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**SOUTH CAROLINA RETIREMENT SYSTEM
REPORT OF THE ACTUARY ON
THE FORTY-FIFTH VALUATION
PREPARED AS OF JULY 1, 1996**

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May 6, 1997

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

Gentlemen:

We transmit herewith our report on the forty-fifth actuarial valuation of the South Carolina Retirement System, prepared as of July 1, 1996.

The valuation indicates that the total contribution rates may be continued at 7.70 percent of earnable compensation by the State and 6.85 percent of earnable compensation by other employers. The valuation results reflect a 4.00% cost of living adjustment to be provided effective July 1, 1997. This increase is in accordance with the law governing the operation of the System and the funding policy adopted by the Board of Control in 1996. On this basis the amortization period for the unfunded accrued liability is approximately 19 years.

In our opinion, the Schedule of Valuation Results included in this report correctly presents the actuarial condition of the South Carolina Retirement System.

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

Respectfully submitted,

(Signed) DONALD M. OVERHOLSER

Donald M. Overholser
Principal and Consulting Actuary

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**REPORT ON AN ACTUARIAL VALUATION OF THE
SOUTH CAROLINA RETIREMENT SYSTEM
PREPARED AS OF JULY 1, 1996**

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>7/1/96</u>	<u>7/1/95</u>
Number of active members	178,540	175,410
Annual earnable compensation	\$ 4,540,100	\$ 4,318,827
Number of retired members and beneficiaries	53,872	52,076
Annual allowances	\$ 576,531	\$ 538,289
Assets at market value	\$ 13,201,433	\$ 12,518,000
Assets for valuation purposes	\$ 12,499,235	\$ 11,453,462
Unfunded accrued liability (UAL)	\$ 1,562,857	\$ 1,527,035
UAL liquidation period (years)	19	20
Normal contribution as percent of compensation	5.00%	5.00%
UAL contribution as percent of compensation:		
State	2.55%	2.55%
Others	1.70	1.70
Pre-retirement death benefit contribution as percent of compensation	.15%	.15%
Total contributions as percent of compensation:		
State	7.70%	7.70%
Others	6.85	6.85

2. Comments on the valuation results as of July 1, 1996 are given in Section IV and further discussion of the contribution levels is set out in Section V.
3. Schedule D of this report outlines the full set of actuarial assumptions and methods employed. There have been no changes since the previous valuation.
4. The major benefit and contribution provisions of the System as reflected in the current valuation are summarized in Schedule E. The valuation takes into account a one time 4% cost of living adjustment for retirees, effective July 1, 1997. There have been no other changes since the previous valuation.

5. The accounting information required by Statements 25 and 27 of the Governmental Accounting Standards Board is shown in Section VIII.

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.
2. From the data, tabulations were made showing as of July 1, 1996 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 July 1, 1996 classified by age. These tabulations are presented in Schedule F.
3. The following table shows the number and annual earnable compensation of active members of the Retirement System as of July 1, 1996 and as of July 1, 1995.

TABLE I
NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS
INCLUDED IN ACTUARIAL VALUATIONS
 (All dollar amounts are in thousands)

	July 1, 1996		July 1, 1995	
	<u>Number</u>	<u>Annual Compensation</u>	<u>Number</u>	<u>Annual Compensation</u>
State Employees	64,598	\$1,802,400	64,797	\$1,737,000
Teachers	75,016	1,878,400	73,276	1,786,000
Other	38,926	859,300	37,337	795,800
Total	178,540	\$4,540,100	175,410	\$4,318,800

NOTE: In addition, there are 122,999 inactive members as of July 1, 1996. 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 July 1, 1996.

TABLE II
THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF
RETIRED MEMBERS AND BENEFICIARIES ON THE ROLL
AS OF JULY 1, 1996

GROUP	NUMBER	TOTAL ANNUAL RETIREMENT ALLOWANCES (in thousands)
<u>Service Retirements</u>		
Employees:		
Men	11,007	\$ 146,347
Women	9,924	87,610
Teachers:		
Men	4,440	69,643
Women	<u>17,839</u>	<u>190,074</u>
Total	<u>43,210</u>	<u>\$ 493,674</u>
<u>Disability Retirements</u>		
Employees:		
Men	1,875	\$ 15,555
Women	1,822	13,850
Teachers:		
Men	549	5,641
Women	<u>1,822</u>	<u>15,494</u>
Total	<u>6,068</u>	<u>\$ 50,540</u>
<u>Beneficiaries of Deceased Retired Members and Active Members</u>		
Men	755	\$ 4,354
Women	<u>3,839</u>	<u>27,963</u>
Total	<u>4,594</u>	<u>\$ 32,317</u>
Grand Total	<u>53,872</u>	<u>\$ 576,531</u>

T 24,650 45.7
 E 24,628
 4594
 53272

SECTION III - ASSETS

1. The amounts of the present 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.
2. The market value of assets as of July 1, 1996 amounted to \$13,201,433,000. The market related actuarial value of assets used for the current valuation was \$12,499,235,000. Included in these amounts are the assets of the employee annuity savings fund of \$3,399,816,000, which represent the accumulated contributions of active members together with interest thereon. Schedule C shows the development of the actuarial value of assets as of July 1, 1996.
3. During the year ended June 30, 1996 the investment rate of return on market value of assets was 5.0%.

SECTION IV - COMMENTS ON THE VALUATION

1. Schedule A of this report contains the results of the valuation, showing the present and prospective assets and liabilities of the System as of July 1, 1996 (all dollar amounts are in thousands). Schedule B contains the valuation balance sheet.
2. Schedule A shows that the System has actuarial liabilities of \$19,309,643, of which \$5,349,968 is for the prospective benefits payable on account of present retired members and beneficiaries and \$13,959,675 is for the prospective benefits payable on account of present active and inactive members. Future normal contributions by the employees and employers to cover the cost of benefits accruing in the future have a present value of \$5,247,551, leaving \$14,062,092 as the actuarial accrued liability for past benefits. Against this liability, the System has current assets of \$12,499,235. The balance of the liabilities, or \$1,562,857, represents the present value of unfunded actuarial accrued liability contributions.
3. 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 that are not covered by present assets. The valuation indicates that level employer normal contributions at the rate of

5.00% of payroll are required from the time of entry to the System, in addition to member contributions, to provide the benefits of the System for the average member.

4. The total contribution rates exclusive of the rate required for the pre-retirement lump sum death benefit are 7.55% payable by the State and 6.70% by other employers. Of the total rates, 5.00% is attributable to normal contributions of the State and other employers. The remaining unfunded accrued liability rates are therefore 2.55% for the State and 1.70% for other employers. On the basis of these unfunded accrued liability contribution rates and assuming that total active payroll will increase by 4.25% each year, it is anticipated that the unfunded accrued liability of \$1,562,857 will be liquidated within a period of approximately 19 years from the valuation date.
5. We recommend that the rate for employers participating in the Pre-retirement Death Benefit Program remain at 0.15% 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.

**TABLE III
RATES OF CONTRIBUTION RECOMMENDED FOR
PAYMENT BY EMPLOYERS**

RATES OF CONTRIBUTION	STATE	OTHERS
Normal	5.00%	5.00%
Unfunded Accrued Liability	<u>2.55</u>	<u>1.70</u>
Subtotal	7.55	6.70
Pre-retirement Death Benefit	<u>.15</u>	<u>.15</u>
Total	7.70%	6.85%

SECTION VI - VALUATION BASIS

The valuation of the Retirement System was made on the basis of the 7.25% interest rate, and active service tables and mortality tables adopted by the Board on April 23, 1996. An outline of the actuarial assumptions and methods employed is presented in Schedule D.

SECTION VII - EXPERIENCE

1. The act governing the operation of the System provides that as an aid to the Board in adopting service, mortality and other tables, the actuary will prepare an experience investigation at least once in each five-year period. The last investigation covered the five-year period ending June 30, 1992.
2. The following table shows the estimated gain or loss from various factors that resulted in an increase of \$36 million in the unfunded accrued liability, from \$1,527 million to \$1,563 million, during the year ending June 30, 1996.

ANALYSIS OF THE INCREASE IN UNFUNDED ACCRUED LIABILITY
(in millions of dollars)

ITEM	AMOUNT OF INCREASE (DECREASE)
Interest (7 1/4%) added to previous unfunded accrued liability	\$ 111
Estimated accrued liability contribution with interest	(118)
Experience:	
Valuation asset growth	(176)
Salary increases greater than expected	39
Retired member experience	8
Active member experience	(13)
COLA effective July 1, 1997	185
Total	\$ 36

SECTION VIII - ACCOUNTING INFORMATION

1. Governmental Accounting Standards Board Statements 25 and 27 set forth certain items of required supplementary 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 AND RETIRED MEMBERS
AS OF JULY 1, 1996**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	53,872
Terminated employees entitled to benefits but not yet receiving benefits	122,999
Active Members	<u>178,540</u>
Total	355,411

2. Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS
(All dollar amounts are in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
07/01/95	11,453,462	12,980,497	1,527,035	88.2%	4,318,827	35.4%
07/01/96	12,499,235	14,062,092	1,562,857	88.9%	4,540,100	34.4

3. The information presented in the required supplementary schedules was determined as part of the actuarial valuation at July 1, 1996. Additional information as of the latest actuarial valuation follows.

Valuation date	07/01/96
Actuarial cost method	Entry age
Amortization method	Level percent open
Remaining amortization period	19 years
Asset valuation method	5 year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.25%
Projected salary increases	4.25 - 11.35%
*Includes inflation at	4.25%
Cost-of-living adjustments	None

SCHEDULE A**RESULTS OF THE VALUATION AS OF JULY 1, 1996**
(All dollar amounts are in thousands)

(1) Actuarial liabilities	
Present value of prospective benefits payable in respect of:	
(a) Present retired members and beneficiaries	\$ 5,349,968
(b) Present active and inactive members	<u>13,959,675</u>
(c) Total actuarial liabilities	\$ 19,309,643
(2) Present value of future normal contributions	
(a) Employee at 6.00%	\$ 2,861,922
(b) Employer at 5.00%	<u>2,385,629</u>
(c) Total future normal contributions	\$ 5,247,551
(3) Actuarial accrued liability = (1)(c) - (2)(c)	\$ 14,062,092
(4) Current Assets	<u>12,499,235</u>
(5) Present value of unfunded actuarial accrued liability contributions = (3) - (4)	\$ 1,562,857
(6) Unfunded accrued liability rates	
(a) State	2.55%
(b) Others	1.70
(7) Unfunded accrued liability liquidation period	19 years
(8) Pre-retirement death benefit contribution rate	.15%

SCHEDULE B

**VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE
SOUTH CAROLINA RETIREMENT SYSTEM**
(All dollar amounts are in thousands)

	JULY 1, 1996	JULY 1, 1995
ASSETS		
Current assets:		
Employee Annuity Savings Fund	\$ 3,399,816	\$ 3,085,531
Employer Annuity Accumulation Fund	<u>9,099,419</u>	<u>8,367,931</u>
Total current assets	\$ 12,499,235	\$ 11,453,462
Future member contributions to Employee Annuity Savings Fund	\$ 2,861,922	\$ 2,765,196
Prospective contributions to Employer Annuity Accumulation Fund:		
Normal contributions	\$ 2,385,629	\$ 2,304,579
Accrued liability contributions	<u>1,562,857</u>	<u>1,527,035</u>
Total prospective employer contributions	\$ 3,948,486	\$ 3,831,614
Total Assets	<u>\$ 19,309,643</u>	<u>\$ 18,050,272</u>
LIABILITIES		
Employee Annuity Savings Fund:		
Past member contributions	\$ 3,399,816	\$ 3,085,531
Future member contributions	<u>2,861,922</u>	<u>2,765,196</u>
Total contributions to Employee Annuity Savings Fund	\$ 6,261,738	\$ 5,850,727
Employer Annuity Accumulation Fund:		
Benefits currently in payment	\$ 5,349,968	\$ 4,950,378
Benefits to be paid to current active members	<u>7,697,937</u>	<u>7,249,167</u>
Total benefits payable from Employer Annuity Accumulation Fund	\$ 13,047,905	\$ 12,199,545
Total Liabilities	<u>\$ 19,309,643</u>	<u>\$ 18,050,272</u>

SCHEDULE C

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
(All dollar amounts are in thousands)

(1)	Actuarial Value of Assets on July 1, 1995	\$ 11,453,462
(2)	1995/1996 Net Cash Flow	
	a. Contributions	656,198
	b. Disbursements	617,744
	c. Net Cash Flow	
	(2)a - (2)b	38,454
(3)	Expected Investment Return [(1) x .0725] + [(2)c x .03625]	831,770
(4)	Expected Actuarial Value of Assets on July 1, 1996 (1) + (2)c + (3)	12,323,686
(5)	Market Value of Assets on July 1, 1996	13,201,433
(6)	Excess of Market Value over Expected Actuarial Value (5) - (4)	877,747
(7)	20% Adjustment towards Market .20 x (6)	175,549
(8)	Actuarial Value of Assets on July 1, 1996 (4) + (7)	\$ 12,499,235

SCHEDULE D**OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS**

INTEREST RATE: 7.25% per annum, compounded annually.

SALARY INCREASES:

<u>Age</u>	<u>Annual Rate</u>	<u>Age</u>	<u>Annual Rate</u>
25	10.15%	45	4.75%
30	7.95	50	4.45
35	6.45	55	4.25
40	5.55	60	4.25

SEPARATIONS FROM SERVICE: Representative values of the assumed and annual rates of separation from active service are as follows:

SERVICE RETIREMENT:

<u>Age</u>	<u>Annual Rates of</u>					
	<u>Retirement</u> <u>on a</u> <u>Reduced</u> <u>Benefit</u>	<u>Unreduced</u> <u>Service</u> <u>Retirement*</u>	<u>Retirement</u> <u>on a</u> <u>Reduced</u> <u>Benefit</u>	<u>Unreduced</u> <u>Service</u> <u>Retirement*</u>	<u>Retirement</u> <u>on a</u> <u>Reduced</u> <u>Benefit</u>	<u>Unreduced</u> <u>Service</u> <u>Retirement*</u>
	<u>Men Teachers</u>		<u>Women Teachers</u>		<u>Men & Women Employees</u>	
50		10.0%		15.0%		10.0%
55	5.0%	10.0	5.0%	15.0	5.0%	10.0
60	7.5	15.0	10.0	25.0	7.5	15.0
61	10.0	20.0	10.0	25.0	7.5	15.0
62	20.0	30.0	25.0	45.0	20.0	30.0
63	15.0	25.0	15.0	30.0	15.0	25.0
64	15.0	25.0	15.0	30.0	15.0	25.0
65		35.0		45.0		35.0
66		20.0		25.0		25.0
67		15.0		20.0		20.0
68		15.0		20.0		20.0
69		15.0		25.0		20.0
70		100.0		100.0		100.0

* Plus 25% in year when first eligible for unreduced service retirement before age 65.

SEPARATIONS FROM SERVICE (CON'T)

SEPARATION BEFORE SERVICE RETIREMENT:

Age	Death	Disability	Annual Rate of		
			Withdrawal		
			Years of Service		
			0-4	5-9	10+
<u>Men Teachers</u>					
25	0.06%	0.02%	11.90%	7.50%	
30	0.07	0.04	10.20	4.20	2.80%
35	0.07	0.05	10.50	4.80	2.10
40	0.10	0.11	8.10	4.60	1.50
45	0.18	0.19	9.40	4.00	1.50
50	0.30	0.35	7.70	4.00	1.90
55	0.46	0.60	7.70	3.60	2.90
60	0.65	1.03			
64	0.90	1.65			
<u>Women Teachers</u>					
25	0.03%	0.05%	8.80%	6.10%	
30	0.04	0.07	9.30	4.20	2.40%
35	0.04	0.07	8.20	4.00	1.70
40	0.05	0.12	6.70	3.30	1.40
45	0.08	0.21	6.30	2.90	1.20
50	0.13	0.35	6.30	3.00	1.20
55	0.21	0.61	6.60	2.80	1.60
60	0.33	1.07			
64	0.49	1.44			
<u>Men Employees</u>					
25	0.06%	0.07%	15.10%	8.70%	
30	0.07	0.11	12.50	6.40	3.60%
35	0.07	0.14	11.50	5.90	2.90
40	0.10	0.18	10.60	5.50	2.30
45	0.18	0.26	9.20	4.60	2.00
50	0.30	0.44	7.90	4.60	1.70
55	0.46	0.70	7.70	4.00	2.10
60	0.65	1.07			
64	0.90	1.49			
<u>Women Employees</u>					
25	0.03%	0.07%	13.40%	7.90%	
30	0.04	0.11	12.00	6.70	4.00%
35	0.04	0.14	11.10	5.40	2.70
40	0.05	0.18	9.90	4.90	2.40
45	0.08	0.26	8.50	4.60	1.80
50	0.13	0.44	8.20	4.00	2.10
55	0.21	0.70	6.80	3.90	2.00
60	0.33	1.07			
64	0.49	1.49			

DEATHS AFTER RETIREMENT: 1983 Group Annuity Mortality Tables for service retirement and dependent beneficiaries. A special mortality table is used for disability retirements.

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: Actuarial Value, as developed in Schedule C. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected value. The actuarial value of assets is limited to a range between 80% and 120% of market value.

COST-OF-LIVING INCREASES: None assumed.

SCHEDULE E**SUMMARY OF MAIN SYSTEM PROVISIONS AS
INTERPRETED FOR VALUATION PURPOSES**

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 met one of the following conditions:

- a) rendered 30 or more years of creditable service,
- b) attained age 60,
- c) attained age 55 and rendered 25 or more years of creditable service.

Amount of Allowance

A member receives a retirement allowance equal to 1.82% of average final compensation, multiplied by the number of years of his creditable service.

If a member retiring under condition (b) above 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.

If a member retiring under condition (c) above has not completed 30 years of service at the time of retirement, his allowance is reduced by 4/12 of 1% for each month of service credit less than 30 years.

**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 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	<p>Upon the withdrawal of a member without a retirement benefit, he is paid his total contributions with the accumulated regular interest thereon.</p> <p>Upon the death of a member before retirement, his accumulated contributions are payable to his designated beneficiary or to his estate.</p> <p>Upon the death of a member before retirement who had attained age 65 or 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, an allowance for life in the same amount as if the member had retired at the time of his death and had named the person as beneficiary under Option 2. For purposes of the benefit calculation, a member under age 60 with less than 30 years' credit is assumed to be 60 years of age.</p>

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 the following July 1 may be increased by 4%, provided such increase in allowance will not result in an increase in the employer contribution rate. No increase will be granted on a service retirement allowance until the second July 1st after the member attains age 60 or would have completed 30 years of creditable service.

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

Each member contributes 6% of his compensation.

By Employers

Employers make annual contributions consisting of a normal contribution and an accrued liability contribution. The normal contribution covers the liability on account of current service and is determined by the actuary after each valuation.

The accrued liability contribution covers the liability on account of service rendered before the establishment of the retirement system and the liability on account of increases in benefits for service rendered prior to the effective date of any amendment.

SCHEDULE F**TABLE 1**

**THE NUMBER AND ANNUAL COMPENSATION
OF ACTIVE MEMBERS DISTRIBUTED BY AGE
AS OF JULY 1, 1996**

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
16	2	\$ 13,740	5	\$ 12,763
17	4	13,670	6	54,172
18	16	115,657	11	42,221
19	83	764,998	82	541,549
20	154	1,798,579	126	1,139,662
21	239	2,872,163	200	2,181,949
22	318	4,303,764	418	4,666,767
23	459	6,721,694	1,008	15,426,609
24	703	11,736,738	1,632	28,327,703
25	881	16,126,823	2,173	40,722,642
26	1,086	21,053,248	2,402	47,176,424
27	1,121	22,934,332	2,552	50,224,156
28	1,103	23,308,968	2,502	52,120,122
29	1,135	24,941,951	2,529	52,437,885
30	1,183	26,436,745	2,502	52,741,742
31	1,190	27,087,288	2,562	54,017,695
32	1,425	33,586,833	2,857	60,954,421
33	1,448	34,493,457	2,999	65,563,504
34	1,402	35,244,794	3,081	67,914,988
35	1,506	37,150,390	3,353	74,738,804
36	1,499	38,648,678	3,364	74,802,894
37	1,534	40,258,558	3,514	79,173,402
38	1,615	43,294,349	3,606	82,193,643
39	1,676	45,367,091	4,032	92,958,929
40	1,673	47,584,006	4,143	98,811,187
41	1,641	47,858,427	4,288	104,272,781
42	1,732	50,535,061	4,533	112,148,053
43	1,819	55,796,117	4,504	112,796,711
44	1,929	60,320,096	4,679	120,833,174
45	1,941	61,754,065	4,622	119,721,374
46	1,990	64,560,922	4,438	117,822,325
47	2,029	68,775,054	4,407	117,881,158
48	1,971	68,480,050	4,309	113,266,687
49	2,115	75,747,235	4,524	121,674,080
50	1,892	67,423,948	3,870	102,933,283
51	1,493	52,738,408	3,049	80,219,293

TABLE 1

**THE NUMBER AND ANNUAL COMPENSATION
OF ACTIVE MEMBERS DISTRIBUTED BY AGE
AS OF JULY 1, 1996**

CONTINUED

AGE	NUMBER	MEN		WOMEN	
			AMOUNT	NUMBER	AMOUNT
52	1,499	\$	53,807,265	2,928	\$ 77,532,138
53	1,383		51,293,199	2,760	69,955,992
54	1,307		47,779,147	2,612	66,370,917
55	1,118		40,043,315	2,222	56,491,143
56	1,059		38,712,151	1,928	47,885,526
57	940		32,893,072	1,716	41,276,891
58	936		32,837,123	1,570	36,731,178
59	814		27,027,630	1,481	34,575,893
60	766		25,571,208	1,274	29,183,482
61	719		23,391,510	1,132	25,310,028
62	587		20,039,025	807	18,433,233
63	422		14,344,270	549	12,113,826
64	308		10,338,320	480	10,275,540
65	219		8,333,457	308	5,909,606
66	182		5,890,464	211	4,450,366
67	139		3,916,705	138	2,742,024
68	112		2,929,691	126	2,072,798
69	96		2,021,444	90	1,746,394
70	97		2,465,306	66	1,072,042
71	79		1,780,701	56	885,119
72	67		1,552,856	57	984,677
73	60		1,462,243	24	273,934
74	41		514,745	32	424,859
75	28		492,528	26	335,692
76	16		214,330	11	187,016
77	15		177,830	2	17,983
78	13		325,989	4	56,471
79	5		87,542	3	32,651
80	2		52,693	2	16,445
81	2		20,182		
82	3		47,315	2	27,542
TOTAL	57,041	\$	1,670,211,153	121,499	\$ 2,869,889,158

TABLE 2

**THE NUMBER AND ANNUAL COMPENSATION OF
ACTIVE MEMBERS DISTRIBUTED BY SERVICE
AS OF JULY 1, 1996**

YEARS OF SERVICE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
0	2,615	\$ 26,183,540	4,746	\$ 42,194,287
1	5,777	115,628,689	11,667	199,560,857
2	4,698	103,661,862	9,910	185,755,538
3	3,492	79,754,407	7,418	147,611,160
4	2,914	69,183,860	6,442	135,959,135
5	2,686	66,768,811	5,913	126,949,399
6	2,968	74,439,430	6,606	140,306,825
7	2,619	68,389,928	5,959	131,238,938
8	2,379	65,136,432	5,502	125,530,177
9	2,126	60,862,216	4,444	105,135,749
10	2,072	65,477,001	4,163	101,402,146
11	1,945	60,739,131	4,214	105,585,935
12	1,799	58,539,224	4,250	108,823,282
13	1,417	46,177,762	2,930	78,170,746
14	1,126	39,352,469	2,611	71,809,111
15	1,261	43,990,534	2,767	77,835,107
16	1,251	43,710,182	2,907	80,838,728
17	1,357	47,496,060	3,365	91,995,228
18	1,262	46,456,726	3,168	90,643,853
19	1,134	42,292,614	2,778	80,734,942
20	1,052	39,849,205	2,533	76,307,124
21	923	37,988,727	2,382	73,928,659
22	1,135	44,710,164	2,655	82,478,494
23	1,107	46,262,580	2,420	77,105,023
24	1,038	45,798,171	2,134	69,986,468
25	891	40,827,738	1,806	58,918,028
26	797	36,169,290	1,432	48,322,835
27	753	33,639,286	1,207	41,419,243
28	602	28,053,850	946	32,741,982
29	494	22,714,637	797	27,825,880
30	453	22,588,149	616	22,119,148
31	244	11,672,148	247	8,794,994
32	188	10,002,130	172	6,495,459
33	113	6,419,424	110	4,302,762
34	85	4,794,638	91	3,412,530
35	60	3,245,408	48	1,933,353

TABLE 2
THE NUMBER AND ANNUAL COMPENSATION OF
ACTIVE MEMBERS DISTRIBUTED BY SERVICE
AS OF JULY 1, 1996

CONTINUED

YEARS OF SERVICE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
36	65	\$ 3,259,063	30	\$ 958,570
37	41	2,088,007	30	1,111,885
38	32	1,746,834	15	533,134
39	17	1,090,575	18	860,110
40	19	1,117,686	20	834,349
41	11	774,319	8	346,129
42	5	231,333	8	459,962
43	6	294,150	4	140,669
44	4	263,219	2	103,211
45	2	73,393	1	26,298
46	1	34,746	1	56,000
47	1	79,832		
48	1	58,128	2	137,578
49			1	26,298
50	1	35,624	2	85,138
51	2	87,821		
58			1	33,702
TOTAL	57,041	\$ 1,670,211,153	121,499	\$ 2,869,889,158

TABLE 3

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF RETIRED MEMBERS
AND BENEFICIARIES BY AGE AS OF JULY 1, 1996**

SERVICE RETIREMENTS AND BENEFICIARIES

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
6	1	\$ 1,351	2	\$ 11,820
7	1	1,096		
8			3	17,658
9			1	2,966
10	2	3,986	3	14,400
11	2	2,240	1	3,173
12			1	1,615
13	1	1,025	1	2,966
14	1	3,441	6	9,856
15	2	3,487	2	2,374
16	6	26,150	4	17,541
17	4	14,726	5	11,676
18	4	18,948	5	37,280
19	6	36,591	1	1,919
20	1	3,225	2	13,174
21	3	10,280	5	25,963
22	7	27,651	2	12,547
23	4	12,759	1	4,119
24	1	5,247	5	26,010
25	7	43,855	8	31,673
26	7	64,923	5	44,702
27	8	32,163	10	61,872
28	5	29,045	10	52,003
29	9	63,047	5	15,701
30	3	16,499	8	25,738
31	8	28,399	6	39,029
32	10	34,334	11	44,963
33	5	31,452	5	27,834
34	3	11,051	9	50,351
35	8	42,940	10	28,772
36	8	35,084	6	19,990
37	10	46,337	12	28,375
38	12	62,926	9	37,382
39	10	39,706	11	57,722
40	10	54,998	15	72,452
41	11	38,452	19	104,669
42	12	51,080	12	68,792
43	16	89,944	22	90,085
44	13	95,317	32	230,686
45	9	43,387	35	229,475

TABLE 3

THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF RETIRED MEMBERS
AND BENEFICIARIES BY AGE AS OF JULY 1, 1996

SERVICE RETIREMENTS AND BENEFICIARIES

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
46	16	\$ 63,777	24	\$ 147,366
47	16	106,389	17	121,380
48	28	202,974	30	220,837
49	30	302,578	51	553,840
50	45	624,406	56	572,262
51	48	713,922	83	1,194,339
52	61	1,320,799	94	1,480,880
53	121	2,820,577	200	3,941,601
54	140	2,804,530	201	3,809,631
55	160	4,051,960	244	4,803,677
56	208	5,054,423	281	5,595,036
57	215	5,226,859	323	6,430,472
58	253	6,319,462	385	7,160,540
59	245	5,746,006	345	6,616,146
60	282	6,537,628	432	7,190,927
61	356	7,464,877	678	10,156,536
62	497	8,988,200	832	9,543,931
63	624	8,896,237	1,038	10,188,708
64	743	10,151,744	1,176	11,217,652
65	676	9,318,466	1,295	12,399,427
66	823	10,246,219	1,290	12,192,674
67	786	11,060,902	1,292	12,601,638
68	801	9,899,652	1,354	12,925,009
69	711	8,941,399	1,435	13,920,217
70	695	9,054,946	1,292	12,000,376
71	676	8,949,000	1,324	12,113,094
72	696	9,239,817	1,321	11,445,671
73	645	7,956,914	1,192	10,327,040
74	664	7,854,502	1,259	10,861,158
75	640	7,872,024	1,171	9,363,879
76	572	6,545,215	1,138	9,211,551
77	462	5,165,081	1,050	8,669,589
78	461	4,741,630	888	7,042,798
79	361	4,129,888	817	6,373,400
80	359	3,817,498	843	6,263,786
81	326	3,144,025	704	5,730,101
82	263	2,209,070	698	5,610,618
83	232	2,298,969	630	4,827,249
84	202	1,692,921	616	4,646,057
85	175	1,528,019	530	4,019,096

TABLE 3

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF RETIRED MEMBERS
AND BENEFICIARIES BY AGE AS OF JULY 1, 1996**

SERVICE RETIREMENTS AND BENEFICIARIES

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
86	143	\$ 1,373,358	472	\$ 3,494,632
87	113	1,090,996	429	3,553,825
88	106	1,087,384	402	3,154,060
89	68	558,121	329	2,692,525
90	62	579,820	251	2,009,849
91	52	466,456	191	1,503,565
92	43	368,134	148	1,214,989
93	21	192,748	125	955,383
94	19	162,727	98	607,850
95	8	88,375	74	523,117
96	9	103,928	40	253,108
97			34	165,468
98	6	32,389	31	204,847
99	3	19,949	12	62,440
100	1	7,918	13	73,182
101	2	12,656	1	8,470
102	1	2,216	4	25,058
103			6	41,258
104			1	7,441
105	1	5,888	2	25,787
TOTAL	16,202	\$ 220,343,710	31,602	\$ 305,646,366

SUMMARY

LIFE ANNUITY CASH REFUND	6,377	\$ 65,867,553	20,016	\$ 172,198,607
100% J&S	876	10,603,770	1,250	12,291,377
50% J&S	2,129	28,798,561	533	3,631,386
SOC. SEC. LEVELING	1,468	27,490,135	382	4,362,520
100% POP-UP	2,241	46,268,415	4,453	70,960,177
50% POP-UP	1,161	14,241,168	458	4,981,768
BENEFICIARIES	1,195	22,719,746	671	9,257,808
	755	4,354,362	3,839	27,962,723

TABLE 4

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF RETIRED MEMBERS BY
AGE AS OF JULY 1, 1996**

DISABILITY RETIREMENTS

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
26	3	\$ 4,693		
27	1	3,200		
28	1	2,341	2	\$ 6,872
29			1	3,895
30	3	7,981	1	1,956
31	5	23,667	7	29,055
32	2	3,247	3	14,442
33	2	8,657	6	26,727
34	11	58,489	7	27,279
35	6	39,246	6	30,863
36	9	45,994	16	99,648
37	12	68,347	15	90,408
38	10	61,102	17	125,569
39	14	84,979	22	150,370
40	17	106,409	35	254,362
41	21	136,707	29	192,632
42	22	154,671	43	291,060
43	30	216,328	45	388,735
44	27	241,880	48	346,095
45	36	310,344	56	509,481
46	31	305,730	68	578,229
47	54	544,745	64	573,775
48	50	412,266	81	642,075
49	46	470,651	96	926,229
50	54	478,958	89	785,677
51	55	541,764	78	765,310
52	44	474,800	92	795,111
53	74	738,971	106	1,065,749
54	54	564,632	99	814,062
55	67	691,027	101	799,035
56	71	702,151	94	825,091
57	64	620,684	97	796,398
58	83	702,677	91	754,258
59	81	659,808	103	800,591
60	87	823,686	99	757,810
61	98	899,026	124	922,661
62	86	757,697	127	1,014,562
63	95	860,750	141	1,119,888
64	93	690,061	127	965,311
65	86	731,295	120	916,371
66	94	841,462	109	818,416
67	71	530,375	99	768,780
68	75	617,704	107	815,589

TABLE 4

**THE DISTRIBUTION OF THE NUMBER AND ANNUAL
RETIREMENT ALLOWANCES OF RETIRED MEMBERS BY
AGE AS OF JULY 1, 1996**

DISABILITY RETIREMENTS

CONTINUED

AGE	MEN		WOMEN	
	NUMBER	AMOUNT	NUMBER	AMOUNT
69	68	\$ 547,320	104	\$ 759,442
70	54	452,106	88	764,619
71	67	641,671	87	721,645
72	48	375,022	71	606,574
73	49	481,433	80	633,476
74	33	268,179	72	548,632
75	44	380,210	78	638,206
76	44	437,043	65	634,453
77	55	406,521	70	530,043
78	33	260,366	49	354,696
79	21	213,660	54	462,044
80	21	184,801	42	289,627
81	18	136,331	36	270,491
82	13	114,833	33	242,020
83	9	46,169	22	144,251
84	1	2,613	5	28,948
85	1	8,607	3	26,842
86			3	10,158
87			1	2,892
89			1	5,219
92			1	6,545
93			1	6,545
94			2	13,614
95			1	6,589
96			1	6,589
97			2	13,309
98			1	6,851
TOTAL	2,424	\$ 21,196,087	3,644	\$ 29,344,747
SUMMARY				
LIFE ANNUITY CASH REFUND				
100% J&S	1,399	\$ 12,563,959	3,107	\$ 25,267,816
50% J&S	159	1,463,565	177	1,473,252
100% POP-UP	402	2,740,571	193	1,106,781
50% POP-UP	173	1,905,133	57	500,451
	154	1,063,879	53	342,587
	137	1,458,980	57	653,860