

SOUTH CAROLINA RETIREMENT SYSTEM

REPORT OF THE ACTUARY ON THE SIXTH AND SEVENTH ANNUAL VALUATIONS

(Sixth Valuation prepared as of June 30, 1951)
(Seventh Valuation prepared as of June 30, 1952)

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March 25, 1953.

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

Gentlemen:

I transmit herewith my report on the sixth and seventh actuarial valuations of the South Carolina Retirement System prepared as of June 30, 1951 and June 30, 1952, respectively.

The previous report, dated April 3, 1952, pointed out that the difficulty encountered by the system in obtaining detailed information with respect to each employee had made it impossible to set up during the early years complete records for all of the members of the system. The report also referred to the fact that the Director of the system was taking steps to insure that complete records would be available in the relatively near future.

Shortly after the previous report was submitted to the Board, a discussion was held in the office of the system with a view to scheduling the work involved in setting up complete records. It is noteworthy that the program adopted involves the preparation by September 30, 1953 of a set of records fully posted through June 30, 1953. The volume of work involved in this program is very substantial, and it is understood that the office of the system is making good progress.

Because of the importance of the program mentioned above, it was essential to avoid so far as possible any interruption or delay in the work. A decision was therefore made to prepare approximate valuations as of June 30, 1951 and also as of June 30, 1952. This report gives the results of such valuation as of June 30, 1952 and shows in the appendix the approximate balance sheet prepared as of June 30, 1951.

It is expected that a detailed valuation will be prepared, as of June 30, 1953, shortly after the system completes the program, and such valuation will provide a definitive statement of the financial position of the system.

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

Respectfully submitted,

(Signed) GEORGE B. BUCK

Actuary.

REPORT OF THE ACTUARY ON THE SIXTH AND SEVENTH ANNUAL VALUATIONS OF THE
SOUTH CAROLINA RETIREMENT SYSTEM

The South Carolina Retirement System was established as of July 1, 1945. The system is supported by the joint contributions of members and employers. The contributions to be made by employers are to be set from time to time on the basis of periodic actuarial valuations.

This report presents the results of an approximate actuarial valuation of the contingent assets and liabilities of the system as of June 30, 1952 and takes into account all changes in the retirement act to the date of valuation. In the appendix to this report there is included an actuarial balance sheet showing the approximate assets and liabilities of the system as of June 30, 1951.

SUMMARY OF MAIN BENEFIT AND CONTRIBUTION PROVISIONS

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.

BENEFITS

Service Retirement Benefit

Conditions for Allowance

A retirement allowance is payable upon the request of any teacher or employee who has attained age 60 or has rendered 35 or more years of service.

An employee must retire at age 70, except that with the approval of both his employer and the Board, an employee may remain in service to age 72.

A teacher must retire at age 65 or upon the completion of the scholastic year in which he attains age 65, except that with the approval of his employer, a teacher may remain in service to age 72.

Amount of Allowance

On service retirement, a member receives a retirement allowance which consists of:

(a) An employee annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his retirement; and

(b) An employer annuity equal to the employee annuity allowable at age 65, or at age of retirement, whichever is less, on the basis of contributions made prior to age 65; and

(c) If the member has credit for service rendered prior to the date of establishment, an additional employer annuity allowable at age 65, or at age of retirement, whichever is less, equal to the employee annuity which would have been provided by twice the contributions which he would have made during such prior service had the system been in force and he contributed* thereunder during the period of such prior service.

Disability Retirement Benefit

Condition for Allowance

A disability retirement allowance is payable to any member in service who becomes permanently incapacitated for duty, mentally or physically, and who has had 10 or more years of creditable service.

Amount of Allowance

Upon disability retirement, a member who has attained age 60 or has 35 years of creditable service, receives a service retirement allowance, otherwise a disability retirement allowance which consists of:

(a) An employee annuity which is the actuarial equivalent of the member's accumulated contributions at the time of retirement; and

(b) An employer annuity equal to 75% of the employer annuity that would have been payable upon service retirement at the earliest date he would have been eligible therefor had he continued in service to such date without further change in compensation.

*In determining the contributions which would have been made during prior service, the Board is authorized to use, in lieu of the actual compensation received by the member, the compensation rates which on the basis of the salary scale adopted by the Board would have resulted in the actual average compensation received by the member during the five years immediately preceding the establishment of the system.

Deferred Retirement Benefit

3

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 20 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.

Return of Contributions

Teachers and Employees

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

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

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 at his death the excess, if any, of his accumulated contributions at retirement over the total of the employee annuity payments he has received 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.

CONTRIBUTIONS

By Members

Members contribute, by deduction from each payroll, at the rate of 4% of their earnable compensation.

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 each year's accrued liability payment is to be at least 3% greater than the preceding annual accrued liability payment. On and after July 1, 1946, all employers' contributions for teachers are paid by the State.

MEMBERSHIP OF THE SYSTEM

The following table shows the number and annual earnable compensation of active members, as of June 30, 1952, on the basis of which the valuation was prepared.

TABLE 1

THE NUMBER AND ANNUAL EARNABLE COMPENSATION OF ACTIVE MEMBERS AS OF JUNE 30, 1952

<u>GROUP</u>	<u>NUMBER</u>	<u>EARNABLE COMPENSATION</u>
Teachers.....	25,112	\$ 44,082,730
Employees.....	24,254	42,232,785
Total.....	49,366	\$ 86,315,515

The following table shows the number and annual amount of retirement allowances payable to retired members and to beneficiaries of deceased retired members as of June 30, 1952.

TABLE 2

THE NUMBER AND ANNUAL RETIREMENT ALLOWANCES OF
RETIRED MEMBERS AND BENEFICIARIES ON THE ROLL AS OF JUNE 30, 1952

GROUP	NUMBER	EMPLOYEE ANNUITIES	EMPLOYER ANNUITIES PAYABLE FROM:		TOTAL RETIREMENT ALLOWANCES
			Employer Annuity Accumulation Fund	Employer Annuity Reserve Fund	
<u>Service Retirements</u>					
Teachers:					
Men.....	223	\$ 6,168	\$ 144,300		\$ 150,468
Women.....	761	12,348	321,864		334,212
Employees:					
Men.....	318	13,452	247,236		260,688
Women.....	162	4,716	78,228	\$ 12	82,956
Total.....	1,464	\$ 36,684	\$ 791,628	\$ 12	\$ 828,324
<u>Disability Retirements</u>					
Teachers:					
Men.....	19	\$ 276	\$ 9,000		\$ 9,276
Women.....	88	1,476	23,712		25,188
Employees:					
Men.....	60	2,172	26,952		29,124
Women.....	24	624	6,984		7,608
Total.....	191	\$ 4,548	\$ 66,648		\$ 71,196
<u>Beneficiaries of Deceased Retired Members</u>					
Men.....	5	\$ 12	\$ 528		\$ 540
Women.....	39	900	25,308		26,208
Total.....	44	\$ 912	\$ 25,836		\$ 26,748
GRAND TOTAL	1,699	\$ 42,144	\$ 884,112	\$ 12	\$ 926,268

VALUATION OF ASSETS AND LIABILITIES

The following valuation balance sheet shows the approximate assets and liabilities of the system, as of June 30, 1952. The present assets shown on the balance sheet were taken from the Audit Report prepared by the State Auditor's office.

TABLE 3

VALUATION BALANCE SHEET SHOWING THE ASSETS AND LIABILITIES OF THE SOUTH CAROLINA RETIREMENT SYSTEM AS OF JUNE 30, 1952

STATE OF SOUTH CAROLINA
DEPARTMENT OF REVENUE
DIVISION OF RETIREMENT

ASSETS

U.S. GOVERNMENT BONDS \$ 1,000,000.00

STATE BONDS 500,000.00

CASH 100,000.00

REAL ESTATE 100,000.00

OTHER ASSETS 100,000.00

TOTAL ASSETS \$ 1,800,000.00

LIABILITIES

UNPAID RETIREMENT BENEFITS \$ 1,500,000.00

RESERVE FUND 300,000.00

OTHER LIABILITIES 100,000.00

TOTAL LIABILITIES \$ 1,900,000.00

TABLE 3

TABLE 3
VALUATION BALANCE SHEET SHOWING THE ASSETS AND LIABILITIES OF THE
SOUTH CAROLINA RETIREMENT SYSTEM
AS OF JUNE 30, 1952

ASSETS

Present assets.....	:	\$ 38,567,976
Present value of prospective contributions to be made by employers in the future:	:	
Normal contributions.....	:	\$ 36,853,797
Accrued liability contributions.....	:	<u>47,291,766</u>
Total prospective contributions by employers.....	:	<u>84,145,563</u>
Total Assets.....	:	\$ 122,713,539

TABLE 3

VALUATION BALANCE SHEET SHOWING THE ASSETS AND LIABILITIES OF THE
SOUTH CAROLINA RETIREMENT SYSTEM
AS OF JUNE 30, 1952

LIABILITIES

Present value of members' contributions accumulated to date.....	:	:	\$ 15,070,191
Present value of benefits payable on account of retired members and beneficiaries.....	:	:	7,510,252
Present value of prospective benefits on account of active members to be provided by contributions of employers.....	:	:	100,133,096
Total Liabilities.....	:	:	\$ 122,713,539

COMMENTS ON VALUATION

The valuation balance sheet shows that the total liabilities of the system amounted to \$122,713,539, as of June 30, 1952. Of this amount, \$15,070,191 is the present value of members' contributions accumulated to date in the system. The liability for retirement allowances payable on account of retired members and beneficiaries on the roll is \$7,510,252. The balance, or \$100,133,096, represents the present value of prospective benefits to present active members to be provided from the contributions of employers.

Against the total liabilities of \$122,713,539, the balance sheet shows that the system has present assets of \$38,567,976. The difference between these amounts is \$84,145,563, which represents the present value of prospective contributions to be made by the employers. Of this amount, \$36,853,797 is the present value of future normal contributions and the balance, or \$47,291,766, is the value of the employers' future 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 accrued liability contribution on account of liabilities assumed, due to service rendered prior to the establishment of the system.

The valuation indicates that employer contributions based on a normal rate of 3.39 per cent of compensation for teachers, and 1.96 per cent of compensation for employess will be sufficient to meet the currently accruing liabilities of the system.

The valuation indicates that an accrued liability contribution equal to 5.33 per cent of the compensation for teachers, and 3.05 per cent of the compensation of employees should be made towards liquidating the outstanding accrued liability.

The total of the contributions required of employers is therefore equal to 3.39 per cent plus 5.33 per cent, or 8.72 per cent of the compensation of teachers; and 1.96 per cent plus 3.05 per cent, or 5.01 per cent of the compensation of employees.

The following table gives the rates of contribution payable by employers, which are recommended for payment on the basis of the present valuation.

TABLE 4

RATES OF CONTRIBUTION RECOMMENDED FOR PAYMENT BY EMPLOYERS ON THE BASIS OF THE VALUATION AS OF JUNE 30, 1952

<u>RATE OF CONTRIBUTION</u>	<u>TEACHERS</u>	<u>EMPLOYEES</u>
Normal.....	3.39%	1.96%
Accrued Liability.....	5.33	3.05
Total.....	8.72%	5.01%

SERVICE AND MORTALITY EXPERIENCE

Section 6, Subsection (12), of the act provides in part that, in the year 1947 and at least once in each five-year period thereafter, the actuary is to make an actuarial investigation into the mortality, service and compensation experience of the members and beneficiaries of the system. Although the amount of experience accumulated to date is insufficient to give a definite indication of the long term trend, such tests as could be made on the basis of the available data show that the tables adopted are proving satisfactory for use under the Plan.

BASIS FOR THE VALUATION

The valuation of the retirement system was made on the basis of the mortality and service tables adopted by the Board under date of February 18, 1946. An interest rate of 4 per cent per annum was used.

APPENDIX

APPENDIX

As previously indicated in this Report, an approximate valuation of the system was prepared as of June 30, 1951. On the basis of such valuation, the following valuation balance sheet shows the assets and liabilities of the system as of June 30, 1951.

TABLE 5

VALUATION BALANCE SHEET SHOWING THE ASSETS AND LIABILITIES OF THE SOUTH CAROLINA RETIREMENT SYSTEM AS OF JUNE 30, 1951

THE SOUTH CAROLINA RETIREMENT SYSTEM, AS OF JUNE 30, 1951

ASSETS

U.S. GOVERNMENT BONDS

U.S. GOVERNMENT SECURITIES

U.S. SAVINGS BONDS

U.S. NATIONAL DEBT

U.S. NATIONAL DEBT

U.S. NATIONAL DEBT

U.S. NATIONAL DEBT

2. STATE

HOW TO DETERMINE THE PRESENT VALUE OF FUTURE BENEFITS RECEIVABLE BY EMPLOYEES
EMPLOYED BY THE SOUTH CAROLINA RETIREMENT SYSTEM
AS OF JUNE 30, 1951

TABLE 5

VALUATION BALANCE SHEET SHOWING THE ASSETS AND LIABILITIES OF THE
SOUTH CAROLINA RETIREMENT SYSTEM
AS OF JUNE 30, 1951

ASSETS

Present assets.....	:	\$ 29,623,465
Present value of prospective contributions to be made by employers in the future:	:	
Normal contributions.....	:	\$ 21,520,856
Accrued liability contributions.....	:	<u>48,976,639</u>
Total prospective contributions by employers.....	:	<u>70,497,495</u>
Total Assets.....	:	\$ 100,120,960

TABLE 5

VALUATION BALANCE SHEET SHOWING THE ASSETS AND LIABILITIES OF THE
SOUTH CAROLINA RETIREMENT SYSTEM
AS OF JUNE 30, 1951

<u>LIABILITIES</u>	
Present value of members' contributions accumulated to date.....	\$ 11,823,412
Present value of benefits payable on account of retired members and beneficiaries.....	6,705,578
Present value of prospective benefits on account of active members to be provided by contributions of employers.....	81,591,970
Total Liabilities.....	\$ 100,120,960