

ACTUARIAL REPORT

EMPLOYEES' RETIREMENT ASSOCIATION

of the

COUNTY OF FRESNO

Made to The Board of Retirement

as of

June 30, 1957

March 25, 1958

OFFICES IN:
SAN FRANCISCO
DENVER
LOS ANGELES

COATES, HERFURTH & ENGLAND
CONSULTING ACTUARIES
CROCKER BUILDING
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TELEPHONE
SUTTER 1-1724

March 25, 1958

Board of Retirement
County Employees' Retirement Association
Fresno County
Fresno, California

Gentlemen:

We are pleased to transmit herewith our Report setting forth the results of the investigation and valuation of your Retirement System as of June 30, 1957.

Both the investigation and valuation as of June 30, 1957, were based upon financial statements and employee data furnished by the Retirement Office.

This report discusses in detail results and conclusions arising from our investigation and valuation, supplementing the information transmitted to you earlier.

We would like to take this opportunity to express our appreciation for the cooperation accorded us by the Retirement Office during the course of this work.

Respectfully submitted,

COATES, HERFURTH & ENGLAND
Consulting Actuaries

By


Harry C. Radin

HCR:rhv
Enclosure

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ACTUARIAL REPORT
COUNTY EMPLOYEES' RETIREMENT ASSOCIATION
COUNTY OF FRESNO
as of
JULY 1, 1957

SECTION 1

Section 31453 of the County Employees' Retirement Law of 1937 provides as follows:

"An actuarial valuation shall be made within one year after the date on which any system established under this Chapter becomes effective, and thereafter at not to exceed five year intervals. The valuation shall be conducted under the supervisions of an actuary and shall cover the mortality, service and compensation experience of the members and beneficiaries, and shall evaluate the assets and liabilities of the retirement fund. Upon the basis of the investigation, valuation and recommendation of the actuary, the Board of Retirement shall recommend to the Board of Supervisors such changes in the rate of interest, in the rates of contributions of members, and in county and district appropriations as are necessary. No adjustment shall be included in the new rates for time prior to the effective date of the revision."

In accordance with the foregoing provisions of the Law, we have completed an investigation into the mortality, service and compensation experience of members and beneficiaries under the System during the five year period which has elapsed since the last investigation as of June 30, 1952. Upon the basis of assumptions derived from this investigation and the rate of interest which has been assumed, we have also completed an actuarial valuation of the assets and liabilities of the system as of June 30, 1957.

The first element to be determined in the valuation of the System is the members' rates of contribution, which are dependent upon the interest assumptions, the compensation experience among active members and the mortality expected among members retired for service.

After the members' rates of contribution have been determined, an actuarial valuation is then made of that portion of the total liabilities of the System which is not funded by member contributions and funds on hand, thereby determining the total net liability falling against the County. This report, therefore, has been assembled in sections dealing with: the data upon which the survey was based; the determination of member contributions; the valuation of the assets and liabilities of the System, and finally our recommendations of the contributions to be made by the County.

SECTION II

DATA FURNISHED

The retirement office furnished us with the following information regarding the membership and experience under the system.

On each member of the system who was active on June 30, 1957 the following:

- (1) Name or number
- (2) Department
- (3) Sex
- (4) Date of birth
- (5) Age at membership
- (6) Rate of contribution
- (7) Date of employment
- (8) Years of prior service
- (9) Monthly compensation earnable
- (10) Accumulated contributions.

For each person receiving an allowance from the system as of June 30, 1957 we were furnished with the following:

- (1) Name
- (2) Sex
- (3) Date of birth
- (4) Date of retirement
- (5) Type of retirement
- (6) Option selected
- (7) Monthly annuity
- (8) Current service pension
- (9) Prior service pension
- (10) Beneficiary date of birth and sex

In addition to the above information on current, active and retired members, we were given similar information concerning any active member of the system

who had terminated for any reason between July 1, 1952 and June 30, 1957.

Similar information was furnished regarding the number of retired persons who had died during the five year period.

In addition to the above mentioned personnel statistics, the Retirement Board furnished us with a financial statement and balance sheet of the retirement fund as of June 30, 1957. No physical audit of these assets was made by us and our calculations are based upon the balance sheet as submitted.

SECTION III

MEMBER CONTRIBUTIONS

Section 31621 sets forth the basis for the determination of the normal rates of contribution by members and provides as follows:

"The normal rates of contribution except for members covered by Article 6.8 shall be such as will provide an average annuity at age 60 equal to one one-hundred-twentieth of the final compensation of members not covered by Article 6.8, according to the tables adopted by the Board of Supervisors, for each year of service rendered after entering the system."

Section 31620 provides that the normal rates of contribution of members shall be based on sex and age at the nearest birthday at the time of entrance into the Retirement System. Section 31453 provides for the adjustment in such rates in the light of changes in the rate of interest and other factors and further provides that no adjustment shall be included in the new rates for time prior to the effective date of the revision.

In order to calculate the rates of contribution in accordance with the above provisions of the law it is first necessary to adopt assumptions for the following three elements which enter into these calculations.

- (1) The interest rate that may be realized on the investments of the funds of the System;
- (2) The relative increases in the salary of a member from date of valuation to normal retirement;
- (3) The mortality to be experienced among members retired for service under the System.

These factors and the assumptions made in regard to each, will be discussed in the following paragraphs.

Interest Rate

The last actuarial valuation was made on the basis of a long-term interest assumption of 2-3/4% per annum, which appeared reasonable upon the basis of the yield on investments then available. Your County Treasurer has advised us that the yield on the fund has been improved to over 3% per annum and that current investments are being made at higher rates. Many corporation plans and a number of the counties operating under the 1937 Law are going to a 3% interest assumption in connection with their retirement systems. Based on these considerations and the appraisal of your County Treasurer, we have, therefore, assumed interest at 3% compounded annually for the calculations of member rates of contribution and the assets and liabilities of the Fund.

Mortality after Service Retirement

Since there were only one hundred thirty eight persons receiving allowances from Fresno County on account of service retirement, including beneficiaries, any study of the mortality experience of this group would not be expected to provide a reliable test of the mortality standard being used. However, during the five years included in the experience study, thirty five deaths occurred among persons retired for service, and the mortality table currently in use anticipated approximately twenty six. In order to obtain a more reliable test, however, we had available the experience among several other counties operating under the 1937 Law and after a study of this additional experience, it was our opinion that no change in the mortality standard would be required at this time. The current valuation, therefore, was completed on the basis of the mortality table that was adopted

after the 1952 investigation, which is the 1946 Service Pensioner Mortality Table with the ages set back one year for males and two years for females. It should be noted that the present table for females does not provide as much a margin for improvement in mortality as does the male table, and that subsequent experience studies may reveal the necessity of adopting a table with greater life expectancy. The rates of mortality for this table are included in the schedules in Section VI of this report.

Salary Scales

For the purpose of calculating member contribution rates, as well as for the valuation of benefits that are based upon final compensation, it was necessary to prepare salary scales to measure the relative increases in salaries that members might experience as they advanced in age toward retirement. Based upon a study of the data that was supplied to us, the average current salary at each age was determined for men and women separately, and from this information salary scales were developed to express the ratio of present compensation to expected final compensation. In considering these salary scales, it should be noted that the fundamental assumption is made that, on the average, as members advance in age, normal increases in compensation would be in accordance with the rates indicated by these scales. It should further be noted that these salary scales do not attempt to predict changes in the general levels of compensation which would be due to the changing economic conditions. They are used only to indicate the average relationship existing between compensation expected at different ages, in accordance with present salary levels.

Member Contribution Rates

Upon the basis, therefore, of the assumptions adopted as to the three elements which enter into the determination of the members' rates, we have calculated revised normal rates of contribution for members. It will be noted that, due to the effect of the change in the interest assumption, there has been an average reduction in these rates of about 2.5% or 3% at the various ages.

Although the 1937 County Law does not specify the particular date upon which changes in member contribution rates should be made, we would suggest that the new member contribution rates be put into effect as soon as possible, but upon a date which would be convenient from an administrative viewpoint. A complete schedule of these revised member contribution rates is shown on the following page and, in our opinion, would be the rates which comply with the provisions of Section 31621 of the Law, upon the basis of the assumptions discussed in the preceding paragraphs.

Contribution Rates of Members

Percentage of Compensation by Entry Age

<u>Age</u>	<u>Male</u>	<u>Female</u>
16	5.89%	6.50%
17	5.94	6.57
18	5.99	6.64
19	6.04	6.71
20	6.09	6.78
21	6.14	6.85
22	6.20	6.93
23	6.26	7.01
24	6.32	7.09
25	6.38	7.17
26	6.45	7.26
27	6.52	7.35
28	6.59	7.44
29	6.66	7.54
30	6.74	7.64
31	6.82	7.74
32	6.90	7.85
33	6.98	7.96
34	7.07	8.07
35	7.16	8.19
36	7.25	8.31
37	7.34	8.43
38	7.44	8.55
39	7.54	8.68
40	7.64	8.81
41	7.74	8.94
42	7.85	9.08
43	7.96	9.22
44	8.07	9.37
45	8.19	9.52
46	8.31	9.67
47	8.43	9.82
48	8.55	9.97
49	8.68	10.13
50	8.81	10.29
51	8.94	10.45
52	9.07	10.61
53	9.21	10.77
54	9.35	10.94
55	9.49	11.11
56	9.63	11.28
57	9.78	11.45
58	9.93	11.62
59	10.08	11.80

SECTION IV

VALUATION OF SYSTEM

In order to make the complete actuarial valuation of the prospective assets and liabilities of the System, it was necessary to adopt assumptions which would reflect the rates and ages at which members separated from active service on account of withdrawals, death, disability and service retirement. In addition, a standard of mortality must be adopted for members after retirement for disability. All of these contingencies were examined as part of the investigation covering the experience of the last five years. The assumptions made in regard to these rates are discussed in the following paragraphs.

Mortality After Disability Retirement

Since there are only twenty members currently on disability retirement in Fresno County, it was necessary to relate your experience to the experience available among the other counties having a comparable investigation at this time. The results of this combined experience, coupled with our experience of the tables used in other public systems, convinced us that a continuation of the present mortality table for disabled lives was justified. This table has been designated as the 1943 Disability Mortality Table and the rates of death assumed in it are included in the schedules at the end of this report.

Withdrawal

In studying the turn-over experience under your System during the five year period, it was found that the rates adopted for females at the last investigation were still appropriate and no change was made for this valuation.

Among males, however, it was found that at the younger ages the rates previously adopted in 1952 anticipated more withdrawals than actually occurred during the last five years and the withdrawals at higher ages were slightly greater. Therefore, for this valuation the rates of withdrawal for males were changed to reflect this experience. These rates are based on a study of the turn-over of members who have three or more years of service, since the financial effect of turn-over among members with less service is not as great.

Death Before Retirement

The experience in Fresno County during the five years has indicated that the probability for this contingency should remain the same as was adopted for the 1952 valuation. These probabilities are much the same as adopted for other counties.

Disability Retirement

So little experience was available under this contingency for the five year period, it was decided to continue the same probabilities as were adopted for the last valuation. From the experience in several of the other counties we believe this rate is adequate.

Service Retirement

Your experience under service retirement shows that there has been, during the last five years, a definite tendency for females to retire at younger ages than was indicated during the previous investigation and for males to defer retirement. Probabilities of retirement, therefore, were developed to reflect this tendency and the distribution of retirement by age. The effect of

this change results in anticipating about the same number of members eventually retiring as were anticipated by the rates used in the previous investigation.

The probabilities of separation from active service that have been discussed in the foregoing paragraphs, and which were adopted as the basis for the current actuarial valuation, are shown in the schedules at the end of this report.

To illustrate the effect of the changes in the various rates of separation, the following table has been included which indicates the probable number of separations for the various contingencies that would be expected in the future from an assumed number of active members having the same distribution by sex and age as your present group of active members. It will be noted that the aggregate results under recommended assumptions do not differ materially from those anticipated under the previous assumptions.

Effect of Changes in Rates of Separation

(Assumed number of 5000 active members)

PREVIOUS ASSUMPTIONS

<u>Number Expected to Separate</u>					
<u>Group</u>	<u>Number</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Service Retirement</u>
Males	2322	945	331	38	1008
Females	2678	1391	118	31	1138
Total	5000	2336	449	69	2146

RECOMMENDED ASSUMPTIONS

<u>Group</u>	<u>Number</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Service Retirement</u>
Males	2322	936	344	40	1002
Females	2678	1391	127	18	1142
Total	5000	2327	471	58	2144

Accounting Balance Sheet

The Retirement Board furnished us with a balance sheet of the System as of June 30, 1957 which shows the distribution of funds on hand. This statement of assets was accepted by us without audit and used in the determination of the net liabilities under the System. We have reproduced an abbreviated version of this balance sheet on the following page.

Of the reserves now held by the retirement System, the first item is the amount now credited to active members' accounts, representing contributions for service to date plus interest, at the rates prescribed by the Retirement Board. The second item is the amount of accumulated contributions made by the County for current service benefits accrued to date on present active members. The next two items show the balances in the funds set aside for retired members to provide for current service pensions and annuities now in effect. The fifth item represents the net contributions made to date by the County to provide for prior service pensions that have already been entered upon or will be entered upon by members not yet retired.

ACCOUNTING BALANCE SHEET

as of

June 30, 1957

ASSETS

Cash on Hand	\$ 89,312.13
Securities Owned	7,304,229.18
Accrued Contributions:	
County	39,285.88
Members	<u>59,464.36</u>
Total Assets	<u>\$ 7,492,291.55</u>

LIABILITIES

Members' Deposit Reserve	\$ 3,393,410.71
Current Service Reserve	2,969,395.72
Current Service Pension Reserve	343,641.87
Annuity Reserve	307,876.29
Prior Service Reserve & Pension Reserve	372,358.78
Surplus	<u>105,608.18</u>
Total Liabilities	<u>\$ 7,492,291.55</u>

Actuarial Balance Sheet

On the basis of the various actuarial assumptions discussed in the foregoing sections of this report, an interest rate of 3% compounded annually and the statement of assets as furnished us, a complete actuarial valuation of the Retirement System was made. The resulting values of assets and liabilities have been set forth in the following actuarial balance sheet.

ACTUARIAL BALANCE SHEET

as of

June 30, 1957

ASSETS

1. Total Assets from Accounting Balance Sheet	\$ 7,492,292
2. Present Value of Future Contributions from Members	6,091,824
3. Present Value of Future Contributions from County for:	
(a) Current Service Pensions	\$ 3,073,951
(b) Death Benefits	161,839
(c) Prior Service	<u>1,876,726</u> 5,112,516
4. Total Assets	<u>\$ 18,696,632</u>

LIABILITIES

5. Present Value of Retirement Allowances Payable to Retired Members:	
(a) Annuity	\$ 317,444
(b) Current Service	337,108
(c) Prior Service & Minimum	<u>1,266,756</u> \$1,921,308
6. Present Value of Retirement Allowances Payable to Presently Active Members:	
(a) Annuity	\$ 5,970,235
(b) Current Service	6,030,019
(c) Prior Service & Minimum	<u>968,154</u> 12,968,408
7. Present Value of Death Benefits Payable to Present Active Members:	
(a) Refunds of Contributions	\$ 913,854
(b) Salary benefit and widows' Pension Benefit	<u>358,218</u> 1,272,072
8. Present Value of Withdrawal Benefits Payable to Presently Active Members	2,429,236
9. Surplus	<u>105,608</u>
10. Total Liabilities	<u>\$ 18,696,632</u>

Comments on Actuarial Balance Sheet

It will be noted that the actuarial balance sheet has been prepared in the same form as the one presented in our report of 1952. On the liability side, the first item represents the actuarial value of the allowances which have already been entered upon on account of service and disability retirements. This item has been broken down to show the value of the annuity portion of the allowance, as well as the two pension portions which were derived from County contributions. It will be noted that the actuarially determined present value of the annuities and current service allowances already entered upon is approximately the same as the ledger reserves held for this purpose. The next item represents the actuarial present value of the retirement allowances, for both service and disability, that it is anticipated will be paid to present members who will retire in the future. The next two items are the values of the death and withdrawal benefits which it is anticipated will be paid to those presently active members who will die or withdraw in the future.

On the asset side of the balance sheet, the first item is the funds on hand as taken from the accounting balance sheet. The second item represents the present actuarial value of the contributions that will be made in the future by present active members before separation from the System. The third item, indicates the present value of the future contributions that must be made by the County to fund the benefits that have already been entered upon or will be entered upon in the future. This item has been broken down into the three

components referred to in Section 31587 of the County Law, namely, current service pensions, death benefits and prior service pensions.

In the next section of this report, we shall deal with the recommendations which we believe would be advisable to fund these net County liabilities.

SECTION V

RECOMMENDATIONS

As a result of the current actuarial investigation and valuation of the Fresno County Retirement System, we have the following recommendations to make in accordance with the provisions of the 1937 County Employees' Retirement Act:

Interest Rate

In view of the discussion set forth in Section III of this report we recommend, for the purpose of determining member contribution rates and as a basis of other actuarial tables which are necessary in connection with the operation of the system, an interest assumption of 3% compounded annually be used.

Contribution of Members

We recommend that the rates of contribution contained in Section III of this report be made effective as soon as practicable, but at a date convenient to the administration of the County.

County Contributions

We recommend that the County contribution to the system, as provided for in Section 31582, be fixed at 6.21% of the total compensation of all members of the system, until revised by subsequent actuarial valuation.

We further recommend, in accordance with the provisions of Section

31587, that of the total appropriation recommended above,

- (1) first, an amount equal to 3.99% of the compensation of members be credited to the County Advance Reserve for current service benefits; and
- (2) second, an amount equal to .21% of that compensation be credited to the County Advance Reserve for death benefits; and
- (3) the balance of said appropriation (or 2.01% of compensation) be credited to the County Advance Reserve for prior service benefits.

The recommended contribution on account of prior service is designed to amortize this liability over the 13-1/2 years remaining of the period originally selected by the Board.

In order to facilitate the distribution of a full (6.21% of compensation) County contribution, we suggest that the following percentage of each such contribution be credited as indicated to the three County Advance Reserve Accounts:

64.3% to Current Service Reserve
3.3% to Death Benefit Reserve
32.4% to Prior Service Reserve

We further recommend that inasmuch as Section 31587 provides that the appropriation for death benefits during each fiscal year shall be equal to the payments made during the year for death benefits, that any balance which may remain in the County Advance Reserve for death benefits at the end of each fiscal year be transferred to the County Advance Reserve for Prior Service. If the death benefits paid during any year are in excess of the amount available in the County Advance Reserve for Death Benefits, the additional amounts required should be transferred from the Advance Reserve for Prior Service benefits.

Comments

It is apparent that there has been a marked reduction in the contribution rate to be made by the County, as compared to that recommended five years ago. Two factors in particular have contributed to this reduction. One important factor in bringing about this reduction has been the increased interest return on the investment funds of the System. In the second place, during the five-year period over which the investigation extended, the active membership in the System has increased from 1547 members to 2108 members. Most of this increase has been at the younger ages. In fact, almost 60% of all of the present members have been employed within the last five years. Because the average age of this group is lower than that of the entire membership, this has resulted in a lower aggregate rate on the entire group. In addition, since this group of new entrants has no prior service benefits, the funding of the prior service benefits on the older employees is spread over a larger total salary base, which also tends to reduce the rate when expressed as a percentage of all salaries.

In our opinion, with the adoption by the County of the recommendations made in this section, the System will continue to be maintained on a sound actuarial basis, in accordance with the provisions of the 1937 County Law.

SECTION VI
STATISTICAL SECTION
List of Schedules

- No. 1 Number of Active Members and Total Monthly Salaries by Sex and Attained Age.
- No. 2 Number of Active Members and Total Monthly Salaries by Sex and Years of Service.
- No. 3 Number of Retired Members and Annual Allowances Being Paid.
- No. 4 Probabilities of Separation from System - Male.
- No. 5 Probabilities of Separation from System - Females.
- No. 6 Rates of Mortality after Service Retirement.
- No. 7 Rates of Mortality after Disability Retirement.
- No. 8 Salary Scales.

SCHEDULE 1

Number of Members and Total Monthly Salaries
by Sex and Attained Age

Attained Age	MALE		FEMALE		TOTAL	
	No.	Salary	No.	Salary	No.	Salary
19	3	\$ 729	17	\$ 3,889	20	\$ 4,618
20	2	424	17	4,085	19	4,509
21	8	2,103	17	4,397	25	6,500
22	6	1,655	33	8,999	39	10,654
23	12	3,948	34	9,180	46	13,128
24	6	1,851	34	10,112	40	11,963
25	11	3,444	25	7,508	36	10,952
26	19	5,760	26	7,447	45	13,207
27	23	7,641	17	5,187	40	12,828
28	26	9,337	13	3,681	39	13,018
29	29	10,269	15	4,316	44	14,585
30	24	9,249	13	3,515	37	12,764
31	21	7,613	20	6,429	41	14,042
32	29	10,556	34	9,997	63	20,553
33	38	15,419	29	8,635	67	24,054
34	34	14,248	21	6,263	55	20,511
35	30	11,899	22	6,272	52	18,171
36	32	12,378	34	10,119	66	22,497
37	25	10,489	33	9,441	58	19,930
38	26	11,138	24	7,238	50	18,376
39	20	8,841	28	8,205	48	17,046
40	24	10,206	25	6,963	49	17,169
41	26	9,946	27	7,845	53	17,791
42	28	10,777	31	9,170	59	19,947
43	20	8,614	36	10,345	56	18,959
44	25	9,814	30	8,993	55	18,807
45	22	8,813	34	9,712	56	18,525
46	21	9,239	27	7,546	48	16,785
47	24	9,878	25	8,518	49	18,396
48	18	6,995	27	8,216	45	15,211
49	28	11,819	39	11,640	67	23,459
50	26	10,647	26	8,294	52	18,941
51	22	8,369	38	11,516	60	19,885
52	21	8,045	24	6,934	45	14,979
53	19	7,709	23	7,353	42	15,062
54	13	4,729	26	8,569	39	13,298

SCHEDULE 1

Number of Members and Total Monthly Salaries
by Sex and Attained Age
(Continued)

Attained Age	<u>MALE</u>		<u>FEMALE</u>		<u>TOTAL</u>	
	No.	Salary	No.	Salary	No.	Salary
55	18	\$ 6,864	17	\$ 6,235	35	\$ 13,099
56	20	6,844	23	7,105	43	13,949
57	22	7,993	17	5,337	39	13,330
58	12	4,013	19	6,137	31	10,150
59	22	8,301	17	5,045	39	13,346
60	13	5,122	14	4,002	27	9,124
61	20	7,738	16	5,320	36	13,058
62	20	7,463	11	3,394	31	10,857
63	13	4,769	10	3,379	23	8,148
64	10	3,598	7	1,950	17	5,548
65	17	6,107	9	2,597	26	8,704
66	7	3,290	5	1,414	12	4,704
67	10	3,977	7	2,128	17	6,105
68	6	2,182	4	1,273	10	3,455
69	7	1,514	8	2,172	15	3,686
70	1	475	1	273	2	748
	979	\$374,841	1129	\$334,290	2108	\$709,131

SCHEDULE 2

Number of Members and Total Monthly Salaries
by Sex and Years of Service

	<u>MALE</u>		<u>FEMALE</u>		<u>TOTAL</u>	
<u>Years of Service</u>	<u>No.</u>	<u>Salary</u>	<u>No.</u>	<u>Salary</u>	<u>No.</u>	<u>Salary</u>
0	128	\$ 42,408	198	\$ 51,259	326	\$ 93,667
1	100	31,583	166	44,619	266	76,202
2	84	30,116	123	35,689	207	65,805
3	125	45,808	157	46,061	282	91,869
4	64	26,703	97	28,089	161	54,792
5	72	28,546	69	21,854	141	50,400
6	93	37,021	49	15,394	142	52,415
7	56	22,707	57	18,518	113	41,225
8	56	24,008	26	8,651	82	32,659
9	39	15,859	26	8,562	65	24,421
10	33	13,442	20	6,553	53	19,995
11	23	10,391	13	3,856	36	14,247
12	7	2,474	11	3,764	18	6,238
13	6	2,240	13	4,114	19	6,354
14	7	3,684	19	6,075	26	9,759
15	8	3,895	10	3,273	18	7,168
16	10	4,190	5	2,088	15	6,278
17	7	3,138	3	996	10	4,134
18	11	5,186	5	1,652	16	6,838
19	4	2,678	7	2,624	11	5,302
20	3	1,388	4	1,390	7	2,778
21	5	2,077	11	4,325	16	6,402
22	7	2,765	2	648	9	3,413
23	6	2,436	7	2,490	13	4,926
24	3	1,469	3	1,128	6	2,597
25			4	1,130	4	1,130
26	7	2,190	6	2,425	13	4,615
28	1	258	2	944	3	1,202
29	1	258	2	836	3	1,094
30			3	1,328	3	1,328
31			2	725	2	725
32	3	1,145	2	644	5	1,789
33	2	1,032			2	1,032
34	2	1,203	2	731	4	1,934
35	2	902	2	593	4	1,495
36	3	991	3	1,262	6	2,253
39	1	650			1	650
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	979	\$374,841	1129	\$334,290	2108	\$709,131

SCHEDULE 4

Probabilities of Separation from the System

(Number separating at each age per 10,000 working at that age)

Male

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Service</u>
20	1,848	9		
21	1,732	10		
22	1,560	10		
23	1,386	10		
24	1,253	11		
25	1,175	11		
26	1,099	12		
27	1,027	12		
28	970	12		
29	913	13		
30	855	13	1	
31	796	14	1	
32	746	14	1	
33	698	15	2	
34	664	15	2	
35	630	16	2	
36	601	18	3	
37	584	20	3	
38	568	22	3	
39	547	24	4	
40	525	26	4	
41	514	30	5	
42	504	34	7	
43	494	38	9	
44	483	42	11	
45	472	47	13	
46	457	53	16	
47	436	59	18	
48	404	65	21	
49	362	72	23	

SCHEDULE 4

Probabilities of Separation from the System

(Number separating at each age per 10,000 working at that age)

Male
Continued

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Service</u>
50	326	79	25	
51	306	86	27	
52	286	93	29	
53	271	100	31	
54	258	108	32	
55	239	117	35	200
56	205	127	38	100
57	155	138	40	100
58	100	149	42	100
59	48	160	45	150
60		172		200
61		136		200
62		146		200
63		156		200
64		166		250
65		178		400
66		194		400
67		208		500
68		222		500
69		240		1,000
70				10,000

SCHEDULE 5

Probabilities of Separation from the System

(Number separating at each age per 10,000 working at that age)

Female

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Service</u>
20	3,150	3		
21	2,980	3		
22	2,820	3		
23	2,660	3		
24	2,510	4		
25	2,370	5		
26	2,230	5		
27	2,110	6		
28	1,990	6		
29	1,880	6		
30	1,780	6	2	
31	1,680	6	2	
32	1,580	6	2	
33	1,480	7	2	
34	1,400	7	2	
35	1,320	8	2	
36	1,188	10	2	
37	1,062	13	2	
38	944	14	2	
39	840	15	2	
40	742	16	2	
41	698	17	2	
42	660	18	3	
43	622	19	4	
44	585	20	4	
45	555	22	5	
46	525	24	6	
47	495	26	6	
48	465	28	7	
49	442	30	8	

SCHEDULE 5

Probabilities of Separation from the System

Number separating at each age per 10,000 working at that age)

Female Continued

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Service</u>
50	420	32	8	
51	398	34	9	
52	371	36	10	
53	351	39	11	
54	333	42	12	
55	313	46	13	1,000
56	251	50	15	100
57	160	54	16	100
58	76	57	18	200
59	38	60	20	300
60		63		350
61		67		350
62		70		350
63		73		400
64		76		400
65		80		400
66		85		500
67		91		500
68		97		500
69		104		1,500
70				10,000

SCHEDULE 6

Mortality after Service Retirement

(Number dying at each age per 10,000 living at that age)

<u>Age</u>	<u>Male</u>	<u>Female</u>
55	184	93
56	193	100
57	203	108
58	215	116
59	227	126
60	240	134
61	255	147
62	271	159
63	288	172
64	307	186
65	328	201
66	350	218
67	374	236
68	401	256
69	430	278
70	462	302
71	496	328
72	533	356
73	573	386
74	617	420
75	665	456
76	717	495
77	773	538
78	834	584
79	900	635

(Continued on next page)

SCHEDULE 6

Mortality after Service Retirement

(Number dying at each age per 10,000 living at the age)
(Continued)

<u>Age</u>	<u>Male</u>	<u>Female</u>
80	972	690
81	1050	749
82	1134	813
83	1224	883
84	1323	959
85	1428	1040
86	1542	1129
87	1665	1224
88	1797	1328
89	1938	1439
90	2090	1558
91	2252	1687
92	2425	1825
93	2610	1974
94	2807	2132
95	3015	2302
96	3236	2483
97	3470	2676
98	3714	2881
99	3972	3098
100	4241	3327
101	4517	3570
102	4808	3822
103	5129	4090
104	5379	4365
105	5738	4653
106	6154	4941
107	6000	5253
108	7500	5574
109	10000	5926
110		6364
111		10000

SCHEDULE 7

Mortality after Disability Retirement

(Number dying at each age per 10,000 living at that age)

<u>Age</u>	<u>Number Dying</u>	<u>Age</u>	<u>Number Dying</u>
25	391	55	416
26	344	56	426
27	329	57	436
28	319	58	448
29	315	59	462
30	314	60	476
31	315	61	491
32	316	62	507
33	318	63	525
34	319	64	544
35	321	65	563
36	323	66	586
37	325	67	612
38	327	68	635
39	329	69	664
40	332	70	694
41	335	71	725
42	338	72	759
43	341	73	796
44	345	74	836
45	349	75	879
46	354	76	925
47	359	77	976
48	364	78	1029
49	370	79	1085
50	376		
51	383		
52	390		
53	398		
54	406		

SCHEDULE 8

Salary Scales

<u>Attained Age</u>	<u>Male</u>	<u>Female</u>	<u>Attained Age</u>	<u>Male</u>	<u>Female</u>
20	.709	.778	45	.976	1.000
21	.724	.792	46	.980	1.000
22	.737	.806	47	.985	1.000
23	.752	.822	48	.989	1.000
24	.765	.836	49	.991	1.000
25	.778	.850	50	.993	1.000
26	.791	.861	51	.996	1.000
27	.804	.875	52	.998	1.000
28	.817	.886	53	.998	1.000
29	.830	.897	54 and over	1.000	1.000
30	.843	.908			
31	.857	.917			
32	.870	.928			
33	.880	.936			
34	.891	.944			
35	.902	.953			
36	.911	.958			
37	.920	.964			
38	.928	.969			
39	.937	.975			
40	.946	.981			
41	.952	.986			
42	.959	.992			
43	.965	.994			
44	.972	.997			