



STATE OF ALASKA
TEACHERS' RETIREMENT SYSTEM

Actuarial Valuation
as of
June 30, 1980

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Benefit Services / Consulting Actuaries

SUMMARY

In accordance with your request, we have completed a valuation of the Alaska Teachers' Retirement System as of June 30, 1980. The principal results of the actuarial valuation are presented in this summary and analysis; the two sections which follow are meant to provide the necessary supporting details.

Section 1 presents the fundamental information on which the valuation was based. Included is a summary of plan provisions, information about plan participants, and disclosure of the actuarial method and assumptions used.

Section 2 presents the detailed actuarial valuation results. Its subsections present a step-by-step derivation of the recommended contribution. In addition, information requested by the auditors of the Retirement System is presented.

The purposes of an actuarial valuation are:

1. To examine the status of funding of the Plan, and
2. To determine the contribution rates for the State for each school district in the System.

The most significant results of the valuation are as follows:

	<u>1979</u>	<u>1980</u>
(1) Status of Funding as of June 30		
(a) Valuation Assets	\$266,006,982	\$311,417,814
(b) Present Value of Accrued Benefits	370,196,776	465,722,763
(c) Accrued Benefit Funding Ratio	71.9%	66.9%
(2) Contributions For Fiscal Year		
(a) Normal Cost Rate	11.86%	11.95%
(b) Past Service Rate	3.72%	4.89%
(c) Total Contribution Rate	15.58%	16.84%

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions, in conjunction with employee data provided to us, to determine a sound value for the Plan liabilities. I certify that, to the best of my knowledge and belief, the attached statements are true and correct.

Respectfully submitted,



Robert F. Richardson, MAAA
Vice President

RFR:jn

October 8, 1980

ANALYSIS OF THE VALUATION

Actuarial Method and Assumptions

This year's actuarial valuation report is based upon the same actuarial method and assumptions as used in last year's report. Most of these assumptions were adopted at the Spring Board Meeting of the State of Alaska Teachers Retirement System in March of 1978. In recognition of the greater cost now associated with the post-retirement medical insurance, a new method of funding this method was adopted last year. It is our recommendation that no changes in actuarial methods or assumptions be made at this time.

Contribution Rate Increases

As the prior summary shows, there was a very large increase in the total contribution rate this year. There were several factors which led to this very large, 1.26% increase in the total contribution rate.

Medical Premiums

Of greatest importance was the very large increase in the premium to fund post-retirement medical insurance. During the year there was a 38% increase in medical insurance premiums from \$64.70 per month per retiree to \$89.29 per month. This factor alone caused the total contribution rate to increase by .47%. This unquestionably represents the largest percentage increase in medical premiums ever experienced by TRS. As medical costs continue to rise, so does the value of this benefit. Due to the existence of Medicare, the value of this benefit

is much less for retirees who are over age 65 than for those who are under age 65. Consequently, a large increase in early retirements will tend to increase the cost of this medical coverage. As can be seen in Section 1.3, there were 68 early retirements during the year, more than double the number of early retirements which have occurred in either of the last two years.

Legislative Changes

Passage of Senate Bill 26 increased the total contribution rate by .16% of payroll. The ad hoc Post-Retirement Pension Adjustments which became effective July 1, 1980, increase the total contribution rate by .14%. Consequently, legislative changes during the year caused the total contribution rate to increase by .30% of payroll.

Investment Performance

On June 30, 1979, the market value of the fund was \$3.4 million greater than the book value. However, as of June 30, 1980, the market value was \$21.4 million below book value, or a swing of \$24.8 million. In order to smooth out market value gyrations, the three-year average ratio between market and book values is used in order to determine valuation assets. However, even with this smoothing technique, valuation assets were \$11.3 million less than would be anticipated. This drop in market values relative to book values resulted in an increase in the total contribution rate of .36% of TRS payroll.

Other Factors Affecting Costs

Although there are many factors which affect the total contribution rate, the factors enumerated above were responsible for 1.13% out of the total 1.26% increase. The remaining .13% increase is the net result of all other factors. Perhaps of greatest importance of these other factors is the large increase in average age. As can be seen in Section 1.2, the average age increased from 37.69 to 38.10. This .41-year increase continues the trend that was established back in 1977. An increase in average age will increase costs for two reasons. First of all, the present value of retirement benefits increases as employees get closer to retirement. Secondly, with increases in age, there is a shorter period over which to fund the retirement benefits. In other words, with an increase in average age, a larger liability must be funded over a shorter period of time . . . thus leading to an increase in the contribution rate. Consistent with the increase in average age is the steady increase in average service which has been experienced by TRS.

Funding Progress

As the prior summary shows, the accrued benefit funding ratio decreased from 71.9% down to 66.9%. All of the factors enumerated above which lead to increases in total contribution rates also contributed to the decrease in the funding ratio. In other words, legislative changes, the ad hoc post-retirement pension adjustments, and even the slight increase in average age and service all contributed to increased liabilities while the decrease in market values of the

Plan's assets lowered valuation assets. A decrease of this magnitude would be a matter of great concern if the reasons for the decrease were not known. While a drop of this magnitude is not encouraging, undue emphasis should not be placed on one year's results.

Retirement Statistics

As can be seen in Section 1.3, the number of normal retirements decreased from 108 down to 85. At the same time, the average age of those retiring under the normal retirement provisions increased by almost three years from 57.06 to 59.98. Both of these changes tend to reflect the impact of inflation on retirement plans. Somewhat contrary to this trend is the increase in the number of early retirements from 31 to 68. However, some of these early retirements stem from teachers who terminated long ago with vested benefits.

Conclusions

It is our conclusion that the State of Alaska Teachers' Retirement System is being funded in a satisfactory manner. During the past year, there were many events which all lead to an increase in the total contribution rate and a decrease in the accrued benefit funding ratio. Quite often, actuarial losses in one area will be balanced by actuarial gains in another. However, during the last year actuarial losses occurred from virtually all sources.

SECTION 1
THE BASIS OF THE VALUATION

The foundation of an actuarial valuation is the information and assumptions used in preparing it. In this section, the salient Plan provisions, employee census data, and actuarial methods and assumptions used in preparing the valuation are outlined.

1.1 BRIEF OUTLINE OF THE
ALASKA TEACHERS' RETIREMENT SYSTEM

(1) Plan

The Teachers' Retirement System of Alaska is a joint contributory retirement system to provide benefits for teachers of the State.

(2) Effective Date

June 30, 1955, as amended through July 1980.

(3) Administration of Plan

The Commissioner of Administration is the administrator of the System; the Alaska Teachers' Retirement Board makes recommendations to the Commissioner of Administration; and the Commissioner of Revenue invests the funds.

(4) Membership

Membership in the Alaska Teachers' Retirement System is compulsory for all eligible certified teachers, certified school nurses, principals, supervisors, superintendents employed on a full-time or part-time basis in public schools in Alaska, the Commissioner of Education, supervisors with the Department of Education, and all full-time resident professional and administrative personnel of the University of Alaska.

(5) Credited Service

A year of membership service is defined to be the same as a school term which is currently a minimum of 172 days, and fractional service credit is on a daily rate basis. Credit is granted for all Alaskan public school service. Credit is granted for all accumulated, unused sick leave days.

(6) Contributions by Teachers

Effective July 1, 1970, each teacher shall contribute 7% of base salary accrued from July 1 to the following June 30.

(7) Voluntary Supplemental Contributions

If a teacher wishes to make his spouse or minor children eligible for a spouse's pension and/or survivor's pension allowance, he may elect to make supplemental contributions of an additional 1% of his base salary commencing not later than 90 days after entry in the System, marriage, or the birth or adoption of a child, or during any open enrollment period authorized by the Board.

(8) Arrearage Contributions

Up to 10 years of public or non-public teaching service, or service by a certificated person in a position requiring certification, in an accredited school not covered under the Teachers' Retirement System, or service in an institution of higher learning not under the control of the Board of Regents of the University of Alaska, is credited for retirement purposes.

After July 1, 1978, the full actuarial cost of providing benefits for this service will be born by the teacher. In addition, teaching services in Alaska B.I.A. schools may be used to increase total outside and Alaska B.I.A. service to 15 years before July 1, 1978. After this date, Alaska B.I.A. service is limited to 5 years.

A maximum of 5 years of military service after December 31, 1939 may be included as outside service. No fractional credit is

granted for outside service. Fractional credit is granted for Alaska B.I.A. service.

(9) Retroactive Contributions

If a teacher was not subject to the provisions of the Retirement Act and, at a later date became subject to them due to legislative changes of the eligibility requirements, the teacher may elect to receive credit for his creditable service prior to membership by submitting to the Retirement Fund an amount equal to the contributions that would have been made if the teacher had been a member of the System for any year's service after June 30, 1955, plus interest thereon. Retroactive contributions are not required for creditable membership service before June 30, 1955.

(10) Employers' and State's Contributions

The employer and the State each contribute an amount equal to one-half of the amount required in addition to member contributions to finance the benefits of the System.

(11) Rate of Interest

The amount deposited in a member account will be credited with interest at the rate established for a school year at the end of such school year. Effective July 1, 1973, the interest rate was increased to 4 1/2%.

(12) Withdrawal of Mandatory Contributions

If a member terminates teaching services in Alaska, mandatory contributions may be withdrawn. A withdrawing teacher will receive total mandatory contributions plus the interest credited.

(13) Reinstatement of Contributions

If Mandatory Contributions are withdrawn and a member subsequently resumes teaching in Alaska, the member will be indebted to the Teachers' Retirement Fund in the amount of the previous contributions to the System including any interest paid. The reinstatement indebtedness bears compound interest at the rate prescribed by regulation to the date of repayment or the date of retirement, whichever occurs first.

(14) Minimum Service Requirements

- (1) 8 years of membership service, or
- (2) 15 years of creditable service, the last five of which have been membership service; (after July 1, 1975 a new member needs 8 years of membership service); or
- (3) 5 years of membership service and 3 years of Alaska B.I.A. service; or
- (4) 25 years of creditable service, the last 5 of which are membership service; or
- (5) 20 years of membership service; or
- (6) 20 years of combined membership service and Alaska B.I.A. service, the last 5 of which are membership service.

(15) Normal Retirement Eligibility

A teacher may retire and receive full benefits

- (1) Upon attaining age 55 and meeting the minimum service requirements; or
- (2) At any age after 25 years of creditable service, the last 5 of which are membership service; or

- (3) At any age after 20 years of membership service; or
- (4) At any age after 20 years of combined membership service and Alaska B.I.A. service, the last 5 of which are membership service.

A retired teacher who has been receiving a disability retirement salary shall be eligible for a service retirement salary upon or after attaining age 55.

(16) Computation of Average Base Salary

A teacher's average base salary is determined by averaging the teacher's highest base salary which he received for any three out of the last 10 years of membership service.

(17) Normal Retirement Benefit

The normal retirement benefit is 2% of the teacher's Average Base Salary multiplied by the total number of years of creditable service.

(18) Early Retirement Benefit

A teacher is eligible for early retirement benefits if he has completed the minimum service requirements and has attained the age of 50. If the teacher does not apply for retirement benefits to start prior to his 55th birthday, he is eligible to receive the normal retirement benefit. If the retiring teacher elects to have payments of the benefit begin prior to his 55th birthday, the annual annuity is equal to his normal retirement benefit based on his average base salary and creditable service to his

retirement date, reduced by one-half of 1% per month for each month by which his age at retirement is less than 55 years.

(19) Deferred Vested Benefit

A teacher is eligible for a deferred vested benefit if he (1) terminates his membership after completing eight years of membership service, and (2) he does not withdraw his retirement contributions. Payment of this benefit is deferred until the first of the month following the teacher's 55th birthday or the first of the month in which the application for benefit is filed, whichever is later.

(20) Indebtedness Owing At Retirement

If on the date of making application for retirement, a teacher has not paid the full amount of his indebtedness including interest to the Retirement Fund, one of the following options may be chosen:

Option 1: The retirement benefit can be withheld until the amount withheld is equal to the outstanding indebtedness.

Option 2: A reduced annuity, completed by deducting 10% of the outstanding indebtedness at the time of retirement from the annual retirement benefit, can be paid to the teacher.

(21) Re-employment of a Retired Teacher

If a retired teacher is re-employed as a full-time teacher, his retirement salary will be suspended during the period of employment.

Retirement Contributions are made at the option of such teacher and an additional retirement benefit may be accrued.

(22) Disability Retirement Benefits

A disability retirement annuity may be paid if a teacher has become permanently disabled before 55 and has at least five years of membership service.

The benefit will be equal to 50% of the disabled teacher's base salary immediately prior to becoming disabled. This benefit will be increased by 10% of the teacher's base salary for each minor child up to a maximum of four minor children until the child ceases to be a minor.

When the disabled teacher attains age 55, the disability salary will automatically terminate. A normal retirement salary will be computed as if the teacher had been in membership service during the period of disability, and a service retirement will be granted.

(23) Cost-of-Living Allowance

A retired teacher whose permanent residence is in Alaska subsequent to retirement and/or whose absence is of a temporary nature, not to exceed 60 days, for travel or vacation purposes is entitled to receive a cost-of-living allowance of 10% of his retirement benefit in addition to his retirement benefit.

(24) Post-Retirement Adjustment

This adjustment is promulgated by regulation and payable to a retired teacher when the administrator determines that the cost of living has increased and the financial condition of the fund

permits payment of the adjustment. The amount of increase shall not exceed 4% compounded for each year on retirement.

(25) Exemption from Taxation and Process

Teachers' retirement benefits are exempt from Alaska state and municipal taxes, are not subject to execution, attachment, garnishment or other process, but must be reported to the Internal Revenue Service for federal tax purposes.

(26) Lump Sum Death Benefit

Upon death of a member who has made no supplemental contributions or who made supplemental contributions for less than one year, a lump-sum benefit shall be paid to the designated beneficiary. The lump-sum benefit is the teacher's accumulated mandatory contributions with interest thereon. If the teacher is in active service at the time of death, an additional death benefit equal to \$1,000 plus \$100 for each year of the first 20 years of completed service plus \$500 if the teacher is survived by one or more minor children is also payable.

If the teacher had received a retirement benefit prior to his death, payment shall be his accumulated contributions, plus interest, minus all benefits paid.

If a member failed to designate a beneficiary, or if no designated beneficiary survives the member, payment shall be made:

- (1) to his surviving spouse or if there is no surviving spouse,

- (2) to his surviving children in equal parts, or if there are none surviving,
- (3) to his surviving parents in equal parts, or, if there are none surviving,
- (4) to his estate.

(27) Survivor's Allowance

If a teacher dies while in service or while receiving a service or disability retirement benefit, is survived by one or more minor children and has made supplemental contributions for at least one year before his death, his surviving spouse is entitled to the survivor's allowance. The amount of the benefit is 35% of the teacher's base salary immediately prior to his death or becoming disabled for his spouse and 10% for each minor child up to a maximum of four.

(28) Spouse's Pension

If a teacher has made supplemental contributions for at least one year and dies while in membership service, or while receiving a disability benefit, or if a teacher has made supplemental contributions for at least 5 years and dies while on retirement or in deferred retirement status, the surviving spouse is entitled to receive the spouse's pension. The amount of the benefit is 50% of the service retirement salary that the deceased teacher was receiving or would have received. The spouse's pension commences the month following the member's death. The payment ceases when the spouse dies or remarries.

1.2 MISCELLANEOUS INFORMATION

AS OF JUNE 30

	<u>Active Members</u>				
	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
(1) Number of Active Members	6,209	7,024	7,255	7,170	7,288
(2) Average Age	37.42	37.20	37.33	37.69	38.10
(3) Average Service to Date	8.95	8.70	8.84	8.97	9.09
(4) Average Annual Salary	\$21,267	\$22,887	\$25,193	\$26,807	\$29,685

	<u>Retirees and Beneficiaries</u>				
(1) Number of Retirees and Beneficiaries	793	891	1,072	1,136	1,245
(2) Average Age	63.55	63.39	62.71	62.95	63.00
(3) Average Monthly Benefit Base	\$ 720	\$ 749	\$ 787	\$ 807	\$ 849
C.O.L.A.	\$ 40	\$ 42	\$ 46	\$ 46	\$ 50
P.R.P.A.	\$ 20	\$ 70	\$ 141	\$ 129	\$ 145
Total	\$ 780	\$ 861	\$ 974	\$ 982	\$1,044

1.3 RETIREMENT STATISTICS

	----- Retirements in Year Ending June 30 -----					
	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
<u>Normal:</u>						
Number	90	106	110	77	108	85
Average Age	60.13	60.61	59.24	55.92	57.06	59.98
Average Benefit	\$794.71	\$917.85	\$931.55	\$1,072.87	\$1,110.18	\$1,263.17
<u>Early:</u>						
Number	6	40	54	20	31	68
Average Age	51.64	51.87	51.71	50.55	50.48	51.48
Average Benefit	\$943.82	\$987.35	\$937.83	\$1,171.76	\$1,268.30	\$1,238.22
<u>Disability:</u>						
Number	5	10	9	8	9	3
Average Age	49.64	46.33	47.41	46.56	48.03	48.76
Average Benefit	\$1,006.97	\$1,012.53	\$1,674.55	\$1,289.71	\$1,546.41	\$1,798.73
<u>Survivor:</u>						
Number	3	1	5	5	12	8
Average Age	57.49	35.71	55.59	48.45	49.85	58.25
Average Benefit	\$625.89	\$1,172.44	\$577.78	\$1,110.36	\$549.63	\$601.75
<u>Total:</u>						
Number	104	157	178	110	160	164
Average Age	59.06	57.31	56.26	53.92	54.74	56.16
Average Benefit	\$811.54	\$943.21	\$961.09	\$1,108.32	\$1,123.32	\$1,230.36

----- ANNUAL EARNINGS BY AGE-----			----- ANNUAL EARNINGS BY SERVICE-----		
AGE GROUP	NUMBER OF PEOPLE	TOTAL ANNUAL EARNINGS	SERVICE GROUP	NUMBER OF PEOPLE	TOTAL ANNUAL EARNINGS
0-19	0	0.	0-4	268	7232992.
20-24	112	2185617.	5-9	1943	58965028.
25-29	1339	33076892.	10-14	1443	47563456.
30-34	1651	43815868.	15-19	580	20548204.
35-39	1530	46958564.	20-24	166	6192126.
40-44	1125	36579580.	25-29	39	1551198.
45-49	743	25600276.	30-34	8	300460.
50-54	446	15977141.	35-39	0	0.
55-59	228	8104102.	40+	0	0.
60-64	92	3363962.	TOTAL	7288	216342528.
65-69	16	507885.			
70-74	6	172450.			
75-79	0	0.			
80+	0	0.			
TOTAL	7288	216342336.			

SERVICE GROUPS BY AGE GROUPS

AGE GROUP	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19	0	0	0	0	0	0	0	0	0	0
20-24	112	0	0	0	0	0	0	0	0	112
25-29	1176	163	0	0	0	0	0	0	0	1339
30-34	785	692	174	0	0	0	0	0	0	1651
35-39	452	485	518	75	0	0	0	0	0	1530
40-44	272	262	354	216	21	0	0	0	0	1125
45-49	149	171	206	157	56	4	0	0	0	743
50-54	91	93	112	77	55	17	1	0	0	446
55-59	49	53	57	38	16	13	2	0	0	228
60-64	17	20	17	16	13	4	5	0	0	92
65-69	4	3	5	0	3	1	0	0	0	16
70-74	2	1	0	1	2	0	0	0	0	6
75-79	0	0	0	0	0	0	0	0	0	0
80+	0	0	0	0	0	0	0	0	0	0
TOTAL	3109	1943	1443	580	166	39	8	0	0	7288

1.4 ACTUARIAL METHOD AND ASSUMPTIONS

Valuation of Liabilities

- A. Actuarial Method - Attained Age Normal, also known as Aggregate Method with Supplemental Liability. The unfunded accrued benefit liability is amortized over 30 years.
- B. Actuarial Assumptions -
1. Interest 6% per year, compounded annually, net of investment expenses.
 2. Salary Scale 6% per year until age 39 and 5% per year for ages 40 and up.
 3. Mortality 1971 Group Annuity Mortality Table.
 4. Turnover Based upon the 1976-77 actual total turnover experience. (See Table 1).
 5. Disability Incidence rates in accordance with Table 2. Post-disability mortality in accordance with rates published by the Pension Benefit Guaranty Corporation to reflect mortality of those receiving disability benefits under Social Security.
 6. Retirement Age The average of age 60 and the earliest age for which unreduced retirement benefits will be available.
 7. Spouse's Age Wives are assumed to be four years younger than husbands.
 8. Contribution Refunds 85% of those terminating before age 50 with 8 to 12 years of service will leave their contributions and thereby retain their deferred vested benefit. All others who terminate after becoming vested are assumed to keep their contributions in the System.
 9. C.O.L.A. 49% of those receiving retirement benefits will be eligible for C.O.L.A.
 10. Sick Leave 4.7 days of sick leave will be available for each year of service.
 11. Expenses No loading for expenses.

Valuation of Assets

Based upon the three-year average ratio between market and book values of the System's assets.

Valuation of Medical Benefits

Medical benefits for retirees are provided by the payment of premiums from the trust fund. A pre-65 cost and lower post-65 cost (due to Medicare) were assumed such that the total rate for all retirees equals the present premium rate. These medical premiums are then funded with the same actuarial method as other retirement benefits.

TABLE 1
TEACHERS' RETIREMENT SYSTEM
STATE OF ALASKA
EMPLOYEE TURNOVER RATES

<u>Age</u>	<u>Male</u>	<u>Female</u>
20	.0600	.0600
21	.0582	.0607
22	.0563	.0614
23	.0537	.0623
24	.0511	.0669
25	.0485	.0715
26	.0456	.0761
27	.0432	.0809
28	.0448	.0888
29	.0464	.0967
30	.0480	.1046
31	.0496	.1125
32	.0510	.1204
33	.0562	.1200
34	.0614	.1195
35	.0666	.1190
36	.0718	.1195
37	.0769	.1181
38	.0791	.1109
39	.0813	.1037
40	.0835	.0965
41	.0857	.0893
42	.0880	.0823
43	.0882	.0800
44	.0884	.0777
45	.0886	.0754
46	.0888	.0731
47	.0889	.0714
48	.0890	.0707
49	.0880	.0700
50 and up	.0870	.0700

TABLE 2
 TEACHERS' RETIREMENT SYSTEM
 STATE OF ALASKA
 DISABILITY RATES
 ANNUAL RATES PER 1,000 EMPLOYEES

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.70	45	1.62
21	.71	46	1.76
22	.72	47	1.91
23	.73	48	2.07
24	.74	49	2.23
25	.75	50	2.40
26	.76	51	2.60
27	.78	52	2.86
28	.80	53	3.18
29	.82	54	3.56
30	.84	55	4.00
31	.86	56	4.59
32	.88	57	5.34
33	.90	58	6.10
34	.93	59	7.20
35	.96	60	8.43
36	.99	61	9.75
37	1.03	62	11.30
38	1.07	63	13.05
39	1.11	64	14.90
40	1.15		
41	1.20		
42	1.27		
43	1.36		
44	1.48		

SECTION 2
DETAILED VALUATION RESULTS

This section presents in detail the results of the actuarial valuation that were outlined in the Summary.

2.1 DISTRIBUTION OF ASSETS
AS OF JUNE 30, 1980

	<u>Book Value</u>	<u>Market Value</u>
Cash	\$ 66,619	\$ 66,619
Repurchase Agreements	8,910,000	8,910,000
Short Term Issues	31,982,222	33,448,630
Intermediate/Long Term Issues:		
Government	92,415,126	84,593,217
Other	28,767,299	24,369,213
Common Stock	32,997,712	35,718,963
Loans & Mortgages	123,051,589	109,688,233
Alaska Savings Certificates	<u>200,000</u>	<u>200,000</u>
Total Assets	\$318,390,567	\$296,994,875

2.2 DEVELOPMENT OF VALUATION ASSETS

AS OF JUNE 30, 1980

	<u>Market Value</u>	<u>Book Value</u>	<u>Ratio (M/B)</u>
(1) June 30, 1980	\$296,994,875	\$318,390,567	.9328
(2) June 30, 1979	265,835,222	262,437,828	1.0129
(3) June 30, 1978	212,888,370	215,370,551	.9885
(4) Average Ratio			.9781
(5) Book Value at June 30, 1979			\$318,390,567
(6) Valuation Assets at June 30, 1979 (4) x (5)			\$311,417,814

2.3 BREAKDOWN OF PRESENT VALUE
OF BENEFITS

	<u>Present Value of Accrued Benefit</u>	<u>Present Value of Fully Projected Benefit</u>
Retirement Benefits	\$135,709,936	\$340,918,208
Termination Benefits	111,858,128	250,063,600
Death Benefits	4,103,353	7,674,955
Disability Benefits	9,561,438	13,875,274
Liability for Inactive Members	<u>26,955,476</u>	<u>26,955,476</u>
 Total Present Value of Benefits for all Non-Retired Members	 <u>\$288,188,331</u>	 <u>\$639,487,513</u>
 Present Value of Benefits for Retirees	 \$177,534,432	 \$177,534,432
 Total Present Value of Benefits	 <u>\$465,722,763</u>	 <u>\$817,021,945</u>

2.4 DEVELOPMENT OF NORMAL COST RATE
FOR FISCAL YEAR 1981-82

(1) Present Value of Fully Projected Benefits	\$817,021,945
(2) Present Value of Accrued Benefits	465,722,763
(3) Present Value of Future Member Contributions	121,891,304
(4) Present Value of Future Supplemental Contributions	4,917,507
(5) Present Value of Arrearage Indebtedness	14,781,824
(6) Present Value of Future Consolidated Employer Contributions (1) - (2) - (3) - (4) - (5)	209,708,547
(7) Present Value of Future Salaries	1,754,296,026
(8) Normal Cost Rate (6) ÷ (7)	11.95%

2.5 CALCULATION OF TOTAL CONTRIBUTION RATE
FOR FISCAL YEAR 1981-82

(1) Present Value of Accrued Benefits	\$465,722,763
(2) Valuation Assets	311,417,814
(3) Total Unfunded Liability	154,304,949
(4) 30-Year Amortization Factor	14.590721
(5) Past Service Payment	10,575,553
(6) Total Salaries	216,343,184
(7) Past Service Rate	4.89%
(8) Normal Cost Rate	11.95%
(9) Total Employer Contribution Rate	16.84%