



STATE OF ALASKA  
TEACHERS' RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT  
AS OF JUNE 30, 1986

Prepared by  
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HIGHLIGHTS

This report has been prepared by William M. Mercer-Meidinger, Incorporated to:

- (1) present the results of a valuation of the Alaska Teachers' Retirement System as of June 30, 1986;
- (2) review experience under the plan for the year ended June 30, 1986;
- (3) determine the contribution rates for the State and for each school district in the system;
- (4) provide reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

The report is divided into two sections. Section 1 describes the basis of the valuation. It summarizes the plan provisions, provides information relating to the plan participants, and describes the funding methods and actuarial assumptions used in determining liabilities and costs.

Section 2 contains the results of the valuation. It includes the experience of the plan during the 1985-86 plan year, the current annual costs, and reporting and disclosure information.

The principle results are as follows:

Funding Status as of June 30:	<u>1985**</u>	<u>1986</u>
(a) Valuation Assets*	\$ 833,617	\$1,040,173
(b) Present Value of Accrued Benefits*	1,021,533	1,115,773
(c) Accrued Benefit Funding Ratio, (a)/(b)	81.6%	93.2%
 Contributions for Fiscal Year	 <u>1987 &amp; 1988</u>	 <u>1989</u>
(a) Normal Cost	9.02%	9.36%
(b) Past Service Rate	4.26%	1.80%
(c) Total Contribution Rate	13.28%	11.16%

\* In thousands.

\*\* After change in assumptions.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions, in conjunction with employee data provided to us by the plan sponsor and financial information provided by the audited report from Peat, Marwick, Mitchell and Company, to determine a sound value for the plan liabilities. We believe that this value and the method suggested for funding it are in full compliance with the Governmental Accounting Standards Board, the Internal Revenue Code, and all applicable regulations.

Respectfully submitted,

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March 27, 1987

## ANALYSIS OF THE VALUATION

### Investment Performance

During the 1986 fiscal year, the investment return rate, based upon market values, was even greater than last year's recordsetting performance. During the most recent plan year, the market value investment return rate was 24.6%. Using the three-year smoothing approach, valuation assets returned 17.6% during the year . . . thus leading to a very large actuarial gain from investment sources. This actuarial gain was primarily responsible for the large drop in the past service rate and the large increase in the accrued benefit funding ratio.

### Health Inflation

For the second year in a row, there has been a decrease in the monthly premium to provide retiree health coverage under the TRS. For FY87, the premium is \$165 per month, down from \$168.25 from a year ago. Thus, there was a significant actuarial gain from the health inflation assumption for the first time in FY86.

### Membership Statistics

As we have discussed for the last few years, there has been a steady trend upward in the average age of TRS members. For the 8.5-year period from January 1, 1977 to June 30, 1986, the average annual increase has been .34 years. In the most recent year, the increase was much larger than even this average, with an increase of .44 years. This increase in average age tends to increase costs, especially the normal cost. For the first time in several years, average credited service had a measurable increase, going from 9.54 years to 9.81 years. Salary increases last year were somewhat more, on average, than in prior years, with an increase of 7.76%.

### Retiree Statistics

The number of new retirees during FY86 dropped down to 189, much fewer than the year before, but more in keeping with the statistics in prior years. Perhaps of greatest significance was the 1.11 increase in average age at retirement for the service retirements. A year ago, the average age at retirement for a service retirement was 54.95, while this year it increased to 56.06.

### Conclusions

For the second straight year, investment performance has been instrumental in increasing the funding ratio and decreasing costs for the TRS. Also, there were significant actuarial gains generated from the less-than-anticipated retiree health insurance premium. The retirement incentive program (RIP) will probably result in significant changes in the demographic makeup of the average TRS member. In

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general, a decrease in average age will lead to a decrease in the normal cost rate. As before, the most important factor will be the investment performance of the fund. With another excellent year like we have experienced during the last two, the Teachers' Retirement System might achieve full funding.

Section 1  
BASIS OF THE VALUATION

In this section, the basis of the valuation is presented and described. This information--the provisions of the plan and the census of participants--is the foundation of the valuation, since these are the present facts upon which benefit payments will depend.

A summary of plan provisions is provided in Section 1.1 and participant census information is shown in Section 1.2.

The valuation is based upon the premise that the plan will continue in existence, so that future events must also be considered. These future events are assumed to occur in accordance with the actuarial assumptions and concern such events as the earnings of the fund, the number of participants who will retire, die, terminate their services, their ages at such termination and their expected benefits.

The actuarial assumptions and the actuarial cost method, or funding method, which have been adopted to guide the sponsor in funding the plan in a reasonable and acceptable manner, are described in Section 1.3.

Section 1.1  
SUMMARY 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 June 30, 1986.

(3) Administration of Plan

The Commissioner of Administration appoints 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 each certificated elementary or secondary teacher, certificated school nurse, and other certificated personnel who are employed on a full-time or part-time basis in a position which requires a teaching certificate as a condition of employment in the public schools of Alaska, the Commissioner of Education, supervisors within the Department of Education, and all full-time or part-time teachers of the University of Alaska and administrative personnel occupying a full-time position at the University of Alaska which requires academic standing and is approved by the Administrator. Certain State legislators may also elect to be eligible for membership.

(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 accrued, unused sick leave as reflected by the records of the last employer once a member has been on retirement an equal amount of time, meets eligibility requirements and has completed an application for the credit.

(6) Contributions by Teachers

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

(7) Voluntary Supplemental Contributions

If a teacher who first joined the system before July 1, 1982 wishes to make his or her spouse or minor children eligible for a spouse's pension and/or survivor's pension allowance, the teacher may elect to make supplemental contributions of an additional 1% of base salary commencing not later than 90 days after marriage, or the birth or adoption of a child, or upon re-entry into the system provided there was at least a twelve (12) month break in service.

(8) Arrearage Contributions

Up to ten 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, may be credited for retirement purposes. For teachers first hired after July 1, 1978, the full actuarial cost of providing benefits for the service will be borne by the teacher. No fractional credit is granted for outside service.

Service as a teacher, a certificated person employed in a full-time position requiring a teaching certificate, or a professional educator, in an Alaska B.I.A. school or school system may be credited for retirement purposes. Contributions are required for service which is claimed. There is no limit on the amount of Alaska B.I.A. service that may be claimed. Fractional credit is granted for Alaska B.I.A. service and military service.

A maximum of five years of military service may be credited for retirement purposes; however, the maximum outside and military service credit may not exceed ten years, unless entry into the military is immediately preceded by TRS service and following discharge is continued by TRS service within one year. Contributions are required for service which is claimed. Fractional credit is granted for military 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 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 July 1, 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 June 30, 1974, 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. Upon request, a terminated teacher will receive a refund of the balance of the member contribution account.

(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 total refund. 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) Normal Retirement Eligibility

Meeting the requirement of either (a) or (b) below:

(a) Upon attaining age 55 and meeting one of the following service requirements:

- (1) Eight years of fully-paid membership service, or
- (2) 15 years of fully-paid creditable service, the last five of which have been membership service; (after July 1, 1975 a new member needs eight years of fully-paid membership service); or
- (3) Five years of fully-paid membership service and three years of fully-paid Alaska B.I.A. service;

or;

(b) At any age after meeting one of the following service requirements:

- (1) 25 years of fully-paid creditable service, the last five of which are membership service; or
- (2) 20 years of fully-paid membership service; or
- (3) 20 years of fully-paid combined membership service and Alaska B.I.A. service, the last five of which are membership service.
- (4) has at least one-half year of membership service as a part-time teacher for each of 20 school years.

A retired teacher who has been receiving a disability retirement benefit shall be eligible for a service retirement benefit upon or after satisfying normal retirement eligibility.

(15) Early Retirement Eligibility

Upon attaining age 50 and meeting one of the following service requirements:

- (1) Eight years of fully-paid membership service, or
- (2) 15 years of fully-paid creditable service, the last five of which have been membership service; (after July 1, 1975 a new member needs eight years of fully-paid membership service); or
- (3) Five years of fully-paid membership service and three years of fully-paid Alaska B.I.A. service.

(16) Computation of Average Base Salary

A teacher's average base salary is determined by averaging the teacher's highest base salary which the teacher received for any three 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 who meets the service requirements for normal retirement, but not the age requirements, may elect to have reduced payments commence as early as age 50. The reduced Early Retirement Benefit is equal to the actuarial equivalent of the normal retirement benefit.

(19) 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, the retirement benefit will be reduced for life by an amount equal to the actuarial equivalent of the outstanding indebtedness at the time of retirement.

(20) Re-employment of a Retired Teacher

If a retired teacher is reemployed in a position covered under the System, the retirement benefit will be suspended during the period of reemployment.

During such period of reemployment, retirement contributions are mandatory.

(21) Disability Retirement Benefits

A disability retirement benefit 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 40%.

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

(22) Cost-of-Living Allowance

An eligible retired teacher who remains in Alaska is entitled to receive an additional cost-of-living allowance equal to 10% of the base retirement benefit.

(23) Post-Retirement Pension Adjustment

When the administrator determines that the cost of living has increased and that the financial condition of the retirement fund permits, all retirement benefits may be increased. The amount of the increase shall be not more than 4% compounded for each year of retirement, or the cost-of-living increase since the date of retirement, reduced by prior Post-Retirement Pension Adjustments.

(24) Lump Sum Death Benefit

Upon a non-occupational death of a member who has made no supplemental contributions or who made supplemental contributions for less than one year and has completed less than one year of membership service, a lump-sum benefit shall be paid to the designated beneficiary. The lump-sum benefit is the teacher's accumulated member contribution account. If the teacher is in active service at the time of death after completing at least one year of membership service but before becoming a vested member, an additional death benefit equal to \$1,000 plus \$100 for each year of membership service (the total not to exceed \$3,000), 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.

(25) 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 40%.

(26) 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 five 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 benefit 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.

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Section 1.2(a)  
MISCELLANEOUS INFORMATION AS OF JUNE 30

	<u>Active Members</u>				
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
(1) Number	7,563	7,899	8,259	8,684	8,824
(2) Number Vested					4,233
(3) Average Age	39.19	39.47	39.76	40.04	40.48
(4) Average Credited Service	9.55	9.51	9.53	9.54	9.81
(5) Average Annual Salary	\$35,903	\$37,323	\$39,416	\$41,238	\$44,440
	<u>Retirees and Beneficiaries</u>				
(1) Number	1,485	1,712	1,764	2,022	2,098
(2) Average Age	63.28	62.60	63.17	62.75	63.18
(3) Average Monthly Benefit Base	\$ 948	\$ 1,041	\$ 1,060	\$ 1,176	\$ 1,205
C.O.L.A.	\$ 59	\$ 68	\$ 68	\$ 79	\$ 79
P.R.P.A.	\$ 187	\$ 197	\$ 188	\$ 279	\$ 258
Total	\$ 1,194	\$ 1,306	\$ 1,316	\$ 1,534	\$ 1,542
	<u>Vested Terminations</u>				
(1) Number	343	430	509	335	481
(2) Average Age	45.51	47.50	46.75	45.49	47.74
(3) Average Monthly Benefit	\$ 736	\$ 908	\$ 944	\$ 850	\$ 1,178
	<u>Not Vested Terminations With Account Balances</u>				
(1) Number	987	1,037	914	1,093	869
(2) Average Account Balance	\$ 5,230	\$ 5,360	\$ 5,573	\$ 6,649	\$ 8,356

Section 1.2(b)  
DISTRIBUTIONS OF ACTIVE PARTICIPANTS

----- ANNUAL EARNINGS BY AGE-----

---- ANNUAL EARNINGS BY SERVICE----

AGE GROUP	NUMBER OF PEOPLE	TOTAL ANNUAL EARNINGS	AVERAGE ANNUAL EARNINGS
0-19	0	0.	0.
20-24	81	2420657.	29885.
25-29	662	22235730.	33589.
30-34	1468	56445168.	38450.
35-39	2304	99279048.	43090.
40-44	2016	94873984.	47061.
45-49	1244	61975416.	49819.
50-54	662	34444760.	52031.
55-59	274	14375239.	52464.
60-64	92	4888060.	53131.
65-69	18	1028308.	57128.
70-74	2	122785.	61393.
75-79	1	46953.	46953.
80+	0	0.	0.
TOTAL	8824	392136128.	44440.

SERVICE GROUP	NUMBER OF PEOPLE	TOTAL ANNUAL EARNINGS	AVERAGE ANNUAL EARNINGS
0	1449	55737024.	38466.
1	1160	46370852.	39975.
2	1003	41641000.	41516.
3	672	29122098.	43336.
4	701	30780484.	43909.
0- 4	4985	203651920.	40853.
5- 9	2061	97665256.	47387.
10-14	1074	53720340.	50019.
15-19	585	30547710.	52218.
20-24	109	5999505.	55041.
25-29	9	485756.	53973.
30-34	1	65996.	65996.
35-39	0	0.	0.
40+	0	0.	0.
TOTAL	8824	392136512.	44440.

SERVICE GROUPS BY AGE GROUPS

S E R V I C E G R O U P

AGE	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	81	0	0	0	0	0	0	0	0	81
25-29	626	36	0	0	0	0	0	0	0	662
30-34	1125	314	29	0	0	0	0	0	0	1468
35-39	1371	605	274	54	0	0	0	0	0	2304
40-44	921	535	357	191	12	0	0	0	0	2016
45-49	482	309	218	189	45	1	0	0	0	1244
50-54	242	162	122	103	32	1	0	0	0	662
55-59	89	79	53	34	14	4	1	0	0	274
60-64	40	15	15	13	6	3	0	0	0	92
65-69	8	4	5	1	0	0	0	0	0	18
70-74	0	1	1	0	0	0	0	0	0	2
75-79	0	1	0	0	0	0	0	0	0	1
80+	0	0	0	0	0	0	0	0	0	0
TOTAL	4985	2061	1074	585	109	9	1	0	0	8824

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Section 1.2(c)  
STATISTICS ON NEW RETIREES DURING THE YEAR ENDING JUNE 30

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Service</u>					
Number	109	242	179	279	179
Average Age At Retirement	55.24	54.54	54.66	54.95	56.06
Average Benefit	\$ 1,425	\$ 1,680	\$ 1,770	\$ 2,011	\$ 1,968
-					
<u>Disability</u>					
Number	10	7	5	6	7
Average Age At Retirement	44.47	45.03	52.60	48.57	43.48
Average Benefit	\$ 2,075	\$ 2,333	\$ 2,749	\$ 2,500	\$ 2,648
<u>Survivor</u>					
Number	5	3	8	4	3
Average Age At Retirement	67.39	43.36	53.65	46.78	45.47
Average Benefit	\$ 700	\$ 1,727	\$ 1,330	\$ 2,452	\$ 1,942
<u>Total</u>					
Number	124	252	192	289	189
Average Age At Retirement	55.70	54.14	54.53	54.70	55.43
Average Benefit	\$ 1,448	\$ 1,699	\$ 1,777	\$ 2,027	\$ 1,992

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Section 1.2(d)  
STATISTICS ON ALL RETIREES AS OF JUNE 30

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Normal Retirement</u>					
Number, Prior Year	1,262	1,361	1,579	1,627	1,855
Net Change During Year	99	218	48	228	67
Number, This Year	1,361	1,579	1,627	1,855	1,922
Average Age At Retirement	57.59	57.01	56.96	56.57	56.47
Average Age Now	64.19	63.44	64.13	63.49	64.01
Average Monthly Benefit	\$1,192.75	\$1,305.08	\$1,316.92	\$1,537.09	\$1,549.08
<u>Surviving Spouse's Benefits</u>					
Number, Prior Year	34	36	42	40	64
Net Change During Year	2	6	(2)	24	5
Number, This Year	36	42	40	64	69
Average Age At Retirement	59.74	59.13	57.87	57.29	54.52
Average Age Now	66.11	66.22	64.87	66.20	63.98
Average Monthly Benefit	\$ 566.17	\$ 812.92	\$ 592.92	\$ 952.64	\$ 833.25
<u>Survivor's Benefits</u>					
Number, Prior Year	31	31	35	37	38
Net Change During Year	0	4	2	1	(4)
Number, This Year	31	35	37	38	34
Average Age At Retirement	41.27	37.83	35.47	36.23	35.29
Average Age Now	46.86	43.09	41.09	41.84	43.08
Average Monthly Benefit	\$1,184.33	\$1,264.17	\$1,247.17	\$1,501.30	\$1,583.58
<u>Disabilities</u>					
Number, Prior Year	53	57	56	60	65
Net Change During Year	4	(1)	4	5	8
Number, This Year	57	56	60	65	73
Average Age At Retirement	44.13	43.32	44.11	44.46	44.55
Average Age Now	48.63	48.36	49.64	50.30	50.64
Average Monthly Benefit	\$1,625.83	\$1,738.50	\$1,816.75	\$2,025.77	\$2,002.75

TATE OF ALASKA - TRS BENEFIT RECIPIENTS

VALUATION DATE 6/30/1986

----- ANNUAL BENEFIT BY AGE-----

---- ANNUAL BENEFIT BY SERVICE----

AGE GROUP	NUMBER OF PEOPLE	TOTAL ANNUAL BENEFIT	AVERAGE ANNUAL BENEFIT	SERVICE GROUP	NUMBER OF PEOPLE	TOTAL ANNUAL BENEFIT	AVERAGE ANNUAL BENEFIT
0-19	3	13956.	4652.	0	189	4520552.	23918.
20-24	3	14400.	4800.	1	195	4615349.	23668.
25-29	0	0.	0.	2	191	4204133.	22011.
30-34	2	60554.	30277.	3	127	2462540.	19390.
35-39	7	141427.	20204.	4	124	2352019.	18968.
40-44	29	633313.	21838.	0- 4	826	18154592.	21979.
45-49	114	2506314.	21985.	5- 9	712	12408859.	17428.
50-54	286	6276842.	21947.	10-14	403	5830046.	14467.
55-59	392	7835069.	19987.	15-19	107	1545397.	14443.
60-64	391	7227547.	18485.	20-24	41	696205.	16981.
65-69	359	6188019.	17237.	25-29	6	121269.	20211.
70-74	244	3856886.	15807.	30-34	3	61596.	20532.
75-79	157	2346138.	14944.	35-39	0	0.	0.
80+	111	1717502.	15473.	40+	0	0.	0.
TOTAL	2098	38817960.	18502.	TOTAL	2098	38817964.	18502.

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SERVICE GROUPS BY AGE GROUPS

S E R V I C E G R O U P

AGE	0- 4	5- 9	10-14	15-19	20-24	25-29	30-34	35-39	40+	TOTAL
0-19	0	3	0	0	0	0	0	0	0	3
20-24	0	2	1	0	0	0	0	0	0	3
25-29	0	0	0	0	0	0	0	0	0	0
30-34	2	0	0	0	0	0	0	0	0	2
35-39	4	2	1	0	0	0	0	0	0	7
40-44	16	10	3	0	0	0	0	0	0	29
45-49	99	11	4	0	0	0	0	0	0	114
50-54	233	49	3	1	0	0	0	0	0	286
55-59	217	153	20	1	1	0	0	0	0	392
60-64	152	205	32	2	0	0	0	0	0	391
65-69	80	188	88	3	0	0	0	0	0	359
70-74	17	79	140	7	1	0	0	0	0	244
75-79	5	9	94	35	14	0	0	0	0	157
80+	1	1	17	58	25	6	3	0	0	111
TOTAL	826	712	403	107	41	6	3	0	0	2098

Section 1.2(e)  
DISTRIBUTIONS OF ANNUAL BENEFITS OF RETIRED PARTICIPANTS

Section 1.3  
ACTUARIAL BASIS

Valuation of Liabilities

- A. Actuarial Method - Projected Unit Credit. Liabilities and contributions shown in the report are computed using the Projected Unit Credit method of funding. The unfunded accrued benefit liability is amortized over 25 years. Actuarial funding surpluses are amortized over five years.

The objective under this method is to fund each participant's benefits under the plan as they accrue. Thus, each participant's total pension projected to retirement with salary scale is broken down into units, each associated with a year of past or future service. The principle underlying the method is that each unit is funded in the year for which it is credited. Typically, when the method is introduced there will be an initial liability for benefits credited for service prior to that date, and to the extent that this liability is not covered by Assets of the Plan there is an Unfunded Liability to be funded over a chosen period in accordance with an amortization schedule.

An Accrued Liability is calculated at the valuation date as the present value of benefits credited with respect to service to that date.

The Unfunded Liability at the valuation date is the excess of the Accrued Liability over the Assets of the Plan. The level annual payment to be made over a stipulated number of years to amortize the Unfunded Liability is the Past Service Cost.

The Normal Cost is the present value of those benefits which are expected to be credited with respect to service during the year beginning on the valuation date.

Under this method, differences between the actual experience and that assumed in the determination of costs and liabilities will emerge as adjustments in the Unfunded Liability, subject to amortization.

- B. Method For Accumulated Plan Benefit Values - The actuarial present value of accumulated plan benefits (the term used for Financial Accounting Standards Board purposes) and present value of vested accumulated benefits are a measure of plan benefits which have been earned to date. These are not only a valuation of retirement benefits, but also of deferred vested, death benefits, and other ancillary benefits. Earnings and service for benefit purposes which are expected to be earned after the valuation date are excluded from these values.

The actuarial assumptions used to determine these values are identical to those used for the funding purposes.

In estimating accumulated benefits, final average compensation is based on compensation data in the possession of the actuary.

C. Actuarial Assumptions -

1. Interest 9% per year, compounded annually, net of expenses.
2. Salary Scale 6.5% per year for the first five years of employment and 5.5% per year thereafter.
3. Health Inflation 9% per year.
4. Mortality 1984 Unisex Pension Mortality Table set back 1-1/2 years.
5. Turnover Based upon the 1981-85 actual total turnover experience. (See Table 1).
6. 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.
7. Retirement Age Retirement rates based on actual experience in accordance with Table 3.
8. Spouse's Age Wives are assumed to be four years younger than husbands.
9. Contribution Refunds 100% of those terminating after age 35 with eight or more years of service will leave their contributions and thereby retain their deferred vested benefit. All others who terminate are assumed to have their contributions refunded.
10. C.O.L.A. 54% of those receiving retirement benefits will be eligible for C.O.L.A.

- |                |   |
|----------------|---|
| 11. Sick Leave | 4.7 days of unused sick leave for each year of service will be available to be credited once the member is retired. |
| 12. Expenses   | Expenses are covered in the interest assumption.  |

Valuation of Assets

Based upon the three-year average ratio between market and book values of the System's assets, except that bonds are carried at book value. Assets are accounted for on an accrued basis.

Valuation of Medical Benefits

Medical benefits for retirees are provided by the payment of premiums from the 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 increased with the health inflation assumption. The actuarial cost method used for funding retirement benefits is also used to fund health benefits.

TABLE 1  
ALASKA TRS  
TOTAL TURNOVER ASSUMPTIONS

Select Rates of Turnover  
During the First 10 Years  
of Employment

Ultimate Rates of Turnover  
After the First 10 Years  
of Employment

<u>Year of Employment</u>	<u>Rate</u>	<u>Ages</u>	<u>Rate</u>
1	.17	20-39	.03
2	.15	40+	.02
3	.12		
4	.12		
5	.11		
6	.09		
7	.07		
8	.07		
9	.07		
10	.06		

ALASKA TRS - DISABILITY RATES  
ANNUAL RATES PER 1,000 EMPLOYEES

<u>Age</u>	<u>Rate</u>
20	.42
21	.43
22	.43
23	.44
24	.44
25	.45
26	.46
27	.47
28	.48
29	.49
30	.50
31	.52
32	.53
33	.54
34	.56
35	.58
36	.59
37	.62
38	.64
39	.67
40	.69
41	.72
42	.76
43	.82
44	.89
45	.97
46	1.06
47	1.15
48	1.24
49	1.34
50	1.44
51	1.56
52	1.72
53	1.91
54	2.13
55	2.40
56	2.75
57	3.20
58	3.66
59	4.32
60	5.06
61	5.85
62	6.78
63	7.83
64	8.94

TABLE 3  
ALASKA TRS - RETIREMENT ASSUMPTION

<u>Age at Retirement</u>	<u>Retirement Assumption</u>
50	.063
51	.063
52	.063
53	.063
54	.063
55	.117
56	.117
57	.117
58	.117
59	.117
60	.260
61	.180
62	.210
63	.240
64	.270
65	.540
66	.820
67	1.000

For ages less than 50, teachers are assumed to retire two years after the earliest age they are eligible to retire.

Section 2  
VALUATION RESULTS

This section sets forth the results of the actuarial valuation.

Section 2.1(a) shows the distribution of the assets as of June 30, 1986.

Section 2.1(b) shows the transactions of the plan's fund during the FY86.

Section 2.1(c) develops the valuation assets.

Section 2.2 shows the actuarial present values as of June 30, 1986.

Section 2.3 calculates the total contribution rate for FY89.

William M. Mercer-Meidinger, Incorporated

2.1(a)  
ASSETS AS OF JUNE 30, 1986 (in thousands)

	<u>Book Value</u>	<u>Actuarial Value*</u>
Cash	\$ 11,907	\$ 11,907
Short-Term Investments	20,000	20,000
U.S. Government Bonds	313,734	313,734
Corporate Bonds	123,816	123,816
Common Stock	232,205	281,712
Foreign Stocks	53,670	71,491
Real Estate Equity Fund	59,599	64,860
Loans & Mortgages	169,653	169,653
Financial Futures	1	1
Accrued Receivables and Expense	<u>20,704</u>	<u>20,704</u>
Total Assets	\$1,005,289	\$1,077,878

\* All assets are at market value except U.S. Government bonds and corporate bonds which are valued at book value.

William M. Mercer-Meidinger, Incorporated

Section 2.1(b)  
CHANGES IN NET MARKET VALUE OF ASSETS DURING FISCAL YEAR 1986  
(in thousands)

Net Assets, June 30, 1985 \$ 866,333

Additions:

Employee Contributions	\$ 32,039	
Employer and State Matching Contributions	69,276	
Dividend Income	7,054	
Interest Income	112,119	
Realized and Unrealized Gain (Loss) on Investments	<u>103,643</u>	324,131

Deductions:

Medical Benefits	\$ 4,424	
Retirement Benefits	38,476	
Refunds of Contributions	3,311	
Administrative Expenses	<u>2,603</u>	<u>48,814</u>

Net Assets, June 30, 1986 \$1,141,650

Approximate Investment Return  
Rate During the Year:

Based on Market Values	24.6%
Based on Book Values	13.5%
Based on Valuation Assets	17.6%

Section 2.1(c)  
DEVELOPMENT OF VALUATION ASSETS AS OF JUNE 30, 1986 (in thousands)

	<u>Actuarial Values</u>	<u>Book Values</u>	<u>Ratio (A/B)</u>
(1) June 30, 1986	\$1,077,878	\$1,005,289	1.0722
(2) June 30, 1985	\$ 856,845	\$ 833,617	1.0279
(3) June 30, 1984	\$ 708,009	\$ 705,273	1.0039
(4) Average Ratio			1.0347
(5) Cost Value at June 30, 1986			\$1,005,289
(6) Valuation Assets at June 30, 1986 (4) x (5) but not outside the range of book and market values			\$1,040,173

Section 2.2  
ACTUARIAL PRESENT VALUES AS OF JUNE 30, 1986 (in thousands)

	<u>Normal Cost</u>	<u>Present Value of Accrued Benefits</u>
<u>Active Members</u>		
Retirement Benefits	\$ 41,627	\$ 510,973
Termination Benefits	1,365	10,554
Return of Contributions	2,463	12,106
Disability Benefits	333	7,049
Death Benefits	1,263	14,685
Health Benefits	17,999	158,178
Arrearage	<u>0</u>	<u>(24,105)</u>
Subtotal	\$ 65,050	\$ 689,440
 <u>Inactive Members</u>		
Not Vested		\$ 7,262
Vested Terminations		55,808
Retirees & Beneficiaries		<u>363,263</u>
Subtotal		\$ 426,333
 <u>Totals</u>		 \$1,115,773

Section 2.3  
CALCULATION OF TOTAL CONTRIBUTION RATE

Normal Cost Rate

(1) Total Normal Cost*	\$ 65,050
(2) Total Salaries*	392,136
(3) Normal Cost Rate (1) / (2)	16.59%
(4) Average Member Contribution Rate	7.23%
(5) Consolidated Employer Normal Cost Rate, (3) - (4)	9.36%

Past Service Rate

(1) Present Value of Accrued Benefits*	\$1,115,773
(2) Valuation Assets*	1,040,173
(3) Total Unfunded Liability*, (1) - (2)	75,600
(4) Amortization Factor	10.706612
(5) Past Service Payment, (3) / (4)	7,061
(6) Total Salaries*	392,136
(7) Past Service Rate, (5) / (6)	1.80%

Total Employer Contribution Rate 11.16%

\* In thousands.

VAL2.6/js/jam