

SOUTH CAROLINA RETIREMENT SYSTEM

REPORT OF THE ACTUARY ON

THE THIRTY-SIXTH VALUATION

PREPARED AS OF JUNE 30, 1987

BUCK
CONSULTANTS

BUCK
CONSULTANTS

200 Galleria Parkway, N. W. Suite 1060
Atlanta, Georgia 30339 404 | 955-2488

June 10, 1988

State Budget and Control Board
South Carolina Retirement System
Columbia, South Carolina 29211

Gentlemen:

We transmit herewith our report on the thirty-sixth actuarial valuation of the South Carolina Retirement System, prepared as of June 30, 1987.

The actuarial assumptions are, in the aggregate, reasonable, and represent our best estimate of anticipated experience under the System. The actuarial cost method utilized is the projected benefit method with level percentage entry age normal cost and open-end accrued liability. This cost method is specifically recognized as an acceptable method by the Employee Retirement Income Security Act of 1974. The current assets applicable to the System were supplied by the Retirement System office. They are valued at adjusted amortized cost.

In our opinion, the Schedule of Valuation Results included in this report correctly presents the condition of the South Carolina Retirement System as to those benefits which are funded on an actuarial reserve basis.

The valuation indicates that for Class One employers the total contribution rate payable should be 3.70 per cent of earnable compensation. For Class Two employers the contribution rates should be 7.00 per cent of earnable compensation by the State and 6.15 per cent of earnable compensation by other employers. In addition, the contribution rates of participating employers should be continued at .30 per cent of payroll to provide the pre-retirement death benefits.

We trust that the report is in satisfactory form for use by the Board.

Respectfully submitted,

(Signed) DONALD M. OVERHOLSER

Donald M. Overholser
Consulting Actuary

TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Summary of Principal Results	1
II	Membership Data	2
III	Assets	5
IV	Comments on the Valuation	5
V	Contributions Payable Under the System	7
VI	Valuation Basis	7
VII	Accounting Information	7
 <u>Schedule</u>		
A	Results of the Valuation as of June 30, 1987	10
B	Outline of Actuarial Assumptions and Methods	11
C	Summary of Main System Provisions as Interpreted for Valuation Purposes	13
D	Membership Data Tabulations	20

REPORT ON AN ACTUARIAL VALUATION OF THE
SOUTH CAROLINA RETIREMENT SYSTEM
PREPARED AS OF JUNE 30, 1987

SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding valuation's results are summarized below (all dollar amounts are in thousands):

<u>Valuation Date</u>	<u>6/30/87</u>	<u>6/30/86</u>
Number of active members:		
Men	53,295	53,001
Women	99,090	96,536
Total	152,385	149,537
Annual earnable compensation of active members during year:		
Men	\$ 1,146,860	\$ 1,100,985
Women	1,649,652	1,533,458
Total	\$ 2,796,512	\$ 2,634,443
Number of retired members and beneficiaries	34,940	32,742
Annual retirement allowances	\$ 203,070	\$ 177,332
Assets for valuation purposes	\$ 4,805,381	\$ 4,202,379
Normal contribution as per cent of compensation:		
Class One Service	2.32%	2.32%
Class Two Service:		
State	3.74	3.74
Others	3.19	3.19
Unfunded accrued liability (UAL)	\$ 851,277	\$ 825,871
UAL contribution as per cent of compensation:		
Class One Service	1.38%	1.38%
Class Two Service:		
State	3.26	3.26
Others	2.96	2.96
UAL liquidation period (years)	16	17

(continued)		
Valuation Date	6/30/87	6/30/86
Pre-retirement death benefit contribution as per cent of compensation	.30%	.30%
Total contributions as per cent of compensation:		
Class One Service	4.00%	4.00%
Class Two Service:		
State	7.30	7.30
Others	6.45	6.45

2. Comments on the valuation results as of June 30, 1987 are given in Section IV and further discussion of the contribution levels is set out in Section V. There have been no amendments affecting the valuation since the June 30, 1986 valuation.
3. Schedule B of this report outlines the full set of actuarial assumptions and methods employed. The provisions of the System are summarized in Schedule C.

SECTION II - MEMBERSHIP DATA

1. Data needed with respect to each active member, retired member and beneficiary of the System and also with respect to terminations during the valuation year were furnished to the actuary by the Retirement System office on a magnetic tape.
2. From the data, tabulations were made showing as of June 30, 1987 the number and annual earnable compensation of active members classified by age and years of service and the number and retirement allowances of retired members and beneficiaries as of June 30, 1987 classified by age. These tabulations are presented in Schedule D.

3. The following table shows the number and annual earnable compensation of active members of the Retirement System as of June 30, 1987.

TABLE I
THE NUMBER AND EARNABLE COMPENSATION OF ACTIVE MEMBERS
AS OF JUNE 30, 1987

GROUP	MEN	WOMEN	TOTAL
EMPLOYEES			
Number	40,409	46,302	86,711
Earnable Compensation (\$1,000's)	\$ 856,496	\$ 751,931	\$ 1,608,427
TEACHERS			
Number	12,886	52,788	65,674
Earnable Compensation (\$1,000's)	\$ 290,364	\$ 897,721	\$ 1,188,085
TOTAL			
Number	53,295	99,090	152,385
Earnable Compensation (\$1,000's)	\$ 1,146,860	\$ 1,649,652	\$ 2,796,512

NOTE: There are in addition 79,725 inactive members, 10,075 active members not on the payroll as of the valuation date, and 456 members with insufficient information. The results of the valuation were adjusted to take these members into account.

4. The following table shows the number and annual amount of retirement allowances payable to retired members and to beneficiaries of deceased retired and active members as of June 30, 1987.

TABLE II

THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF
RETIRED MEMBERS AND BENEFICIARIES ON THE ROLL
AS OF JUNE 30, 1987

GROUP	NUMBER	TOTAL ANNUAL RETIREMENT ALLOWANCES (\$ 1,000's)
Service Retirements		
Employees:		
Men	7,072	\$ 47,760
Women	5,589	27,041
Teachers:		
Men	2,943	22,855
Women	<u>13,143</u>	<u>77,244</u>
Total	<u>28,747</u>	<u>\$ 174,900</u>
Disability Retirements		
Employees:		
Men	1,324	\$ 6,396
Women	868	3,858
Teachers:		
Men	386	2,331
Women	<u>1,058</u>	<u>5,515</u>
Total	<u>3,636</u>	<u>\$ 18,100</u>
Beneficiaries of Deceased Retired Members and Active Members		
Men	358	\$ 1,269
Women	<u>2,199</u>	<u>8,801</u>
Total	<u>2,557</u>	<u>\$ 10,070</u>
Grand Total	<u>34,940</u>	<u>\$ 203,070</u>

SECTION III - ASSETS

The amounts of the present assets taken into account in this valuation are at adjusted amortized cost. The values of the assets were taken from a statement furnished by the Director of the System and exclude reserve assets creditable to the Group Life Insurance Fund for pre-retirement lump sum death benefits.

Included in the valuation are the assets of the employee annuity savings fund which represent the accumulated contributions of members together with interest thereon. As of June 30, 1987, these assets amounted to \$1,261,308,839.

Also included in the valuation are the assets of the employer annuity accumulation fund to which the contributions made by employers are credited and from which are paid all benefits on account of retired members and their beneficiaries. The assets of the accumulation fund amounted to \$3,544,072,362 as of June 30, 1987.

SECTION IV - COMMENTS ON THE VALUATION

Schedule A of this report contains the results of the valuation which show present and prospective assets and liabilities of the System as of June 30, 1987. The following comments on the valuation are pertinent (all dollar amounts are in thousands):

The schedule shows that the System has actuarial liabilities of \$8,919,371, of which \$2,181,724 is for the prospective benefits payable on account of present retired members and beneficiaries and \$6,737,647 is for the prospective benefits payable on account of present active and inactive members. These liabilities include the reserves for all current and future cost-of-living increases to current retired members and beneficiaries and active members

currently eligible for service retirement. Against these liabilities, the System has present assets of \$4,805,381 and anticipated future contributions by members of \$1,985,202, leaving a balance of \$2,128,788 to be provided by future contributions of the employers. Of this amount, \$1,277,511 represents the present value of normal contributions by the employers and the balance of \$851,277 represents the present value of unfunded accrued liability contributions.

The retirement act provides that the contributions of employers shall consist of a normal contribution to cover the liability on account of service currently rendered and an unfunded accrued liability contribution on account of liabilities for past service which are not covered by present assets.

The following rates of contribution are payable by employers exclusive of the rate required for the pre-retirement lump sum death benefit:

For Class One employers, the total employer contribution rate should be 3.70 per cent of earnable compensation, of which 2.32 per cent is attributable to the normal contribution and 1.38 per cent is attributable to the unfunded accrued liability contribution for the period July 1, 1987 to June 30, 1988.

For Class Two employers, the total contribution rate should be 7.00 per cent payable by the State and 6.15 per cent by the other Class Two employers. Of the total rates, 3.74 per cent and 3.19 per cent are attributable to normal contributions of the State and other employers, respectively. The unfunded accrued liability rates are therefore 3.26 per cent for the State and 2.96 per cent for other employers for the period July 1, 1987 to June 30, 1988.

On the basis of the above unfunded accrued liability contribution rates it is anticipated that the unfunded accrued liability of \$851,277 shown in the valuation balance sheet will be liquidated within a period of 16 years from the valuation date.

The rate necessary to provide the pre-retirement lump sum death benefit on a one-year term cost basis may be continued at .30 per cent of earnable compensation on the basis of the valuation. In view of the development of reserve assets of \$42,878,497 creditable to the Group Life Insurance Fund, consideration should be given to reducing the rate in the near future. Employers

participating in the Pre-retirement Death Benefit Program should contribute .30 per cent of earnable compensation in addition to the appropriate rate above.

SECTION V - CONTRIBUTIONS PAYABLE UNDER THE SYSTEM

The following table gives the rates of contribution payable by employers, as determined on the basis of the present valuation.

RATES OF CONTRIBUTION	CLASS ONE	CLASS TWO	
		State	Others
Normal	2.32%	3.74%	3.19%
Unfunded Accrued Liability	1.38	3.26	2.96
Pre-retirement Death Benefit	<u>.30</u>	<u>.30</u>	<u>.30</u>
Total	4.00%	7.30%	6.45%

SECTION VI - VALUATION BASIS

The valuation of the Retirement System was made on the basis of the rates of separation and mortality tables in effect since June 11, 1974 and a salary scale and interest rate of 7% adopted by the Board on April 8, 1980. An outline of the actuarial assumptions and methods employed is presented in Schedule B.

SECTION VII - ACCOUNTING INFORMATION

1. Governmental Accounting Standards Board Statement No. 5 sets forth certain items of information to be disclosed in the financial statements of the System and the employer. One such item is a distribution of the number of employees by type of membership, as follows:

NUMBER OF ACTIVE, INACTIVE, AND RETIRED MEMBERS
AS OF JUNE 30, 1987

GROUP	:	NUMBER
Retirees and Beneficiaries	:	34,940
Inactive Members	:	79,725
Active Members:	:	
Vested	:	91,702
Non-vested	:	<u>60,683</u>
	:	
Total	:	152,385

2. Another such item is the pension benefit obligation, a standardized measure of the System's liabilities. It is the amount owed for benefits allocated to employee service before the balance sheet date, when total projected benefits (including the effects of projected salary increases) are allocated equally over all years of employee service before and after the balance sheet date. The pension benefit obligation, prepared in accordance with Governmental Accounting Standards Board Statement No. 5, and a comparison with net assets available for benefits as of June 30, 1987, are presented below.

Pension Benefit Obligation
(in \$ thousand)

° Retirees and beneficiaries currently receiving benefits and terminated employees entitled to benefits but not yet receiving benefits	\$ 2,181,724
° Inactive employees	158,114
° Current employees:	
Accumulated contributions	1,182,252
Employer-financed vested	847,368
Employer-financed nonvested	<u>2,078,081</u>
Total Pension Benefit Obligation	\$ 6,447,539
° Net assets available for benefits	\$ 4,805,381
° Unfunded Pension Benefit Obligation	\$ 1,642,158

3. The following first two years of the ten-year historical trend information, prepared in accordance with Governmental Accounting Standards Board Statement No. 5, provides information on progress made in accumulating sufficient assets to pay benefits when due. A purpose of the chart is to establish a consistent method for analyzing and making comparisons among different public retirement systems.

Required Supplementary Information Analysis of Funding Progress
(in \$ million)

Fiscal Year Ended	(1) Net Assets Avail- able for Benefits	(2) Pension Benefit Obliga- tion	(3) Percent- age Funded (1) ÷ (2)	(4) Unfunded Pension Benefit Obliga- tion (1) - (2)	(5) Annual Covered Payroll	(6) Unfunded PBO as % of Covered Payroll (4) ÷ (5)
6/30/86	\$ 4,202.4	\$ 5,747.5	73.1%	\$ 1,545.1	\$ 2,634.4	58.7%
6/30/87	4,805.4	6,447.5	74.5	1,642.1	2,796.4	58.7

Analysis of the dollar amounts of net assets available for benefits, pension benefit obligation, and unfunded pension benefit obligation 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 Retirement System'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 this percentage, the stronger the Retirement System.

SCHEDULE ARESULTS OF THE VALUATION AS OF JUNE 30, 1987
(All dollar amounts are in thousands)

(1) Actuarial liabilities

Present value of prospective benefits payable
in respect of:

(a) Present retired members and beneficiaries	\$ 2,181,724
(b) Present active and inactive members	<u>6,737,647</u>
(c) Total actuarial liabilities	\$ 8,919,371
(2) Assets of the System	<u>4,805,381</u>
(3) Present value of future contributions = (1)(c) - (2)	\$ 4,113,990
(4) Present value of future contributions by members	<u>1,985,202</u>
(5) Present value of future contributions by employers = (3) - (4)	\$ 2,128,788
(6) Present values of 1 per cent of future compensation	
(a) Class One Service	\$ 2,980
(b) Class Two Service: State	300,969
(c) Class Two Service: Others	45,446
(7) Present value of future normal contributions by employers at	
(a) 2.32% = (6)(a) x 2.32	\$ 6,914
(b) 3.74% = (6)(b) x 3.74	1,125,624
(c) 3.19% = (6)(c) x 3.19	<u>144,973</u>
(d) Total	\$ 1,277,511
(8) Present value of unfunded accrued liability contributions by employers = (5) - (7)(d)	\$ 851,277
(9) Unfunded accrued liability rates	
(a) Class One Service	1.38%
(b) Class Two Service: State	3.26
(c) Class Two Service: Others	2.96
(10) Unfunded accrued liability liquidation period	16 years
(11) Pre-retirement death benefit contribution rate	.30%

SCHEDULE B

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

INTEREST RATE: 7% per annum, compounded annually.

SEPARATIONS FROM SERVICE AND SALARY INCREASES: Representative values of the assumed annual rates of separation and annual rates of salary increase are as follows:

Age	Annual Rates of						
	<u>With-</u> <u>drawal</u>	<u>Death</u>	<u>Dis-</u> <u>ability</u>	<u>Service</u> <u>Retire-</u> <u>ment</u>	<u>With-</u> <u>drawal</u>	<u>Death</u>	<u>Dis-</u> <u>ability</u>
	Men Teachers				Women Teachers		
20	11.11%	.04%	.01%		13.79%	.03%	.02%
25	9.97	.05	.01		12.83	.03	.03
30	7.91	.08	.02		9.12	.04	.04
35	6.06	.12	.03		5.61	.06	.04
40	4.67	.18	.06		3.43	.08	.07
45	3.67	.25	.11		2.33	.13	.12
50	2.83	.35	.20	4.00%	1.74	.20	.20
55	2.03	.50	.34	5.50	1.18	.29	.35
60		.70	.59	7.50		.45	.61
64		.92	.94	20.00		.66	.82

Age	<u>With-</u> <u>drawal</u>	<u>Death</u>	<u>Dis-</u> <u>ability</u>	<u>Service</u> <u>Retire-</u> <u>ment</u>	<u>Salary Increase</u>
	Employees				Teachers and Employees
20	11.11%	.07%	.04%		11.31%
25	9.97	.09	.04		10.40
30	7.91	.11	.06		9.00
35	6.06	.14	.08		7.30
40	4.67	.18	.10		6.51
45	3.67	.28	.15		6.10
50	2.83	.46	.25	2.00%	5.80
55	2.03	.75	.40	3.50	5.60
60		1.08	.61	5.00	5.40
65		1.36	.85	17.50	5.30

DEATHS AFTER RETIREMENT: Combined Annuity Mortality Tables, Modified and Makehamized, for service retirement and dependent beneficiaries with a 2 year setback in ages for men employees, a 3 year setback for women employees, men teachers and men dependents and a 4 year setback for women teachers and women dependents. A special mortality table is used for disability retirements.

LOADING OR CONTINGENCY RESERVES: None.

VALUATION METHOD: Projected benefit with level percentage entry age normal cost and open-end unfunded accrued liability. Gains and losses are reflected in the period remaining to liquidate the unfunded accrued liability. Lump sum death benefits are provided on a one-year term cost basis.

ASSET VALUATION METHOD: Adjusted amortized cost.

SCHEDULE CSUMMARY OF MAIN SYSTEM PROVISIONS AS
INTERPRETED FOR VALUATION PURPOSESBACKGROUND

The South Carolina Retirement System was established as of July 1, 1945. There are two classes of employers and members under the System. Those employers becoming participants in the System on or after July 1, 1964 are Class Two employers. Class One employers include all employers who elected, by written notice to the Board not later than December 31, 1964, to remain and have their members remain under the provisions of the System as in effect on June 30, 1964. Class Two employers include all employers who elect, by written notice to the Board in allowable election periods, to participate and have their members participate as Class Two members provided such employers and employees in their employ make additional required contributions.

A summary of the main benefit provisions of the System, as interpreted in preparing the actuarial valuation, and a summary of the sources of revenue from which benefits are paid is presented in the following digest. "Average final compensation" means the average annual earnable compensation of a member during the twelve consecutive quarters of his creditable service producing the highest such average. "Prior service" means service prior to July 1, 1945 for which credit is allowed. "Membership service" means service rendered while a member of the System for which credit is allowed. The term "creditable service" means the sum of prior service and membership service.

BENEFITS

Service Retirement Allowance

Condition for Retirement

A retirement allowance is payable upon the request of any teacher or employee who has attained age 60 or has rendered 30 or more years of creditable service.

A member must retire at age 70 except that with the approval of both his employer and the Board, the member may remain in service to the end of the fiscal year in which he reaches his seventy-second birthday.

Amount of Allowance

Effective July 1, 1976 on service retirement, a Class One member receives a retirement allowance equal to 1% of the portion of his average final compensation not in excess of \$4,800, plus 1.30% of such compensation in excess of \$4,800, multiplied by the number of years of his creditable service.

On service retirement, a Class Two member receives a retirement allowance equal to 1.25% of the portion of his average final compensation not in excess of \$4,800, plus 1.65% of the portion of such compensation in excess of \$4,800, multiplied by the number of years of his creditable service.

If a member has not attained age 65 or completed 30 years of creditable service at the time of retirement, his allowance is reduced 5/12 of 1% for each month by which his age at retirement is less than age 65.

Disability Retirement
Allowance

Condition for Allowance

A disability retirement allowance is payable to any member who while in service becomes permanently incapacitated for duty mentally or physically.

Amount of Allowance

Upon disability retirement, on or after July 1, 1976, a Class One or a Class Two member receives a service retirement allowance if he has attained age 65; otherwise he receives a disability retirement allowance equal to the service retirement allowance which would have been payable had he continued in service to age 65, minus the actuarial equivalent of the contributions he would have made during such continued service. The compensation to be used for purposes of computing this benefit is the average final compensation as of the date of disability.

Deferred Retirement Allowance

Condition for Allowance

A deferred retirement allowance, commencing at age 60, is payable to any member who ceases to be a teacher or an employee after he has rendered at least 5 years of creditable service, provided he leaves his contributions in the System.

Amount of Allowance

The deferred retirement allowance is computed like a service retirement allowance, except that the employee annuity is the actuarial equivalent at age 60 of the member's contributions with such interest credits as are allowed.

Supplemental Minimum Allowance

Upon retirement after 20 or more years of creditable service a supplemental monthly sum is paid, in addition to the regular allowance and any amount provided from the general funds of the State, to provide a minimum of \$150 per month plus \$1 per month for each completed year of service in excess of 20, reduced by 5/12 of 1% for each month by which the member's age at retirement is less than age 65 unless he has completed 35 years of creditable service.

Return of Contributions and
Optional Death Benefit

Upon the withdrawal of a member without a retirement benefit, he is paid his total contributions with the accumulated regular interest thereon.

Upon the death of a member before retirement, his accumulated contributions are payable to his designated beneficiary or to his estate.

Upon the death of a member before retirement who had 30 years of creditable service or had attained age 65, or who had 20 years of creditable service and attained age 60, the person nominated to receive the amount of the member's accumulated contributions may elect to receive, in lieu of such accumulated contributions, an allowance for life in an amount as if the member had retired on the date of his death under Option 2 as described below. If such a person has received a refund of the member's accumulated contributions, he may, upon repayment of such refund in a single sum, receive the allowance under Option 2 from the time of the repayment of the contributions to the System.

Upon the death of a member before retirement who had 15 years of creditable service, the person nominated to receive the amount of the member's accumulated contributions may elect to receive, in lieu of such accumulated contributions and the Group Life Insurance payment, an allowance for life in an amount as if the member had retired on the date of his death and had elected for payments to commence at age 60 under Option 2 as described below. The compensation to be used for purposes of computing this benefit is the average final compensation as of the date of death.

Upon the death of a retired member who has not elected an optional form of allowance, a lump sum amount equal to the excess, if any, of his total accumulated contributions at the time his retirement allowance commenced over the sum of the retirement allowance payments made to him, is paid to his designated beneficiary or estate.

Lump Sum Death Benefit

Upon the death of a contributing member in service after the completion of one year of membership service or at any time if death is a result of an injury arising out of and in the course of the performance of duty, a lump sum equal to the member's annual earnable compensation at the time of death is paid to the person he has nominated for the refund of his accumulated contributions or estate, provided the member's employer is a participant in the Pre-retirement Death Benefit Program. Benefits under this program are to be provided in the form of group life insurance.

Optional Allowance

Until the first payment on account of any benefit becomes normally due, any member may elect to receive his retirement allowance in accordance with one of the following forms, which are computed to be actuarially equivalent:

Option 1. A reduced retirement allowance payable during the retired member's life, with the provision that, if he dies within 10 years from his retirement date, an amount equal to his accumulated contributions at retirement, less 1/120 for each month he received a retirement allowance payment, shall be paid to a designated person.

Option 2. A reduced retirement allowance payable during the retired member's life, with the provision that after his death the reduced retirement allowance is to be continued to a designated beneficiary.

Option 3. A reduced retirement allowance payable during the retired member's life, with the provision that after his death one-half the reduced retirement allowance is to be continued to a designated beneficiary.

Option 4. A retirement allowance in such amount that, together with his Social Security benefit, he will receive approximately the same income per annum before and after the earliest age at which he is eligible for a Social Security benefit. A member who makes an election of this Option 4 shall be deemed to have made a further election of Option 1.

Option 5. A member may elect Option 2 or Option 3 with the added provision that in the event the designated beneficiary predeceases the member, the retirement allowance payable to the member after the designated beneficiary's death shall be equal to the retirement allowance which would have been payable had the member not elected the option.

Post-Retirement
Increases in Allowances

If the increase in the Consumer Price Index for the previous year ending December 31 equals or exceeds 3%, the retirement allowance of each beneficiary in receipt of an allowance for at least one year as of said December 31 is to be increased by 4%. Any increase in allowance granted hereunder through July 1, 1980 is to be permanent, irrespective of any subsequent decrease in the Consumer Price Index, and is to be included in determining any subsequent increase.

The allowance of a surviving annuitant of a beneficiary whose allowance is increased under this section is to be increased by the same percent, when and if payable.

CONTRIBUTIONS

By Members

Effective July 1, 1964, without regard to the member's Social Security coverage, Class One members contribute at the rate of 3% of earnable compensation not in excess of \$4,800, and 5% of the portion in excess of \$4,800, and Class Two members contribute at the rate of 4% of earnable compensation not in excess of \$4,800, and 6% of the portion in excess of \$4,800.

By Employers

Employers make annual contributions consisting of a "normal contribution" and an "accrued liability contribution". The "normal contribution" rate is determined by the actuary after each valuation. The "accrued liability contribution" rate is determined by the first actuarial valuation of the System, provided, however, that such

rate shall be increased on the basis of subsequent valuations if benefits are increased. Such rate may be decreased if the actuary engaged by the Board certifies that such reduction will not impair the System. Each year's accrued liability payment is to be at least 3% greater than the preceding annual accrued liability payment subject to the preceding sentence. On and after July 1, 1946, all employers' contributions for teachers are paid by the State.

SCHEDULE D

TABLE 1

THE NUMBER AND EARNABLE COMPENSATION
OF MEMBERS DISTRIBUTED BY AGE
AS OF JUNE 30, 1987

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
16	4 \$	11,158		
17	8	22,377	3 \$	4,817
18	29	114,374	8	28,159
19	157	1,102,199	115	785,120
20	275	2,221,184	214	1,751,922
21	457	4,315,314	384	3,503,219
22	589	5,848,601	670	6,416,238
23	768	8,635,074	1,329	15,581,101
24	970	11,706,146	1,915	24,614,241
25	1,030	13,392,502	2,358	32,370,787
26	1,229	16,799,826	2,566	36,389,347
27	1,230	18,141,658	2,585	37,298,309
28	1,324	20,147,270	2,754	40,897,201
29	1,407	22,770,966	2,809	43,090,358
30	1,468	24,285,731	3,144	48,547,125
31	1,589	27,293,035	3,253	52,120,834
32	1,536	27,733,798	3,376	54,582,950
33	1,602	29,849,401	3,600	60,036,357
34	1,700	33,438,761	3,658	61,960,116
35	1,774	36,535,715	3,784	65,735,321
36	1,752	37,632,830	3,791	67,198,563
37	1,759	38,621,012	3,653	65,460,447
38	1,892	43,665,930	3,652	65,926,877
39	1,823	43,976,425	3,635	65,470,179
40	1,958	47,994,009	3,966	72,133,872
41	1,770	44,768,944	3,444	61,995,552
42	1,438	36,331,511	2,683	48,725,195
43	1,453	36,937,093	2,761	49,236,869
44	1,412	36,886,142	2,725	49,098,877
45	1,281	33,770,655	2,518	45,216,972
46	1,227	32,139,600	2,257	40,250,992
47	1,156	31,565,706	2,080	37,176,078
48	1,098	28,866,680	1,984	34,788,822
49	1,150	30,539,265	1,842	32,704,352
50	1,036	25,802,450	1,775	31,073,367
51	1,048	27,517,253	1,655	28,773,728
52	985	24,935,099	1,720	29,468,355
53	1,020	26,667,407	1,607	27,388,179
54	1,027	25,470,214	1,514	26,366,561
55	1,044	25,728,714	1,564	26,412,919

TABLE 1
THE NUMBER AND EARNABLE COMPENSATION
OF MEMBERS DISTRIBUTED BY AGE
AS OF JUNE 30, 1987

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
56	844	\$ 21,706,222	1,375	\$ 23,371,200
57	923	22,206,544	1,315	22,232,524
58	821	19,985,716	1,202	19,882,687
59	801	18,879,537	1,212	19,904,769
60	724	17,406,903	1,150	19,214,707
61	643	15,348,544	894	14,407,220
62	536	12,258,907	707	11,471,079
63	372	9,436,795	580	9,630,357
64	322	7,667,101	380	6,217,668
65	253	5,879,357	301	4,330,690
66	168	4,281,337	198	2,670,959
67	117	2,482,994	149	2,268,498
68	82	1,839,630	97	1,139,529
69	60	1,163,340	74	949,036
70	42	825,298	50	645,043
71	40	588,785	24	292,523
72	24	219,307	13	135,247
73	10	86,471	7	100,819
74	7	101,772	4	68,656
75	9	132,914	1	8,682
76	4	60,956	1	13,040
77	6	55,797	2	33,825
78	1	7,126	2	61,218
79	4	7,799		
80	3	3,228		
81	2	8,275		
84	1	6,146	1	22,230
87	1	30,830		
TOTAL	53,295	\$1,146,859,660	99,090	\$1,649,652,484

SUMMARY

EMPLOYEES	40,409	\$ 856,495,773	46,302	\$ 751,930,952
TEACHERS	12,886	\$ 290,363,887	52,788	\$ 897,721,532

TABLE 2

THE NUMBER AND EARNABLE COMPENSATION
OF MEMBERS DISTRIBUTED BY YEARS OF CREDITED SERVICE
AS OF JUNE 30, 1987

YEARS OF SERVICE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
0	2,693	\$ 31,364,599	3,552	\$ 37,548,365
1	6,356	89,319,093	11,223	133,100,673
2	4,963	82,778,070	9,357	128,239,409
3	4,073	72,482,339	8,555	122,749,683
4	3,010	54,654,858	5,441	81,656,914
5	2,241	43,117,889	4,468	70,827,429
6	2,481	49,682,988	4,695	76,192,407
7	2,296	47,839,556	4,798	77,359,532
8	2,542	53,110,400	5,329	85,293,051
9	2,241	50,029,988	4,882	83,400,948
10	1,929	44,380,548	4,102	71,605,821
11	1,719	40,414,741	3,661	65,994,306
12	1,527	38,529,614	3,408	62,811,103
13	1,806	45,968,847	3,779	73,213,643
14	1,773	47,179,861	3,343	66,461,052
15	1,537	43,524,159	2,842	58,465,048
16	1,312	38,394,609	2,465	51,676,497
17	1,156	33,497,931	2,126	45,048,154
18	1,049	30,713,973	1,814	39,800,001
19	854	25,329,680	1,510	32,947,296
20	746	22,437,810	1,211	26,495,577
21	674	20,478,953	1,077	23,915,917
22	587	18,074,744	814	19,355,384
23	494	15,796,257	734	17,370,704
24	439	13,891,053	597	14,817,804
25	383	12,180,896	493	12,149,430
26	329	10,610,042	440	10,714,381
27	329	10,276,363	420	10,188,970
28	319	10,611,574	390	9,592,775
29	279	9,175,079	322	8,109,321
30	236	7,945,938	296	7,733,677
31	192	6,717,047	209	5,430,132
32	151	5,358,997	148	3,785,390
33	102	3,603,724	142	3,816,522
34	103	3,551,693	97	2,518,153
35	69	2,261,182	83	2,230,692

TABLE 2
THE NUMBER AND EARNABLE COMPENSATION
OF MEMBERS DISTRIBUTED BY YEARS OF CREDITED SERVICE
AS OF JUNE 30, 1987

CONTINUED

YEARS OF SERVICE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
36	78	\$ 2,626,314	79	\$ 2,025,560
37	56	2,089,921	56	1,435,010
38	51	1,824,774	39	1,033,708
39	41	1,615,679	28	844,343
40	27	1,166,659	25	655,680
41	16	630,771	10	261,660
42	11	506,266	10	290,584
43	13	526,457	2	62,408
44	5	261,827	7	164,374
45	1	54,916	5	113,091
46	5	245,061	1	38,882
47			1	19,808
48			2	39,861
49	1	25,920	2	51,354
TOTAL	53,295	\$1,146,859,660	99,090	\$1,649,652,484

SUMMARY

EMPLOYEES	40,409	\$ 856,495,773	46,302	\$ 751,930,952
TEACHERS	12,886	\$ 290,363,887	52,788	\$ 897,721,532

TABLE 3

THE DISTRIBUTION OF THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES
OF RETIRED MEMBERS AND BENEFICIARIES
BY AGE AS OF JUNE 30, 1987

SERVICE RETIREMENTS AND BENEFICIARIES

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
6			1 \$	4,109
8	1 \$	3,473		
10	1	3,381		
11	1	2,011		
16			1	252
17			1	4,921
18	1	7,923	4	19,519
19	1	6,304	1	3,135
20	3	11,617	3	18,470
21			3	4,629
22	1	2,927	3	10,441
23	5	10,694	2	2,758
24	2	10,456	3	10,458
25	4	12,901	2	3,479
26	2	8,925		
27	2	5,763	2	2,221
28	3	6,145	2	14,765
29	1	2,804	3	3,803
30	4	13,137	3	9,968
31	4	15,191	4	8,019
32	5	17,691	7	30,835
33	6	22,382	6	22,294
34	1	6,837	3	20,644
35	4	16,468	6	22,192
36	5	13,709	13	43,623
37	2	1,873	4	10,391
38	5	18,514	3	8,827
39	10	24,348	5	25,292
40	6	19,233	7	26,110
41	4	7,791	12	26,108
42	4	8,878	7	24,293
43	2	2,143	3	28,175
44	6	15,183	5	24,618
45	7	20,489	11	35,571
46	2	2,864	9	28,450
47	7	21,854	13	52,698
48	7	41,378	9	43,491
49	11	118,357	18	99,258
50	11	116,900	12	70,326

TABLE 3

THE DISTRIBUTION OF THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES
OF RETIRED MEMBERS AND BENEFICIARIES
BY AGE AS OF JUNE 30, 1987

SERVICE RETIREMENTS AND BENEFICIARIES

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
51	18 \$	165,925	15 \$	71,740
52	27	317,717	35	311,113
53	36	456,524	40	377,802
54	51	653,508	72	703,810
55	73	1,068,689	107	1,060,306
56	75	1,101,827	127	1,310,403
57	89	1,206,600	168	1,871,951
58	115	1,827,152	211	2,467,469
59	104	1,495,324	236	2,632,684
60	135	1,864,873	324	3,506,634
61	197	2,469,714	423	3,719,848
62	258	2,810,531	562	4,007,314
63	417	3,309,561	744	3,908,169
64	456	3,527,330	778	4,175,467
65	516	3,608,375	953	5,225,324
66	646	4,680,203	1,029	5,151,510
67	644	4,293,636	1,093	5,591,542
68	557	3,695,010	979	5,150,516
69	599	3,710,414	889	4,301,343
70	521	3,212,406	925	4,435,239
71	565	3,449,288	953	4,415,731
72	492	3,021,402	864	4,354,336
73	468	2,473,251	830	4,070,581
74	443	2,456,564	787	3,651,857
75	394	2,000,776	812	3,838,623
76	367	1,924,543	747	3,608,459
77	334	1,755,304	738	3,373,517
78	289	1,519,303	691	3,521,586
79	228	1,361,475	683	3,278,103
80	204	1,017,256	614	3,187,773
81	177	1,006,845	512	2,461,495
82	156	873,033	495	2,401,476
83	134	651,154	452	2,234,875
84	98	478,589	357	1,694,872
85	91	381,382	309	1,286,947
86	57	374,433	254	1,100,311
87	61	326,991	195	846,486
88	27	131,555	154	619,181
89	28	180,414	131	554,465
90	24	102,318	93	382,696

TABLE 3

THE DISTRIBUTION OF THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES
OF RETIRED MEMBERS AND BENEFICIARIES
BY AGE AS OF JUNE 30, 1987

SERVICE RETIREMENTS AND BENEFICIARIES

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
91	17 \$	87,798	88 \$	354,385
92	11	65,547	78	304,910
93	7	39,331	48	197,866
94	7	20,884	45	176,988
95	7	22,729	32	137,592
96	3	18,992	25	113,267
97	3	25,997	19	77,030
98	3	15,857	8	35,371
99			6	25,286
100	2	1,840	4	7,241
101			2	9,337
102	1	4,082		
103			2	9,409
105			2	8,653
TOTAL	10,373 \$	71,884,796	20,931	\$113,085,032

SUMMARY

LIFE ANNUITY	4,340 \$	22,272,944	13,909 \$	68,478,816
CASH REFUND	1,074	7,084,017	1,617	9,466,362
100% J+S	1,490	9,435,335	479	1,861,524
50% J+S	1,301	12,340,279	435	2,794,788
SOC. SEC. LEVELING	941	11,914,833	1,952	19,298,044
BENEFICIARIES	358	1,269,451	2,199	8,800,720
100% POP-UP	442	3,219,060	156	923,134
50% POP-UP	427	4,348,877	184	1,461,644

TABLE 4

THE DISTRIBUTION OF THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES
OF RETIRED MEMBERS
BY AGE AS OF JUNE 30, 1987

DISABILITY RETIREMENTS

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
28	2	\$ 4,817	1	\$ 2,603
29				
30	1	2,289		
31	3	7,494	4	11,163
32			2	6,454
33	9	18,112	5	12,009
34	5	12,357	1	2,594
35	2	4,506	11	36,953
36	5	13,501	5	19,228
37	7	22,689	9	31,725
38	7	26,881	7	18,428
39	9	38,573	11	37,248
40	9	36,318	15	62,788
41	10	29,348	8	62,988
42	12	54,800	16	75,285
43	16	74,611	10	47,397
44	9	54,708	17	78,359
45	9	55,135	19	74,118
46	17	72,506	19	90,064
47	15	58,207	13	57,356
48	20	87,812	13	113,050
49	24	103,496	23	71,924
50	25	123,402	24	79,380
51	23	153,143	20	77,181
52	31	170,037	33	106,865
53	27	158,836	36	234,631
54	31	208,431	37	172,663
55	46	255,809	49	231,379
56	51	281,847	47	269,811
57	61	350,629	52	263,193
58	54	304,439	57	325,509
59	72	421,180	72	366,354
60	70	407,323	91	511,650
61	78	413,897	89	474,058
62	95	502,317	101	512,430
63	80	440,062	96	500,537
64	94	520,068	99	476,961
65	81	372,117	104	470,207

TABLE 4
THE DISTRIBUTION OF THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES
OF RETIRED MEMBERS
BY AGE AS OF JUNE 30, 1987

DISABILITY RETIREMENTS

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
66	109	\$ 565,011	111	\$ 568,618
67	79	412,412	87	496,432
68	86	398,647	98	446,923
69	81	355,519	92	377,572
70	60	288,570	83	427,744
71	61	288,974	72	300,285
72	38	176,910	56	288,078
73	37	156,657	51	215,563
74	39	172,231	40	173,257
75	3	6,557	8	37,583
76	2	9,591	4	21,748
77			2	8,736
78	2	9,835		
79			1	4,436
80			1	4,353
82			1	4,408
84			1	4,460
85			1	4,195
86	1	3,522		
87			1	4,353
89	1	6,330		
96	1	14,108		
TOTAL	1,710	\$ 8,726,571	1,926	\$ 9,373,287

SUMMARY

LIFE ANNUITY	899	\$ 4,749,407	1,567	\$ 7,719,588
CASH REFUND	184	1,029,695	158	810,579
100% J+S	317	1,193,483	113	406,003
50% J+S	189	1,155,926	55	265,976
SOC. SEC. LEVELING			1	7,830
100% POP-UP	63	248,565	18	77,201
50% POP-UP	58	349,495	14	86,110