley Area Vocational School

Local District Colleges
Aims Community College
Colorado Mountain College
Colorado Northwestern Community College
Northeastern Junior College

MUNICIPAL DIVISION

Alamosa Housing Authority
Aurora Housing Authority
Blanca-Fort Garland Metropolitan District
Carbon Valley Park & Recreation District
Castle Pines Metropolitan District
Center Housing Authority
City of Alamosa
City of Arvada
City of Boulder
City of Colorado Springs
City of Durango
City of Fort Morgan
City of Lafayette
City of Lakewood
City of Lamar
City of Manitou Springs
City of Pueblo
City of Wray
City of Yuma
Colorado Housing Finance Authority
Colorado Springs Public Utilities
Costilla Housing Authority
Eastern Rio Blanco Parks & Recreation District
East Larimer County Water District
Fairmont Fire Protection District
Fremont Sanitation District
Lamar Housing Authority
Longmont Housing Authority
Meeker Regional Library District
Memorial Hospital — Colorado Springs
Milliken Sanitation District
North Chaffee County Regional Library
Northeast Colorado Health Department
Parker Water & Sanitation District
Pueblo City-County Health Department
Pueblo Regional Library
Rio Blanco Western Recreation Parks
San Miguel County Public Library*
South Lakewood Sanitation District
Southwest Regional Library
Town of Bayfield
Town of Cedaredge
Town of Crawford
Town of Estes Park
Town of Firestone*
Town of Parker
Town of Platteville
Town of Seibert*
Tri-County Health Department
Weld County Health Department
Windsor-Severance Library District
Yuma Housing Authority

*Affiliated in 1987.

JUDICIAL DIVISION

1st - 23rd District Court
24th District-Denver Probate Court
25th District-Denver Juvenile Court
Court of Appeals
Denver County Court
Supreme Court

Other PERA Programs*

***unaudited**

Health Care Program

The PERA Health Care Program began covering benefit recipients and qualified dependents on July 1, 1986. This benefit was developed after legislation in 1985 established the Program and the Health Care Fund, which is used to subsidize premium costs.

Prior to this, while some retirees received coverage through their former employers, many others had no group health care coverage available to them after retirement. Others had a group plan in which they could enroll, but they paid the full premium.

Under the Health Care Program, PERA subsidizes a portion of the monthly premium for health care coverage. The benefit recipient pays any remaining amount of that premium through an automatic deduction from the monthly retirement benefit. During 1987, the subsidy was $87.01 per month for benefit recipients who had 20 or more years of PERA service credit. For those with less service, the subsidy was reduced 5 percent ($4.35) for each year under 20 years.

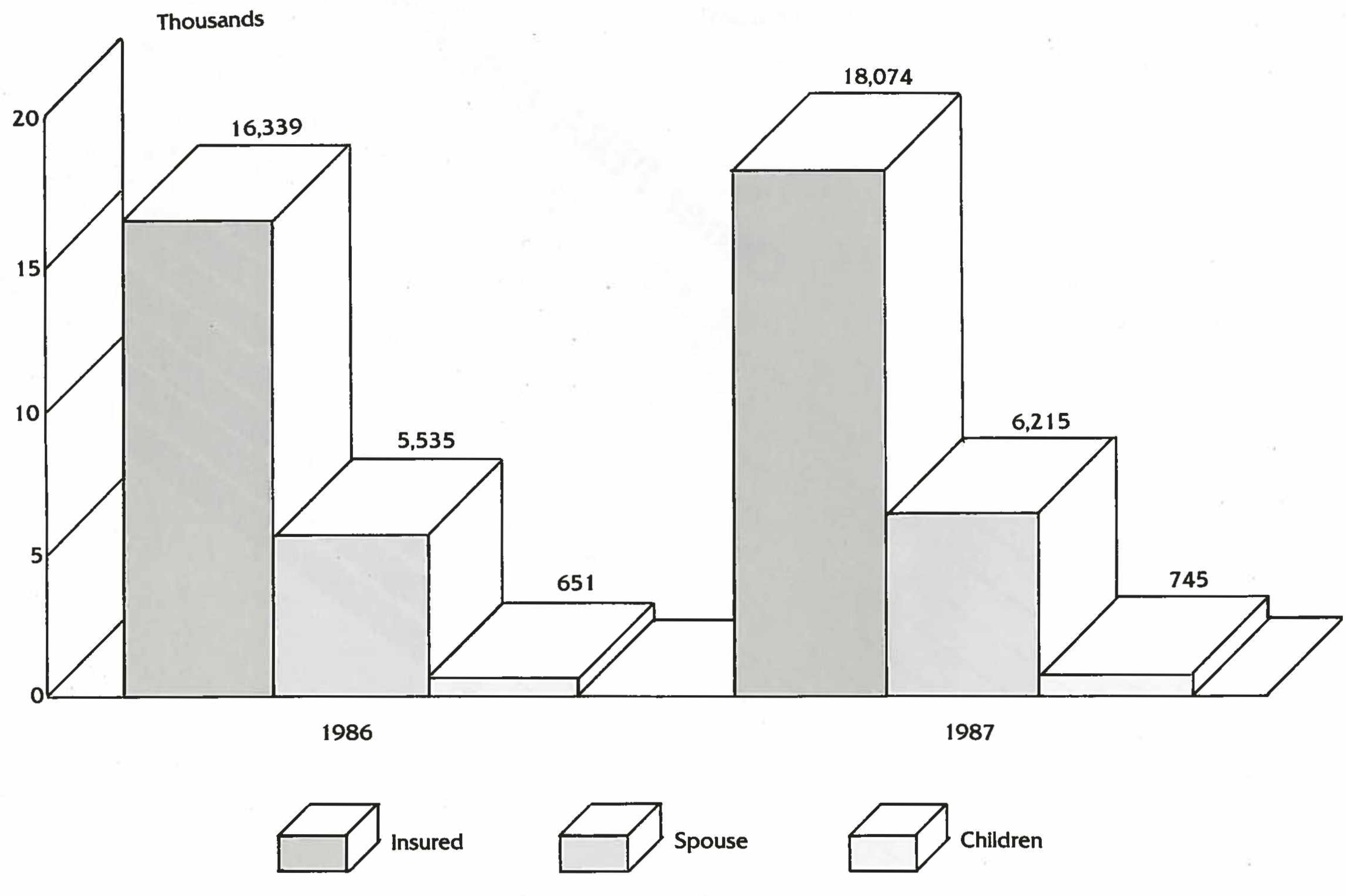
Monthly premium costs for participants depend on the health care plan selected, the number of persons being covered and Medicare eligibility; the number of years of service credit a retiree has determines the amount of the premium subsidy. The Health Care Fund receives a small portion of the monthly PERA contribution (0.8 percent of salary) from affiliated employers. This allocation is invested and any investment earnings are added to the Health Care Fund.

Under the Program, PERA uses Blue Cross and Blue Shield of Colorado, a major medical indemnity carrier, and seven Health Maintenance Organizations (HMOs): Comprecare HMO, Kaiser Permanente, Health Dimensions, Peak Health Plan, Qual Med HMO, Rocky Mountain HMO and San Luis Valley HMO. In October, Health Dimensions discontinued operations and the 230 persons covered by that HMO were transferred to other carriers.

The annual open enrollment for the Health Care Program was held between May 1 and June 15, 1987. During that period, PERA benefit recipients could join the program for the first time, transfer from one plan to another and add or delete eligible dependents. As a result, the program experienced a net increase of 421 new enrollments and 322 new dependents. Only 260 participants (less than 2 percent of those enrolled) changed their health care plans.

At the end of the year, 18,074 of the 30,105 PERA benefit recipients were enrolled in the Program. Also, 6,960 dependents were covered.

Health Care Enrollments



Life Insurance Program

PERA provides its members access to two group life insurance plans offered by Prudential and New York Life. Members may join one or both of the plans, and may continue coverage into retirement.

During the annual open enrollment period held each fall, members are not required to furnish evidence of good health for themselves or their dependents. Members may enroll outside of the open enrollment period, but must provide a health statement from a physician.

Monthly premiums are paid by payroll deduction; the premiums are $9 for Prudential and $10 for New York Life.

Life Insurance Enrollment

Year	New York Life	Prudential	Total Enrollments
1977	18,443	7,364	25,807
1978	17,625	8,155	25,780
1979	17,691	9,425	27,116
1980	18,098	10,925	29,023
1981	17,729	11,472	29,201
1982	17,553	12,077	29,630
1983	18,242	12,298	30,540
1984	19,643	12,837	32,480
1985	21,296	13,635	34,931
1986	23,052	13,863	36,915
1987	24,394	14,113	38,507

Life Insurance Dollars Paid

Year	New York Life	Prudential	Total Paid
1977	$ 709,246	$223,504	$ 932,750
1978	1,086,319	255,442	1,341,761
1979	992,477	394,377	1,386,854
1980	1,026,473	442,340	1,468,813
1981	1,137,044	619,274	1,756,318
1982	1,388,697	528,458	1,917,155
1983	1,114,010	447,706	1,561,716
1984	1,484,583	872,860	2,357,443
1985	1,950,696	910,057	2,860,753
1986	1,670,531	802,016	2,472,547
1987	2,097,665	865,783	2,963,448

Voluntary Investment Program

The PERA Voluntary Investment Program (VIP) was established on July 1, 1985, under section 401(k) of the Internal Revenue Code. Program participation is voluntary and contributions are entirely separate from those that members make to the Association each month. VIP allows participants additional tax deferral of current income by investing some of their current income for retirement. Earnings on VIP investments are also tax-deferred.

In 1987, members were able to invest up to 12 percent of their annual gross salary, to a maximum of $7,000 in the Program. Contributions are deducted from the participant's monthly salary.

VIP offers members a choice of three funds in which they may invest. They are a Short-Term Fund, a Fixed Income (bond) Fund and a Growth Stock (equity) Fund. Each quarter, members may change their contribution amount, transfer their account balance between funds and change the contribution percentage designated to each fund. The Program also has loan and hardship withdrawal provisions.

On December 31, 1987, VIP had accumulated assets of $4,292,351 and 1,322 participants.

Year	Assets	Number of Participants
1985 (Jul-Dec)	$ 203,272	236
1986	$1,750,673	902
1987	$4,292,351	1,322

Fund Performance

	Jan-Mar 1987	Apr-Jun 1987	July-Sept 1987	Oct-Dec 1987	Calendar Year 1987	Calendar Year 1986	July-Dec 1985	Since Inception
Short-Term	2.22%	2.21%	2.24%	2.24%	9.40%	9.46%	10.54%	24.75%
Fixed Income	2.22%	(0.52%)	(0.07%)	3.48%	4.92%	13.16%	43.26%	42.49%
Growth Stock	15.25%	5.04%	9.55%	(16.77%)	7.20%	5.43%	35.53%	29.66%

Note: The "time weighted" or actual return a participant may have realized may be less or more, depending on when the member began investing in a particular fund and/or the amount of investments the member had in a respective fund during each calendar quarter.