

REPORT
ON THE
ACTUARIAL INVESTIGATION
AND VALUATION
OF THE 6/30/64
CITY EMPLOYEES' RETIREMENT SYSTEM
OF THE
CITY OF LOS ANGELES

Made to the Board of Administration
as of June 30, 1964

February 3, 1965

COATES, HERFURTH & ENGLAND

OFFICES IN
SAN FRANCISCO
DENVER
PASADENA

CONSULTING ACTUARIES
325 NORTH LAKE AVENUE
PASADENA, CALIFORNIA 91101

TELEPHONE
MURRAY 1-4455

February 3, 1965

Board of Administration
City Employees' Retirement System
1103 City Hall
Los Angeles 12, California

Gentlemen:

We are pleased to transmit herewith our Report on the Actuarial Investigation and Valuation of your Retirement System made as of June 30, 1964.

We wish to express our appreciation to the Manager-Secretary and to members of his staff for the courtesy they accorded us during the course of our work and for the very excellent form in which all of the data was provided us.

We look forward to the opportunity to meet with you to discuss the items contained in this Report.

Very truly yours,

COATES, HERFURTH & ENGLAND
Consulting Actuaries

By 
Harry M. Church

HMC:th

TABLE OF CONTENTS

<u>Section</u>		<u>Pages</u>
I	Introduction	1 - 4
II	Member Contributions	5 - 7
III	Results of Actuarial Valuation	8 - 13
IV	Recommendations	14 - 16
V	Summary of Actuarial Investigation	17 - 21
VI	Statistical Information	

REPORT
ON THE
ACTUARIAL INVESTIGATION AND VALUATION
OF THE
CITY EMPLOYEES' RETIREMENT SYSTEM
OF THE
CITY OF LOS ANGELES

SECTION I
INTRODUCTION

The City Employees' Retirement System was established by Article XXXIV of the City Charter. Section 505 of Article XXXIV reads in part as follows:

"The said Board of Administration ---, and shall at intervals of not to exceed five years from the time of securing the first actuarial report, cause to be made an actuarial investigation into the mortality, service, and compensation experience of the members and beneficiaries, and shall further cause to be made an actuarial valuation of the assets and liabilities of said Retirement Fund ---."

In conformance with Section 505, the Board of Administration entered into a contract with Coates, Herfurth & England to carry out an actuarial investigation covering the four year period ending June 30, 1964 and a valuation of the Retirement System as of June 30, 1964. The last previous report on an actuarial investigation was rendered as of June 30, 1960.

To provide a basis for the actuarial investigation and valuation of the System we were provided with the following information for each active member of the System as of June 30, 1964. This information was provided us by the Retirement Office.

1. Employee Number
2. Leave Code
3. Fund Number
4. Name
5. Monthly Salary
6. Payroll Code
7. Sex
8. Percent Rate of Deduction
9. Date of Entry
10. Date of Birth
11. Age at Entry
12. Subsequent Service years and months
13. Prior Service years and months
14. Military Service years and months
15. Accumulated Contributions

We were also furnished with the date of termination, cause of termination, and other pertinent data for all active employees who had been members of the System between July 1, 1960 and June 30, 1964 and who, as of June 30, 1964 were no longer members of the System.

We were provided the following information for each retired member as of June 30, 1964:

1. Retirement Roll Number
2. Fund Number
3. Name
4. Date of Birth
5. Sex
6. Date of Retirement
7. Type of Retirement
8. Amount of Retirement Allowance
9. Year of Expiration of annuity guarantee

In addition we were provided with the cause of termination and the date of termination for all members who had been on the retirement roll during the period July 1, 1960 to June 30, 1964 and who, as of June 30, 1964, were no longer on the roll because of prior death or reinstatement to duty.

In addition to the above information with respect to the members of the System which was provided us on punch cards, we were furnished with a financial statement and an accounting balance sheet of the System as of June 30, 1964. The balance sheet sets forth the assets of the System. No

physical audit of these assets was made by us and our calculations are based upon the balance sheet as submitted.

We set forth in the following Section II of this report our conclusions regarding member rates of contribution; Section III contains a summary of the results of the valuation; Section IV contains our recommendation regarding future City contributions to the System; Section V contains a summary of our findings during the course of the actuarial investigation of the System; and Section VI contains a summary of the statistical information developed in the course of our work.

SECTION II

MEMBER CONTRIBUTIONS

Section 507 of Article XXXIV of the City Charter sets forth the basis for the determination of the contributions required from members of the System. Section 507 reads in part as follows:

"Each member of said Retirement System shall contribute to said Retirement Fund by salary deduction at the rate of contribution established by the Board of Administration. The rate of such contribution and deduction shall be expressed as a percentage of compensation earnable and shall be a single rate for both sexes based on age at the time of entrance into the System, and shall be such as will accumulate, on the average and on a reserve basis, a sum sufficient for the payment of an annuity of one one-hundred-twentieth (1/120th) of final compensation, multiplied by the number of years and parts thereof of city service subsequent to the first day of July, 1937. No adjustment shall be included in the rates adopted subsequent to this amendment because of any time during which members have theretofore contributed at different rates. ---"

Section 505A(2) provides as follows:

"A. Upon the basis of such investigation and valuation the said Board of Administration shall:

(2) Revise or change the rates of contribution by members on the basis of such mortality, service and other tables. "

It necessarily follows that when the results of an actuarial investigation

indicate a change in the actuarial assumptions underlying the member contribution rates, the member contribution rates themselves must be redetermined on the basis of the new actuarial assumptions. There are three elements that enter in the determination of member rates of contribution. These elements are:

1. The interest rate that may be realized on investments of the funds of the System.
2. The relative increases in the salary of a member in the period from the date of the valuation to the date of retirement.
3. The mortality rates to be experienced among persons retired for service under the System.

Each of these elements is discussed in Section V of this report. It should be noted here, however, that we were authorized by the Board of Administration to use a 3-3/4% interest assumption in our actuarial calculations, whereas we have utilized a 3-3/8% interest assumption since July 1, 1960. The change in the interest rate assumption necessitates a redetermination of member rates of contribution in order to comply with the provisions of the City Charter. We set forth in Schedule 1 of Section VI of this report the member rates of contribution, based upon the new actuarial assumptions, which we recommend be adopted. For convenience, we show below a comparison of the present member rates of contribution and the new recommended rates of contribution for sample ages. It should be noted that the new recommended rates of contribution are from 11% to 6% less than the rates of contribution presently in use.

Comparison of Present and Recommended
Member Rates of Contribution

<u>Age</u>	<u>Present Rate</u>	<u>Recommended Rate</u>	<u>Ratio</u>
20	5.54%	4.95%	89%
25	5.63	5.02	89
30	5.84	5.24	90
35	6.18	5.61	91
40	6.63	6.10	92
45	7.15	6.63	93
50	7.75	7.23	93
55	8.35	7.83	94
59	8.83	8.33	94

SECTION III

RESULTS OF ACTUARIAL VALUATION

Our valuation of the Retirement System as of June 30, 1964 was based upon the following Accounting Balance Sheet furnished by the Retirement Office. As indicated earlier in this Report, this statement of assets and liabilities of the System was accepted by us without audit.

ACCOUNTING BALANCE SHEET
AS OF
JUNE 30, 1964

ASSETS

FUNDS:

Cash in City Treasury	\$	609,493.20
Cash on Hand		50.00

TOTAL CASH \$ 609,543.20

RECEIVABLES:

Accounts Receivable	\$	21,000.00
Accrued Interest on Bonds		1,661,860.34

TOTAL RECEIVABLES 1,682,860.34

INVESTMENTS:

Bonds on Hand - Par Value	\$	166,676,000.00
Bond Discount - Unamortized (Net)		(1,254,361.87)

TOTAL INVESTMENTS 165,421,638.13

TOTAL ASSETS \$167,714,041.67

LIABILITIES

Accounts Payable \$ 8,968.96

RESERVES:

Accumulated Contributions of Members	\$	65,123,629.71
Annuities and Interest Thereon		14,993,993.45
Prior Service		6,814,107.28
Subsequent Service		66,352,408.95
Disability Allowances		3,843,674.21
Death Benefits		9,939,991.16

TOTAL RESERVES 167,067,804.76

SURPLUS:

Undistributed Interest	\$	17,276.52
Reserve for Investment Fluctuation		516,127.35
Surplus		103,864.08

TOTAL SURPLUS 637,267.95

TOTAL LIABILITIES \$167,714,041.67

An actuarial valuation of the City Employees' Retirement System of the City of Los Angeles was carried out as of June 30, 1964 on the basis of the actuarial assumptions developed during the course of the investigation and which are discussed in Section V of this report. The following Actuarial Balance Sheet sets forth the assets and liabilities developed by this valuation.

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET

ACTUARIAL VALUATION OF ASSETS AND LIABILITIES
AS OF JUNE 30, 1964

ASSETS

1.	Total Assets from Accounting Balance Sheet		\$167,714,041.67
2.	Present Value of Future Contributions of Members		60,233,904.00
3.	Present Value of Future Contributions by the City on Account of:		
	(a) Subsequent Service Pensions	\$39,329,447.56	
	(b) Disability Pensions	689,079.79	
	(c) Death Benefits	1,114,250.90	
	(d) Prior Service Pensions, Minimum Pensions, and Cost of Living Pensions	<u>13,198,959.72</u>	<u>54,331,737.97</u>
4.	TOTAL ASSETS		<u><u>\$282,279,683.64</u></u>

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET
(Continued)

LIABILITIES (Continued)

5.	Accounts Payable		\$	8,968.96
6.	Limited Pensions and Death Benefits Payable			9,933.06
7.	Service Retirement Allowances Now Being Paid:			
	(a) Annuities	\$11,767,236.00		
	(b) Subsequent Service Pensions	24,866,637.00		
	(c) Prior Service Pensions, Minimum Pensions, and Cost of Living Pensions	<u>14,616,381.00</u>		51,250,254.00
8.	Disability Allowances Now Being Paid:			
	(a) Annuities	\$ 482,474.00		
	(b) Disability Pensions, Minimum Pensions, and Cost of Living Pensions	<u>1,713,201.00</u>		2,195,675.00
9.	Survivorship Death Allowances Now Being Paid:			
	(a) Annuities	\$ 915,520.00		
	(b) Survivorship Pensions and Cost of Living Pensions	<u>2,884,857.00</u>		3,800,377.00
10.	Service Allowances to be Granted in the Future for:			
	(a) Subsequent Service	\$161,349,832.00		
	(b) Prior Service and Minimum	<u>5,039,772.00</u>		166,389,604.00

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET
(Continued)

LIABILITIES (Continued)

11.	Disability Allowances to be Granted in the Future	\$	4,804,948.00
12.	Death Benefits to be Granted in the Future		20,455,294.00
13.	Contributions to be Returned upon Withdrawal:		
	(a) Past	\$15,351,816.00	
	(b) Future	<u>13,584,372.00</u>	28,936,188.00
14.	Investment Reserve and Undistributed Interest		637,267.95
15.	Contributions of Inactive Members		672,771.05
16.	Member Contributions to be Refunded to Former Health Department Employees		3,105,282.75
17.	Excess Interest Credited to Member Contribution Account		<u>13,119.87</u>
18.	TOTAL LIABILITIES		<u><u>\$282,279,683.64</u></u>

The following comments may facilitate a review and understanding of the Actuarial Balance Sheet.

Item 3 shows the present value of future contributions by the City on account of subsequent service pensions, disability pensions, death benefits, and prior service and minimum pensions corresponding to the various City rates of contribution recommended in Section IV of this report.

It will be noted that the present value of future contributions by the City has been sharply reduced. This is the result of increasing the interest assumption to 3-3/4%, changes in other actuarial assumptions which will be discussed in Section V of this Report, and the transfer of certain Health Department employees to the County.

Items 7 through 13 show the actuarially computed present value as of June 30, 1964, of all future benefits to be paid by the System to presently active and retired members. Item 16 represents the employee contributions of former Health Department employees who elected to withdraw their contributions and forfeit all further benefits under the System.

SECTION IV
RECOMMENDATIONS

Based on the actuarial investigation and valuation of your Retirement System as of June 30, 1964, we respectfully submit the following recommendations in accordance with the provisions of Article XXXIV of the City Charter.

1. Interest Rate

We concur with the Board of Administration in its authorization to us to use an interest rate of 3-3/4% per annum, compounded annually.

2. We recommend that the Retirement Board adopt, for use in the administration of the System, operating tables, to be furnished by the actuary, based upon the above mentioned interest rate and on the table of mortality for service retirement set forth in Schedules 2 and 3 of Section VI of this report and the table of mortality for disability retirement set forth in Schedule 4 of said Section VI.

3. Contribution of Members

As we indicated in Section II of this report, the change in actuarial assumptions necessitates a change in member rates of contribution. The member rates of contribution, based upon the new actuarial assumptions, that we recommend be adopted are set forth in Schedule 1 of Section VI of this report.

4. City Contributions for the fiscal year 1965 - 1966

(a) We recommend that the City contribute 3.804% of the compensation of members covered by the System for subsequent service pensions, disability pensions and death benefits. This 3.804% rate is made up as follows:

Subsequent Service Pensions	3.637%
Disability Pensions	.064%
Death Benefits	<u>.103%</u>
Total	3.804%

(b) We recommend that the City contribute \$2,178,801 for prior service pensions, minimum pensions, and cost of living pensions. Annual contributions of this amount will liquidate the unfunded liability of \$13,198,959.72 for prior service pensions, minimum pensions, and cost of living pensions by June 30, 1971.

We further recommend that the recommendations outlined above be made effective as of July 1, 1965. We believe this to be necessary in order to provide adequate time for the preparation of the operating tables and to make the necessary administrative changes in order to put the recommendations into effect.

In our opinion, if the above recommendations are adopted, the Retirement System will be maintained on a sound actuarial basis and in accordance with Article XXXIV of the City Charter.

COMMENTS

The contribution rate of 3.804%, set forth above, represents a substantial reduction over the City's present contribution rate. This is the result of the increase in the interest rate assumption to 3-3/4%, favorable developments in other actuarial assumptions - primarily on increase in withdrawals at the older ages, and the transfer of Health Department employees. Tests indicate that the recommended rate of 3.804% is less than will be required for new employees. Accordingly, the City can expect to experience gradual increases in the contribution rate over the next several years as new employees enter the System. It appears that the City contribution rate, excluding the Prior Service contribution, will probably increase to about 5% of covered compensation.

SECTION V

SUMMARY OF ACTUARIAL INVESTIGATION

Before an actuarial valuation of the assets and liabilities of the System can be made and the City contributions determined and before member rates of contribution can be calculated, it is first necessary to adopt a long range interest assumption and adopt assumptions in regard to the following contingencies:

1. The relative increases in the salary of a member from the date of valuation to the date of retirement.
2. The mortality rates to be experienced among persons retired for service.
3. The mortality rates to be experienced among persons retired for disability.
4. The rates at which members separate from active service on account of:
 - (a) Withdrawal
 - (b) Death
 - (c) Disability
 - (d) Service Retirement

It is necessary to carry out an actuarial investigation into the experience of the members of the System in order to determine what the best assumptions are with respect to the aforementioned contingencies. We have carried out such an actuarial investigation of your Retirement System covering the period July 1, 1960 through June 30, 1964 and have examined each

of these contingencies. The results of this investigation are set forth in the following paragraphs.

INTEREST RATE

A 3-3/8% interest assumption was used for the valuation carried out as of June 30, 1960. (A 2-3/4% interest assumption had been in effect for the five year period prior to that date and 2-1/2% was used before that.) The Board of Administration directed us to use a 3-3/4% per annum, compounded annually, interest assumption for the current valuation carried out as of June 30, 1964. We are in accord with this directive and therefore have used an interest assumption of 3-3/4% per annum, compounded annually, for the determination of the member rates of contribution and in all other calculations carried out in the current valuation.

SALARY SCALES

Based upon the data for active members as of June 30, 1964, we developed the average monthly salary by age and length of service. This calculation was carried out for male members and female members separately. From this average salary information we developed index numbers to reflect the relative increases in salary that a member could expect to receive over his future working lifetime. It should be noted that salary scales developed in this manner reflect only increases due to merit, promotion and service. They do not reflect across the board increases due to inflationary pressures. We believe that this procedure is a sound one since salary scales reflecting inflationary increases would require the City and the members to pay today in "dear dollars" for a part of the increases in retirement plan cost which

will result from a cheapening of the dollar in the future due to inflation.

An examination of the index numbers referred to above led to our conclusion that the salary scales adopted as of June 30, 1960 are appropriate for continued use.

The salary scales referred to above are shown in Schedule 5 of Section VI of this report.

MORTALITY AFTER SERVICE RETIREMENT

Male Members

The results of the investigation indicate that male members retired for service experienced approximately the same rates of mortality as was heretofore assumed, namely; the rates as set forth in the mortality table designated as the "1946 Service Pensioner Mortality Table" with ages set back one year. We have therefore recommended that there be no change in the mortality after service retirement for male members and that the mortality table designated as the "1946 Service Pensioner Mortality Table" with ages set back one year be continued in use.

Female Members

Similar to male members, the results of the investigation indicate that the mortality table in current use for female members designated as the "1946 Service Pensioner Mortality Table" with ages set back three years is appropriate for continued use. Accordingly, we have recommended that the mortality table designated as the "1946 Service Pensioner Mortality Table" with ages set back three years be continued in use for female members.

The rates of mortality after service retirement referred to above are set forth in Schedules 2 and 3 of Section VI of this report.

MORTALITY AFTER DISABILITY RETIREMENT

The combined experience of male and female members retired for disability followed fairly closely that which was expected based upon the mortality after disability retirement assumption in current use. This table, designated as the "1943 Disability Mortality Table" has therefore been recommended for continued use.

The rates of mortality after disability retirement referred to above are set forth in Schedule 4 of Section VI of this report.

RATES OF WITHDRAWAL

The financial effect on the System of members withdrawing from service within the first few years of their employment is negligible. Therefore, we have examined the experience of members of the System having three or more years of service and find that although in total, for both male and female members, fewer members are withdrawing from service than was previously indicated, more members are withdrawing at the older ages. Consequently, we adopted for use in the current valuation rates of withdrawal for both male and female members which are lower at the younger ages and higher at the older ages than the rates of withdrawal previously used.

The rates of withdrawal referred to above are set forth in Schedules 6 and 7 of Section VI of this report.

MORTALITY BEFORE RETIREMENT

The results of the investigation indicate that female members are

experiencing rates of mortality before retirement approximately the same as the rates of mortality before retirement heretofore used whereas male members are experiencing somewhat lower rates than heretofore assumed. Consequently, we have adopted for use in the current valuation rates of mortality before retirement consistent with the actual experience of members of the System.

The rates of mortality referred to above are shown in Schedules 6 and 7 of Section VI of this report.

DISABILITY

The experience of female members during the past five years indicates that far fewer female members are becoming disabled than was previously the case. Consequently, rates of disability retirement were adopted for female members which more nearly reflect the actual experience. The experience of male members indicates that the rates of disability retirement adopted for male members June 30, 1960 are appropriate for continued use.

The rates of disability retirement referred to above are set forth in Schedules 6 and 7 of Section VI of this report.

SERVICE RETIREMENT

The experience of both male and female members during the past five years indicates that there has been a slight increase in the average age at which members retire. Consequently, rates of service retirement were adopted for use in the current valuation which reflect this trend.

The rates of service retirement referred to above are shown in Schedules 6 and 7 of Section VI of this report.

SECTION VI
STATISTICAL INFORMATION
LIST OF SCHEDULES

Schedule

1. Recommended Member Rates of Contribution
2. Rates of Mortality after Service Retirement - Male Members
3. Rates of Mortality after Service Retirement - Female Members
4. Rates of Mortality after Disability Retirement
5. Salary Scales
6. Rates of Withdrawal, Mortality, Disability, Service Retirement -
Male Members
7. Rates of Withdrawal, Mortality, Disability, Service Retirement -
Female Members
8. Number of Active Members and Total Monthly Salary By Sex
and Attained Age
9. Number and Amount of Retirement Allowances in Effect
10. Number of Active Members with Prior Service Credit and
Monthly Salary by Sex and Attained Age

SCHEDULE 1

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

JUNE 30, 1964

RECOMMENDED MEMBER RATES OF CONTRIBUTION

<u>Age</u>	<u>Percentage of Compensation</u>	<u>Age</u>	<u>Percentage of Compensation</u>
16	4.91%	40	6.10%
17	4.92	41	6.20
18	4.93	42	6.30
19	4.94	43	6.41
		44	6.52
20	4.95	45	6.63
21	4.96	46	6.75
22	4.97	47	6.87
23	4.98	48	6.99
24	5.00	49	7.11
25	5.02	50	7.23
26	5.05	51	7.35
27	5.09	52	7.47
28	5.13	53	7.59
29	5.18	54	7.71
30	5.24	55	7.83
31	5.30	56	7.95
32	5.37	57	8.07
33	5.45	58	8.20
34	5.53	59	8.33
35	5.61		
36	5.70		
37	5.80		
38	5.90		
39	6.00		

SCHEDULE 2

MALE MEMBERS

Rates of Mortality after Service Retirement

<u>Age</u>	<u>Rate of Mortality</u>	<u>Age</u>	<u>Rate of Mortality</u>
55	.018356	85	.142820
56	.019303	86	.154220
57	.020338	87	.166470
58	.021465	88	.179660
59	.022694	89	.193810
60	.024033	90	.208960
61	.025495	91	.225210
62	.027086	92	.242520
63	.028821	93	.261020
64	.030710	94	.280680
65	.032768	95	.301510
66	.035011	96	.323610
67	.037451	97	.347010
68	.040110	98	.371390
69	.043002	99	.397160
70	.046148	100	.424080
71	.049572	101	.451680
72	.053297	102	.480840
73	.057343	103	.512920
74	.061741	104	.537880
75	.066519	105	.573770
76	.071705	106	.615380
77	.077334	107	.600000
78	.083439	108	.750000
79	.090054	109	1.000000
80	.097220		
81	.104990		
82	.113380		
83	.122450		
84	.132260		

SCHEDULE 3

FEMALE MEMBERS

Rates of Mortality after Service Retirement

<u>Age</u>	<u>Rate of Mortality</u>	<u>Age</u>	<u>Rate of Mortality</u>
55	.008678	85	.095876
56	.009328	86	.104050
57	.010039	87	.112890
58	.010814	88	.122440
59	.011653	89	.132750
60	.012576	90	.143860
61	.013580	91	.155830
62	.014674	92	.168700
63	.015867	93	.182540
64	.017169	94	.197360
65	.018587	95	.213240
66	.020131	96	.230220
67	.021816	97	.248330
68	.023650	98	.267610
69	.025648	99	.288110
70	.027827	100	.309800
71	.030198	101	.332710
72	.032776	102	.357000
73	.035590	103	.382200
74	.038645	104	.409040
75	.041974	105	.436540
76	.045592	106	.465260
77	.049525	107	.494090
78	.053799	108	.525290
79	.058445	109	.557380
80	.063487	110	.592590
81	.068962	111	.636360
82	.074899	112	1.000000
83	.081343		
84	.088318		

SCHEDULE 4

MALE AND FEMALE MEMBERS

Rates of Mortality after Disability Retirement

<u>Age</u>	<u>Rate of Mortality</u>	<u>Age</u>	<u>Rate of Mortality</u>
25	.0391	55	.0416
26	.0352	56	.0426
27	.0329	57	.0436
28	.0319	58	.0448
29	.0315	59	.0462
30	.0314	60	.0476
31	.0315	61	.0491
32	.0316	62	.0507
33	.0318	63	.0525
34	.0319	64	.0544
35	.0321	65	.0563
36	.0323	66	.0586
37	.0325	67	.0612
38	.0327	68	.0635
39	.0329	69	.0664
40	.0332	70	.0694
41	.0335	71	.0726
42	.0338	72	.0759
43	.0341	73	.0796
44	.0345	74	.0836
45	.0349	75	.0879
46	.0354	76	.0925
47	.0359	77	.0976
48	.0364	78	.1029
49	.0370	79	.1085
50	.0376		
51	.0383		
52	.0390		
53	.0398		
54	.0406		

SCHEDULE 5

SALARY SCALES

<u>Age</u>	<u>Male</u>	<u>Female</u>	<u>Age</u>	<u>Male</u>	<u>Female</u>
20	603	651	45	917	947
21	620	666	46	925	955
22	641	681	47	932	960
23	659	696	48	938	966
24	677	713	49	944	970
25	694	728	50	950	974
26	710	743	51	956	977
27	725	758	52	962	979
28	740	774	53	966	981
29	753	787	54	970	985
30	765	800	55	975	987
31	778	813	56	978	989
32	790	825	57	981	991
33	802	836	58	984	992
34	814	847	59	988	994
35	824	858	60	991	994
36	836	870	61	993	996
37	846	879	62	996	996
38	857	891	63	997	998
39	866	900	64	999	998
40	874	909	65	1000	1000
41	883	919			
42	892	926			
43	901	934			
44	910	942			

SCHEDULE 6

*Rates of Withdrawal, Mortality, Disability, Service Retirement

<u>Age</u>	<u>Withdrawal</u>	<u>Mortality</u>	<u>Disability</u>	<u>Service Retirement</u>
20	.1350	.0003		
21	.1200	.0003		
22	.1075	.0004		
23	.0985	.0004		
24	.0910	.0004		
25	.0850	.0005		
26	.0795	.0005		
27	.0745	.0006		
28	.0700	.0006		
29	.0660	.0007		
30	.0625	.0007	.0001	
31	.0590	.0008	.0002	
32	.0560	.0009	.0002	
33	.0530	.0009	.0002	
34	.0500	.0010	.0002	
35	.0480	.0011	.0002	
36	.0460	.0012	.0003	
37	.0435	.0013	.0003	
38	.0415	.0015	.0003	
39	.0395	.0016	.0003	
40	.0375	.0018	.0003	
41	.0355	.0020	.0004	
42	.0335	.0021	.0004	
43	.0320	.0022	.0004	
44	.0305	.0024	.0004	
45	.0290	.0026	.0005	
46	.0275	.0029	.0007	
47	.0265	.0031	.0009	
48	.0250	.0033	.0013	
49	.0240	.0036	.0015	
50	.0235	.0041	.0017	
51	.0225	.0044	.0019	
52	.0220	.0048	.0021	
53	.0215	.0054	.0023	
54	.0210	.0059	.0025	

SCHEDULE 6

*Rates of Withdrawal, Mortality, Disability, Service Retirement

(Continued)

Male Members

<u>Age</u>	<u>Withdrawal</u>	<u>Mortality</u>	<u>Disability</u>	<u>Service Retirement</u>
55	.0200	.0066	.0027	.0050
56	.0195	.0074	.0028	.0050
57	.0190	.0081	.0029	.0150
58	.0180	.0089	.0030	.0150
59	.0170	.0099	.0031	.0400
60	.0155	.0110		.0600
61	.0140	.0123		.0650
62	.0115	.0136		.0650
63	.0080	.0150		.0650
64	.0045	.0166		.0650
65		.0184		.1150
66		.0203		.1150
67		.0225		.1300
68		.0243		.1300
69		.0267		.4250
70				1.0000

*Probability of Occurrence within one year.

SCHEDULE 7

*Rates of Withdrawal, Mortality, Disability, Service Retirement

Female Members

<u>Age</u>	<u>Withdrawal</u>	<u>Mortality</u>	<u>Disability</u>	<u>Service Retirement</u>
20	.2950	.0002		
21	.2600	.0002		
22	.2300	.0002		
23	.2050	.0002		
24	.1850	.0003		
25	.1700	.0004		
26	.1580	.0004		
27	.1450	.0005		
28	.1350	.0005		
29	.1250	.0006		
30	.1180	.0006	.0001	
31	.1100	.0007	.0001	
32	.1030	.0007	.0002	
33	.0960	.0008	.0002	
34	.0900	.0009	.0003	
35	.0850	.0009	.0004	
36	.0800	.0010	.0004	
37	.0750	.0010	.0005	
38	.0700	.0011	.0006	
39	.0660	.0012	.0007	
40	.0620	.0013	.0008	
41	.0580	.0014	.0009	
42	.0550	.0015	.0010	
43	.0510	.0015	.0012	
44	.0480	.0016	.0014	
45	.0450	.0017	.0016	
46	.0420	.0018	.0018	
47	.0390	.0019	.0021	
48	.0360	.0020	.0023	
49	.0340	.0021	.0026	
50	.0310	.0022	.0029	
51	.0290	.0024	.0032	
52	.0270	.0026	.0034	
53	.0250	.0028	.0036	
54	.0230	.0030	.0038	

SCHEDULE 7

*Rates of Withdrawal, Mortality, Disability, Service Retirement

(Continued)

Female Members

<u>Age</u>	<u>Withdrawal</u>	<u>Mortality</u>	<u>Disability</u>	<u>Service Retirement</u>
55	.0220	.0033	.0040	.0700
56	.0200	.0036	.0041	.0150
57	.0190	.0039	.0042	.0300
58	.0180	.0043	.0043	.0400
59	.0160	.0047	.0044	.0500
60	.0140	.0052		.0700
61	.0120	.0057		.0800
62	.0100	.0065		.0900
63	.0060	.0073		.1000
64	.0040	.0081		.1200
65		.0091		.1250
66		.0105		.1100
67		.0121		.1100
68		.0139		.2100
69		.0159		.5500
70				1.0000

*Probability of Occurrence Within one Year.

SCHEDULE 9

Number and Amount of Retirement Allowances In Effect

	<u>Number</u>	<u>Monthly Allowance</u>				<u>Total</u>
		<u>Minimum</u>	<u>Past Service or Disability</u>	<u>Subsequent Service</u>	<u>Annuity</u>	
<u>Service Retirement</u>						
Male	1,770	\$18,874.55	\$ 95,196.08	\$169,857.42	\$ 75,009.89	\$358,937.94
Female	<u>644</u>	<u>5,421.72</u>	<u>25,040.23</u>	<u>47,512.22</u>	<u>19,474.83</u>	<u>97,449.00</u>
Total	2,414	\$24,296.27	\$120,236.31	\$217,369.64	\$ 94,484.72	\$456,386.94
<u>Disability Retirement</u>						
Male	111	\$ 947.63	\$ 7,741.64	\$ 1,598.67	\$ 2,286.96	\$ 12,574.90
Female	<u>66</u>	<u>452.82</u>	<u>3,743.95</u>	<u>1,017.11</u>	<u>1,039.14</u>	<u>6,253.02</u>
Total	177	\$ 1,400.45	\$ 11,485.59	\$ 2,615.78	\$ 3,326.10	\$ 18,827.92
<u>Survivorship</u>						
Male	3	\$ 7.63	\$ 69.64	\$ 352.56	\$ 132.94	\$ 562.77
Female	<u>147</u>	<u>846.35</u>	<u>6,340.61</u>	<u>12,185.33</u>	<u>5,567.27</u>	<u>24,939.56</u>
Total	150	\$ 853.98	\$ 6,410.25	\$ 12,537.89	\$ 5,700.21	\$ 25,502.33
Grand Total	2,741	\$26,550.70	\$138,132.15	\$232,523.31	\$103,511.03	\$500,717.19

182 68

SCHEDULE 10

Number of Active Members With Prior Service Credit
and Monthly Salary By Sex and Attained Age

<u>Age</u>	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>Number</u>	<u>Salary</u>	<u>Number</u>	<u>Salary</u>	<u>Number</u>	<u>Salary</u>
45	1	\$ 624			1	\$ 624
46	2	1,883	1	\$ 624	3	2,507
47	3	3,513			3	3,513
48	3	3,803	1	452	4	4,255
49	1	591			1	591
50	5	5,560	2	1,148	7	6,708
51	4	3,147	2	1,700	6	4,847
52	7	8,240	1	677	8	8,917
53	8	8,552	6	3,865	14	12,417
54	14	14,188	8	5,278	22	19,466
55	10	8,272	6	3,561	16	11,833
56	18	14,709	8	4,764	26	19,473
57	20	19,959	9	6,016	29	25,975
58	33	33,686	21	12,477	54	46,163
59	25	22,937	13	8,699	38	31,636
60	31	28,995	8	4,908	39	33,903
61	27	24,824	7	4,391	34	29,215
62	41	36,934	14	9,805	55	46,739
63	29	30,003	6	3,490	35	33,493
64	30	27,162	10	6,223	40	33,385
65	32	25,971	2	1,359	34	27,330
66	30	28,366	2	1,690	32	30,056
67	26	26,063	3	1,447	29	27,510
68	17	12,898	3	1,764	20	14,662
69	15	11,682	3	1,980	18	13,662
70	12	9,671			12	9,671
Total	444	\$412,233	136	\$86,318	580	\$498,551