

**State of Alaska**  
**Teachers' Retirement System**

**Actuarial Valuation Report**  
**as of June 30, 1993**

**Prepared by:**

William M. Mercer, Incorporated  
One Union Square, Suite 3200  
600 University Street  
Seattle, WA 98101-3137

April 5, 1994

State of Alaska  
Teachers' Retirement Board  
Department of Administration  
Division of Retirement & Benefits  
P.O. Box 110203  
Juneau, AK 99811-0203

Dear Members of the Board:

### **Actuarial Certification**

The actuarial valuation required for the State of Alaska Teachers' Retirement System has been prepared as of June 30, 1993 by William M. Mercer, Incorporated. The purposes of the report include:

- (1) a review of experience under the Plan for the year ended June 30, 1993;
- (2) a determination of the appropriate contribution rate for each employer in the System;
- (3) the provision of reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

In preparing this valuation, we have employed generally accepted actuarial methods and assumptions, in conjunction with employee data provided to us by the System's staff and financial information provided by the audited report from KPMG Peat Marwick, to determine a sound value for the System liability. This data has not been audited, but it has been reviewed and found to be consistent, both internally and with prior years' data. The actuarial assumptions are based on the results of an experience study presented to the Board in October 1991.

The contribution requirements are determined as a percentage of payroll, and reflect the cost of benefits accruing in FY94 and a 25-year rolling amortization of the unfunded accrued liability. The amortization period is set by the Board. Contribution levels are recommended by the Actuary and adopted by the Board each year. The ratio of assets to liabilities increased from 89.7% to 93.1% during the year. Over the years, progress has been made toward achieving the funding objectives of the System.

Teachers' Retirement Board  
April 5, 1994  
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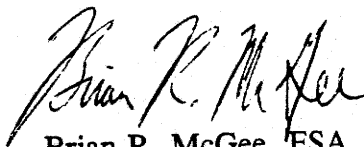
There were no significant changes in the actuarial assumptions or methods used in the determination of system assets and liabilities this year. The assumptions and methods, when applied in combination, fairly represent past and anticipated future experience of the System.

Future contribution requirements may differ from those determined in the valuation because of:

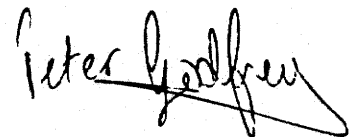
- (1) differences between actual experience and anticipated experience based on the assumptions;
- (2) changes in actuarial assumptions or methods;
- (3) changes in statutory provisions; or
- (4) differences between the contribution rates determined by the valuation and those adopted by the Board.

We believe that this report conforms with the requirements of the Alaska statutes, and where applicable, other federal and accounting laws, regulations and rules, as well as generally accepted actuarial principles and practices.

Sincerely,



Brian R. McGee, FSA  
Principal



Peter L. Godfrey, FIA  
Associate

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## Highlights

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

- (1) present the results of a valuation of the Alaska Teachers' Retirement System as of June 30, 1993;
- (2) review experience under the plan for the year ended June 30, 1993;
- (3) determine the appropriate contribution rate for each employer in the System;
- (4) provide reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

The report is divided into three sections. Section 1 contains the results of the valuation. It includes the experience of the plan during the 1993 Fiscal Year, the current annual costs, and reporting and disclosure information.

Section 2 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.

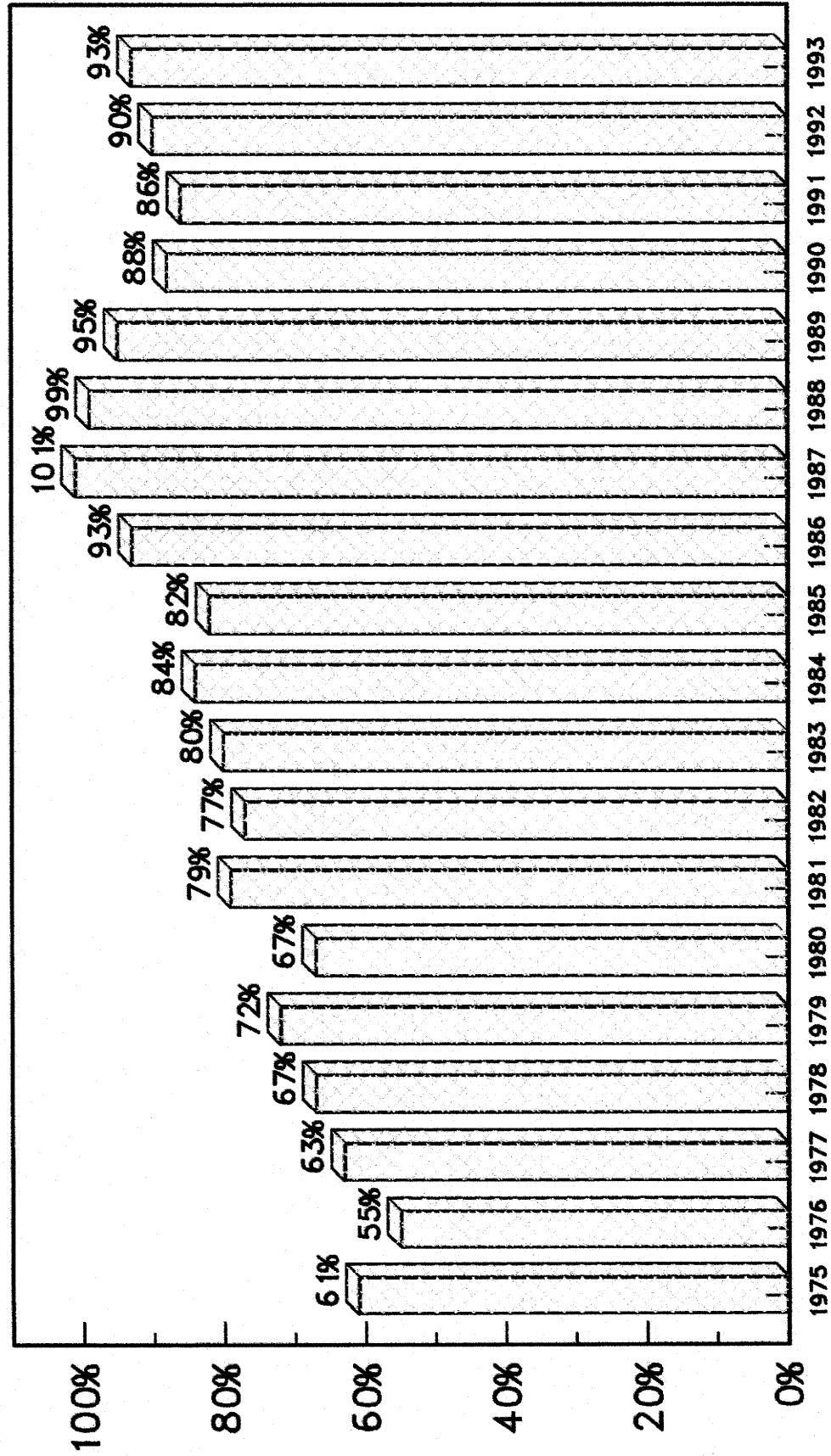
Section 3 contains additional exhibits showing historical information on system experience, unfunded liabilities, and the value of accumulated benefits.

The principle results are as follows:

	<u>1992</u>	<u>1993</u>
Funding Status as of June 30:		
(a) Valuation Assets*	\$2,001,864	\$2,261,082
(b) Accrued Liability*		
i) Non-Medical Benefits	1,872,660	2,016,852
ii) Total Benefits (including medical)	2,231,746	2,429,456
(c) Funding Ratio, (a) / (b)		
i) Non-Medical Benefits	106.9%	112.1%
ii) Total Benefits (including medical)	89.7%	93.1%

\* In thousands.

# STATE OF ALASKA TRS FUNDING RATIO HISTORY



AT JUNE 30

Employer Contribution Rates  
for Fiscal Year:

	<u>1995</u>	<u>1996</u>
(a) Normal Cost Rate	8.57%	9.06%
(b) Past Service Rate	4.79%	3.42%
(c) Total Contribution Rate	13.36%	12.48%
(d) Actuarial Projection Rate	12.00%	12.00%

## Analysis of the Valuation

As shown in the Highlights section of the report, the funding ratio as of June 30, 1993 has increased from 89.7% to 93.1%, an increase of 3.4%. The total employer contribution rate has reduced from 13.36% of payroll for FY95 to 12.48% for FY96, a reduction of 0.88% of payroll. The reasons for the change in the funded status and contribution rate are explained below.

### (1) Retiree Medical Insurance

As you are aware, retiree medical premium experience has, in recent years, caused large fluctuations in the employer contribution rate. The following table summarizes the monthly premium per benefit recipient since retiree medical benefits have been provided under PERS and TRS.

<u>Fiscal Year</u>	<u>Monthly Premium Per Retiree For Health Coverage</u>	<u>Annual Percentage Increase</u>	<u>Average Annual Increase Since 1978</u>
1977	\$ 34.75	--	--
1978	57.64	66%	--
1979	69.10	20%	20%
1980	64.70	- 6%	6%
1981	96.34	49%	19%
1982	96.34	0%	14%
1983	115.61	20%	15%
1984	156.07	35%	18%
1985	191.85	23%	19%
1986	168.25	-12%	14%
1987	165.00	- 2%	12%
1988	140.25	-15%	9%
1989	211.22	51%	13%
1990	252.83	20%	13%
1991	243.98	- 4%	12%
1992	243.98	0%	11%
1993	226.90	- 7%	10%
1994	309.72	37%	11%
1995	336.05	9%	11%

As you can see from the above table, the monthly retiree medical premium increased during the year, to \$309.72. The premium for the 1995 fiscal year has increased to \$336.05, an increase of 9%. Since FY87, annual premium rate changes have ranged from 51% up to 15% down, but the average annual increase has been about 9%.

Two years ago, in an attempt to better predict the long-term increase in medical premiums, the Board adopted a health cost trend assumption which varies by year, declining to an ultimate rate equal to 7.5% for FY97 and later. If the long-term assumption remains reasonable, short-term gains and losses from the annually-determined medical premium rate will offset each other over time.

To help avoid the volatility in the funding and solvency of the System of bringing large health-related gains and losses into the System every year, we recommend that the Board use the health cost trend assumption to determine actuarial liabilities for retiree medical benefits. The difference between the assumed rate and the actual rate will be tracked annually and reduced if the gap becomes too wide. Also, adjustments will be made, if necessary, to the assumed medical premium rate every four to five years when a formal experience analysis is performed.

The effect of this approach is that no gain or loss emerges this year due to retiree medical insurance.

**(2) Investment Performance**

The approximate rate of return based on market value of system assets was 13.65%. The five-year smoothing technique produced a rate of return based on valuation assets of 13.09%, compared to the 9.00% investment return assumption. This produced a gain of approximately \$82,000,000 to the System from investment performance, which increased the funding ratio by 3.4% and lowered the employer contribution rate by 1.66%.

**(3) Salary Increases**

In recent years salary increases have been less than anticipated in the valuation assumptions. This was again true last year. Salary experience resulted in an actuarial gain which generated a reduction in the total employer contribution rate equal to .45%.

**(4) Employee Data**

Section 2.2 provides statistics on active and inactive participants. The number of active participants increased 2.4% from 9,238 at June 30, 1992 to 9,459 at June 30, 1993. This was in excess of all three population increase scenarios reviewed last year, and produced a gain to the System from more Tier 2 actives entering the System than expected. The average age of active participants increased from 42.74 to 43.06 and average credited service increased from 10.75 to 10.92 years.

The number of retirees and beneficiaries increased 8.02% from 3,602 to 3,891, and their average age increased from 61.97 to 62.47. There was a 15.9% increase in the number of vested terminated participants from 710 to 823. Their average age increased from 46.22 to 47.51.

The overall effect of these participant data changes was an actuarial loss to the System, resulting in an increase in the contribution rate equal to 1.23%.

## **(5) Actuarial Projections**

At the Fall 1991 Board Meetings, the TRS Board approved the use of an enhanced actuarial projection system in the valuation report this year. The same actuarial cost method is used, but the enhanced system projects population growth patterns and their associated liabilities 25 years into the future. By also projecting plan assets, this report in effect produces an actuarial valuation for each of the next 25 years. Section 1.6, Actuarial Projections, contains the results of this analysis.

This type of information can be especially useful to two-tiered systems, such as TRS. All of the projected new entrants will be covered under the cost savings provisions of the second tier, so that the ultimate effect of the second tier on plan liabilities can be anticipated. As you can see in Section 1.6, based on the actuarial assumptions and cost method, future contribution rates are expected to decline, and then slowly increase in 15 to 20 years.

Provided the Board adopts a long-term strategy consistent with the nature of the System, sound actuarial principles would support leveling out this contribution pattern to anticipate the second tier provisions coming into effect. In this way, a more stable contribution pattern could be adopted to help the employers better budget retirement expenses. This enhanced projection technique would be used annually so that a continuous tracking of the contribution rate to the requirements could be made. Appropriate adjustments to the rate would still be proposed annually, but they should be much smaller than those seen in the past.

We recommend that the employer contribution rate adopted for FY96 remain 12.00% under this approach.

This rate includes a degree of conservatism for the following reasons:

- (a) Actuarial valuations are based on several assumptions, and the projection technique adds more. Actual system experience will vary from that assumed, so a degree of margin is appropriate when adopting a longer term rate.
- (b) Sound actuarial principles also suggest that retirement systems should fund employees' benefits while they are working. By leveling out the two-tier phenomenon, intergenerational inequities could occur. Since current contribution requirements are higher, the level rate is set higher than it theoretically needs to be, to allocate proportionately more of the cost to current generations and thus reduce the inequities.

## Summary

The following table summarizes the sources of change in the total employer contribution rate:

Last year's total employer contribution rate . . . . .	13.36%
Change due to:	
Retiree medical insurance . . . . .	0.00%
Investment performance . . . . .	(1.66%)
Salary increases . . . . .	(.45%)
Demographic experience . . . . .	1.23%
Total employer contribution rate this year . . . . .	12.48%
Effect of enhanced Actuarial Projection system . . . . .	(.48%)
Proposed employer contribution rate . . . . .	12.00%

## **Section 1**

### **Valuation Results**

This section sets forth the results of the actuarial valuation.

Section 1.1(a) shows the distribution of the assets as of June 30, 1993.

Section 1.1(b) shows the transactions of the plan's fund during FY93.

Section 1.1(c) develops the valuation assets as of June 30, 1993.

Section 1.2 shows the actuarial present values as of June 30, 1993.

Section 1.3 calculates the total contribution rate for FY96.

Section 1.4 calculates the actuarial gain or loss for FY93.

Section 1.5 provides disclosure information required by G.A.S.B. Statement No. 5.

Section 1.6 contains the financial projections.



### 1.1(a) Statement of Net Assets as of June 30, 1993 (in thousands)

	<u>Book Value</u>	<u>Actuarial Value</u>
Cash and Cash Equivalents	\$ 7,867	\$ 7,867
United States Government Bonds	451,038	539,308
Other United States Government Securities	22,210	24,311
Corporate Bonds	451,125	505,976
Commercial Paper	66,914	66,921
United States Common Stocks	781,704	879,400
Foreign Stocks	178,052	181,041
Real Estate Equities	91,639	67,705
Mortgages (net of reserves)	6,813	6,813
Net Accrued Receivables	<u>27,161</u>	<u>27,161</u>
Total Assets	\$2,084,523	\$2,306,503

## 1.1(b) Changes in Net Assets During Fiscal Year 1993 (in thousands)

Net Assets, June 30, 1992, (market value) \$2,031,938

### Additions:

Employee Contributions	\$ 46,497	
Employer Contributions	58,130	
Contributions for Retirement Incentive Program -		
Employee Contributions	0	
Employer Contributions	0	
Interest and Dividend Income	113,344	
Realized Gain/(Loss)	118,169	
Unrealized Gain (Loss) on Investments	52,063	
Other	<u>26</u>	388,229

### Deductions:

Medical Benefits	\$ 12,089	
Retirement Benefits	92,703	
Refunds of Contributions	2,448	
Administrative Expenses	<u>6,424</u>	<u>113,664</u>

Net Assets, June 30, 1993, (market value) \$2,306,503

### Approximate Investment Return Rate During the Year, Net of Administrative Expenses:

Based on Market Values	13.65%
Based on Valuation Assets	13.09%

**1.1(c) Development of Valuation Assets as of June 30, 1993  
(in thousands)**

	A	B	C
	<u>Actuarial Values</u>	<u>Book Values</u>	<u>Ratio (A/B)</u>
(1) June 30, 1993	\$2,306,503	\$2,084,523	1.1065
(2) June 30, 1992	2,031,938	\$1,859,777	1.0926
(3) June 30, 1991	1,824,663	1,706,315	1.0694
(4) June 30, 1990	1,706,346	1,583,324	1.0777
(5) June 30, 1989	1,545,877	1,434,984	1.0773
(6) Average Ratio			1.0847
(7) Book Value at June 30, 1993			\$ 2,084,523
(8) Valuation Assets at June 30, 1993, (6) x (7) but not outside the range of book and actuarial values			\$ 2,261,082

## 1.2 Actuarial Present Values as of June 30, 1993 (in thousands)

	<u>Normal Cost</u>	<u>Accrued Liabilities</u>
<u>Active Members</u>		
Retirement Benefits	\$ 54,984	\$ 905,134
Termination Benefits	2,731	32,534
Disability Benefits	1,496	31,461
Death Benefits	1,292	21,507
Return of Contributions	3,278	17,052
Medical Benefits	18,326	229,935
Indebtedness	0	(30,957)
Retiree Incentive Program Receivables	<u>0</u>	<u>(430)</u>
Subtotal	\$ 82,107	\$ 1,206,236
<u>Inactive Members</u>		
Not Vested	\$ 0	\$ 11,354
Vested Terminations - Retirement Benefits	0	87,684
- Medical Benefits	0	38,000
Retirees & Beneficiaries - Retirement Benefits	0	941,513
- Medical Benefits	<u>0</u>	<u>144,669</u>
Subtotal	\$ 0	\$ 1,223,220
<u>Totals</u>	\$ 82,107	\$ 2,429,456

### 1.3 Development of Total Employer Contribution Rate - FY96 (in thousands)

#### Normal Cost Rate

(1)	Total Normal Cost	\$ 82,107
(2)	Total Salaries	459,746
(3)	Normal Cost Rate, (1) / (2)	17.86%
(4)	Average Member Contribution Rate	8.80%
(5)	Employer Normal Cost Rate, (3) - (4)	9.06%

#### Past Service Rate

(1)	Accrued Liability	\$2,429,456
(2)	Valuation Assets	2,261,082
(3)	Total Unfunded Liability, (1) - (2)	168,374
(4)	Amortization Factor (25 year)	10.706612
(5)	Past Service Cost, (3) / (4)	15,726
(6)	Total Salaries	459,746
(7)	Past Service Rate, (5) / (6)	3.42%

<u>Total Employer Contribution Rate</u>	12.48%
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## 1.4 Development of Actuarial Gain/(Loss) for FY93 (in thousands)

(1) Unfunded Liability, June 30, 1992	\$ 229,882
(2) Normal Cost for FY93	77,810
(3) Interest on (1) and (2) at 9%	27,692
(4) Employee Contributions for FY93	46,497
(5) Employer Contributions for FY93	58,130
(6) Interest on (4) and (5) at 9% for one-half year	4,708
(7) Expected Unfunded Liability, June 30, 1993, (1) + (2) + (3) - (4) - (5) - (6)	226,049
(8) Actual Unfunded Liability, June 30, 1993	168,374
(9) Actuarial Gain/(Loss) for the Year, (7) - (8)	\$ 57,675

## 1.5 Disclosure for G.A.S.B. Statement No. 5

State of Alaska - T.R.S.

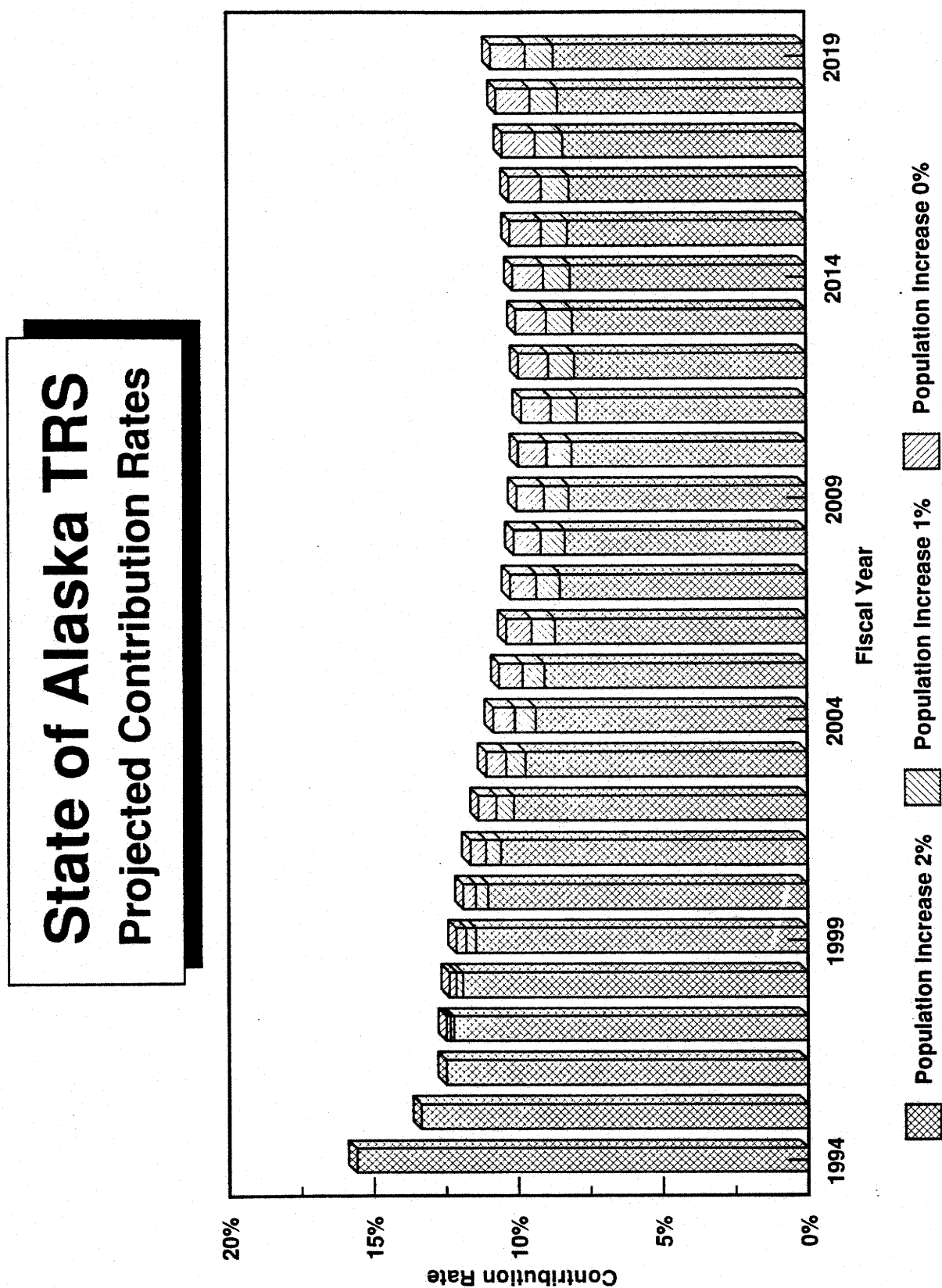
Disclosure for G.A.S.B. Statement 5 ('000 Omitted)

Totals For All Employers

***** Projected Benefit Obligation *****					
<u>Valuation Date</u>	<u>Current Retirees &amp; Terminated</u>	***** Current Employees *****			<u>Total</u>
		<u>Contribs With Int</u>	**** <u>Employer Financed</u> ****	<u>Non-Vested</u>	
			<u>Vested</u>		
June 30, 1987	\$ 578,468	\$ 210,493	\$ 353,326	\$ 68,622	\$ 1,210,909
June 30, 1988	688,090	228,217	381,726	49,826	1,347,859
June 30, 1989	779,296	253,436	436,431	88,480	1,557,643
June 30, 1990	940,475	269,491	587,835	97,229	1,895,030
June 30, 1991	1,056,453	293,136	598,527	127,289	2,075,405
June 30, 1992	1,110,981	341,204	655,821	123,740	2,231,746
June 30, 1993	1,223,220	370,667	746,208	89,361	2,429,456

<u>Valuation Date</u>	***** Valuation Assets *****			***** Market Value Assets *****		
	<u>Net Assets Available For Benefits</u>	<u>Unfunded PBO</u>	<u>Assets as Percent of PBO</u>	<u>Net Assets Available For Benefits</u>	<u>Unfunded PBO</u>	<u>Assets as Percent of PBO</u>
June 30, 1987	\$ 1,225,009	\$ (14,100)	101%	\$ 1,303,464	\$ (92,555)	108%
June 30, 1988	1,331,905	15,954	99%	1,356,575	(8,716)	101%
June 30, 1989	1,480,389	77,254	95%	1,545,877	11,766	99%
June 30, 1990	1,662,242	232,788	88%	1,706,346	188,684	90%
June 30, 1991	1,779,579	295,826	86%	1,824,663	250,742	88%
June 30, 1992	2,001,864	229,882	90%	2,031,938	199,808	91%
June 30, 1993	2,261,082	168,374	93%	2,306,503	122,953	95%

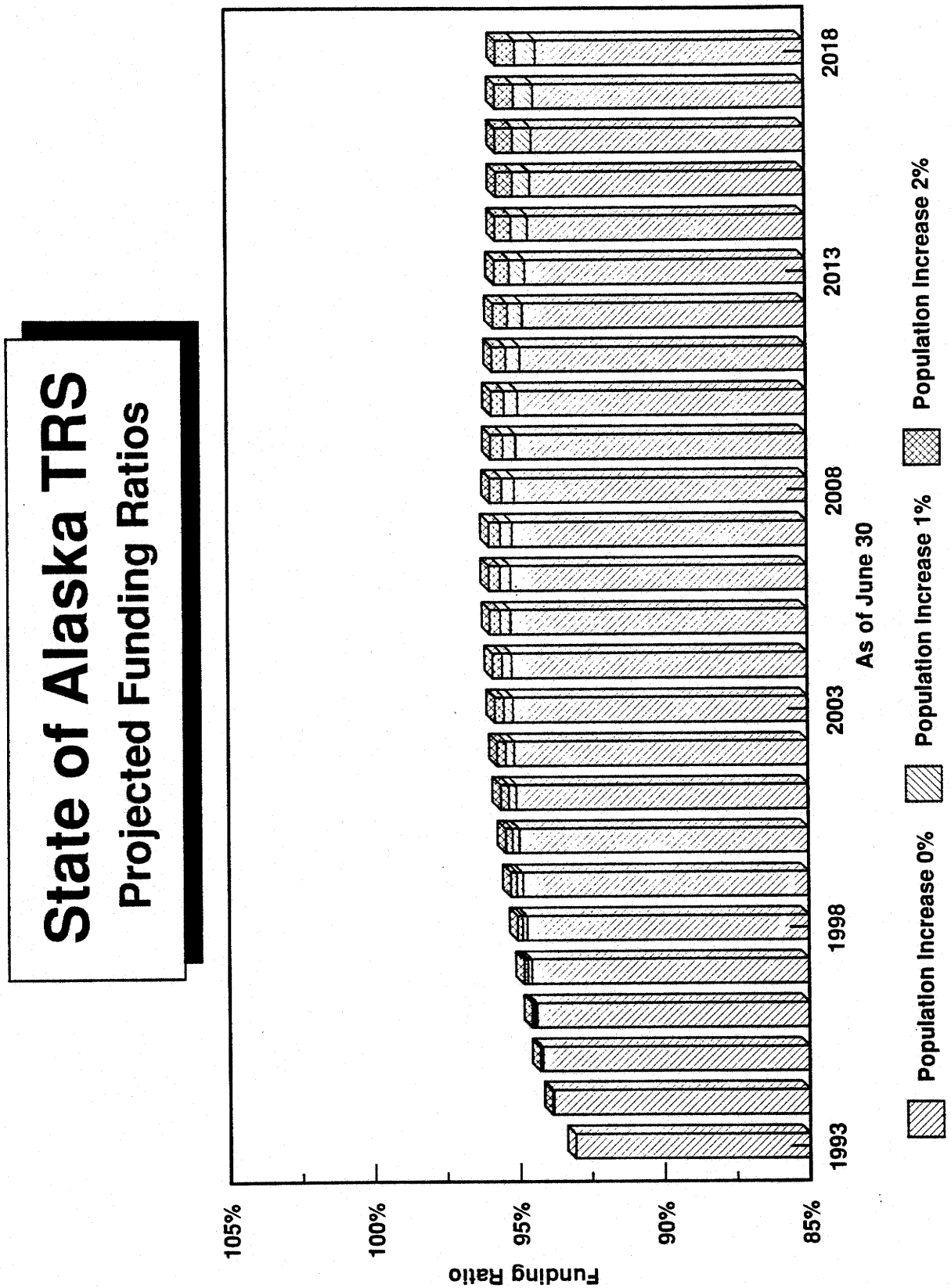
## 1.6 Actuarial Projections



William M. Mercer, Incorporated



## 1.6 Actuarial Projections (continued)



# 1.6 Actuarial Projections (continued)

Table 1

State of Alaska TRS  
Financial Projections ('000 omitted)

As of June 30	Investment Return 9.00%			Flow Amounts During Following 12 Months					Annual Population Increase 0.00%			Ending Asset Value	
	Valuation Amounts on July 1--			Employer			Employee			Net			
	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employee Ctb Rate	Employee Contribs	Total Contribs	Total Benefit Payments	Contribs		Investment Earnings
1993	2,261,082	2,429,456	93.1%	(168,374)	459,744	15.59%	72,688	41,030	113,718	130,431	(16,713)	202,745	2,447,114
1994	2,447,114	2,607,915	93.8%	(160,801)	472,751	13.36%	64,052	42,142	106,194	140,532	(34,338)	218,695	2,631,471
1995	2,631,471	2,793,737	94.2%	(162,266)	486,115	12.48%	61,517	43,279	104,796	132,871	(48,074)	234,669	2,818,065
1996	2,818,065	2,986,250	94.4%	(168,184)	499,739	12.48%	63,125	44,375	107,501	168,323	(60,822)	250,889	3,008,132
1997	3,008,132	3,181,665	94.5%	(173,533)	512,242	12.37%	64,161	45,443	109,604	185,285	(75,682)	267,326	3,199,777
1998	3,199,777	3,378,456	94.7%	(178,679)	525,262	12.13%	64,665	46,642	111,308	201,043	(89,735)	283,942	3,393,984
1999	3,393,984	3,578,439	94.8%	(184,455)	540,852	11.89%	65,218	47,952	113,169	221,216	(108,046)	300,596	3,586,534
2000	3,586,534	3,776,974	95.0%	(190,440)	556,441	11.63%	65,610	49,258	114,868	242,139	(127,271)	317,061	3,776,324
2001	3,776,324	3,972,995	95.0%	(196,671)	572,031	11.34%	65,780	50,561	116,341	263,693	(147,353)	333,238	3,962,210
2002	3,962,210	4,165,679	95.1%	(203,469)	587,620	11.08%	65,980	51,861	117,841	285,223	(167,382)	349,067	4,143,895
2003	4,143,895	4,354,449	95.2%	(210,554)	603,210	10.84%	66,569	53,442	120,011	307,683	(187,672)	364,505	4,320,728
2004	4,320,728	4,538,971	95.2%	(218,243)	625,339	10.62%	67,554	55,304	122,858	329,690	(206,832)	379,558	4,493,455
2005	4,493,455	4,719,157	95.2%	(225,703)	647,469	10.36%	68,239	57,161	125,400	352,664	(227,264)	394,184	4,660,375
2006	4,660,375	4,895,165	95.2%	(234,790)	669,599	10.23%	69,614	59,014	128,628	375,251	(246,624)	408,336	4,822,087
2007	4,822,087	5,067,395	95.2%	(245,308)	691,728	10.10%	70,975	60,862	131,837	396,979	(265,142)	422,056	4,979,001
2008	4,979,001	5,236,493	95.1%	(257,491)	713,858	10.00%	73,026	63,152	136,178	417,118	(280,940)	435,468	5,133,529
2009	5,133,529	5,403,349	95.0%	(269,821)	746,298	9.93%	75,735	65,958	141,693	437,054	(295,362)	448,726	5,286,894
2010	5,286,894	5,569,101	94.9%	(282,207)	778,739	9.83%	78,114	68,764	146,878	456,533	(309,655)	461,886	5,439,124
2011	5,439,124	5,735,127	94.8%	(296,002)	811,180	9.92%	82,092	71,570	153,662	474,780	(321,117)	475,071	5,593,078
2012	5,593,078	5,903,052	94.7%	(309,974)	843,620	10.01%	86,071	74,376	160,447	492,193	(331,747)	488,448	5,749,780
2013	5,749,780	6,074,747	94.7%	(324,967)	876,061	10.11%	90,833	77,734	168,567	508,769	(340,202)	502,171	5,911,748
2014	5,911,748	6,252,325	94.6%	(340,577)	921,261	10.20%	96,269	81,644	177,913	523,895	(345,982)	516,488	6,082,255
2015	6,082,255	6,438,146	94.5%	(355,891)	966,461	10.23%	101,206	85,554	186,760	536,594	(349,834)	531,660	6,264,081
2016	6,264,081	6,634,814	94.4%	(370,732)	1,011,661	10.46%	108,189	89,464	197,652	551,531	(353,879)	547,843	6,458,045
2017	6,458,045	6,845,176	94.3%	(387,131)	1,056,861	10.66%	115,117	93,373	208,491	566,871	(358,380)	565,097	6,664,762
2018	6,664,762	7,072,328	94.2%	(407,566)	1,102,061	10.85%	119,525	95,328	214,853	583,035	(368,182)	583,260	6,879,841

\* Surpluses reduce employer contributions over 5 years  
\* Deficits increase employer contributions over 25 years

# 1.6 Actuarial Projections (continued)

Table 2

State of Alaska TRS  
Financial Projections ('000 omitted)

As of June 30	Investment Return 9.00%				Flow Amounts During Following 12 Months				Annual Population Increase		1.00%		Ending Asset Value
	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employer Contribs	Employee Contribs	Total Contribs	Total Benefit Payments	Net Contribs	Investment Earnings	
1993	2,261,082	2,429,456	93.1%	(168,374)	459,744	15.59%	72,936	41,170	114,106	130,431	(16,325)	202,763	2,447,519
1994	2,447,519	2,607,968	93.8%	(160,448)	475,934	13.36%	64,716	42,579	107,295	140,532	(33,238)	218,781	2,633,063
1995	2,633,063	2,794,138	94.2%	(161,075)	492,868	12.48%	62,609	44,047	106,655	152,925	(46,269)	234,894	2,821,687
1996	2,821,687	2,987,317	94.5%	(165,629)	510,476	12.35%	64,077	45,511	109,588	168,452	(58,864)	251,303	3,014,127
1997	3,014,127	3,183,794	94.7%	(169,667)	527,411	12.13%	65,089	46,987	112,076	185,511	(73,435)	267,967	3,208,658
1998	3,208,658	3,382,136	94.9%	(173,477)	545,354	11.79%	65,614	48,692	114,306	201,391	(87,085)	284,860	3,406,433
1999	3,406,433	3,584,067	95.0%	(177,633)	567,603	11.45%	66,254	50,581	116,835	221,715	(104,880)	301,859	3,603,413
2000	3,603,413	3,785,389	95.2%	(181,976)	589,851	11.09%	66,638	52,465	119,103	242,816	(123,713)	318,740	3,798,440
2001	3,798,440	3,985,114	95.3%	(186,674)	612,100	10.72%	67,019	54,345	121,354	264,585	(143,431)	335,405	3,990,414
2002	3,990,414	4,182,540	95.4%	(192,126)	634,349	10.38%	67,806	56,221	123,240	286,298	(163,058)	351,800	4,179,156
2003	4,179,156	4,377,249	95.5%	(198,092)	656,598	10.08%	68,166	58,542	126,349	308,966	(182,617)	367,906	4,364,445
2004	4,364,445	4,569,103	95.5%	(204,658)	689,201	9.80%	69,166	61,308	130,474	331,194	(200,720)	383,768	4,547,493
2005	4,547,493	4,758,252	95.6%	(210,759)	721,803	9.49%	70,037	64,067	134,104	354,418	(220,313)	399,360	4,726,540
2006	4,726,540	4,945,127	95.6%	(218,587)	754,406	9.32%	71,839	66,820	138,659	377,292	(238,633)	414,650	4,902,558
2007	4,902,558	5,130,445	95.6%	(227,888)	787,008	9.16%	73,612	69,567	143,178	399,355	(256,176)	429,702	5,076,083
2008	5,076,083	5,315,205	95.5%	(239,121)	819,611	9.04%	76,298	72,992	149,290	419,888	(270,598)	444,671	5,250,156
2009	5,250,156	5,500,689	95.4%	(250,533)	868,061	8.95%	79,846	77,183	157,029	440,281	(283,253)	459,768	5,426,671
2010	5,426,671	5,688,464	95.4%	(261,793)	916,511	8.80%	82,801	81,374	164,175	460,289	(296,113)	475,075	5,605,633
2011	5,605,633	5,880,381	95.3%	(274,748)	964,961	8.88%	87,884	85,565	173,449	479,151	(305,702)	490,750	5,790,681
2012	5,790,681	6,078,575	95.3%	(287,894)	1,013,412	8.96%	92,940	89,756	182,696	497,306	(314,610)	507,004	5,983,075
2013	5,983,075	6,285,462	95.2%	(302,387)	1,061,862	9.04%	99,100	94,841	193,941	514,760	(320,819)	524,040	6,186,295
2014	6,186,295	6,503,745	95.1%	(317,449)	1,130,989	9.11%	106,228	100,820	207,048	530,915	(323,867)	542,193	6,404,620
2015	6,404,620	6,736,408	95.1%	(331,788)	1,200,116	9.11%	112,482	106,800	219,282	544,811	(325,529)	561,767	6,640,858
2016	6,640,858	6,986,721	95.0%	(345,863)	1,269,243	9.32%	121,487	112,779	234,267	561,437	(327,170)	582,955	6,896,643
2017	6,896,643	7,258,237	95.0%	(361,594)	1,338,370	9.50%	130,374	118,759	249,132	578,843	(329,710)	605,861	7,172,793
2018	7,172,793	7,554,791	94.9%	(381,997)	1,407,497	9.65%	135,862	121,748	257,611	597,489	(339,879)	630,257	7,463,171

\* Surpluses reduce employer contributions over 5 years

\* Deficits increase employer contributions over 25 years

# 1.6 Actuarial Projections (continued)

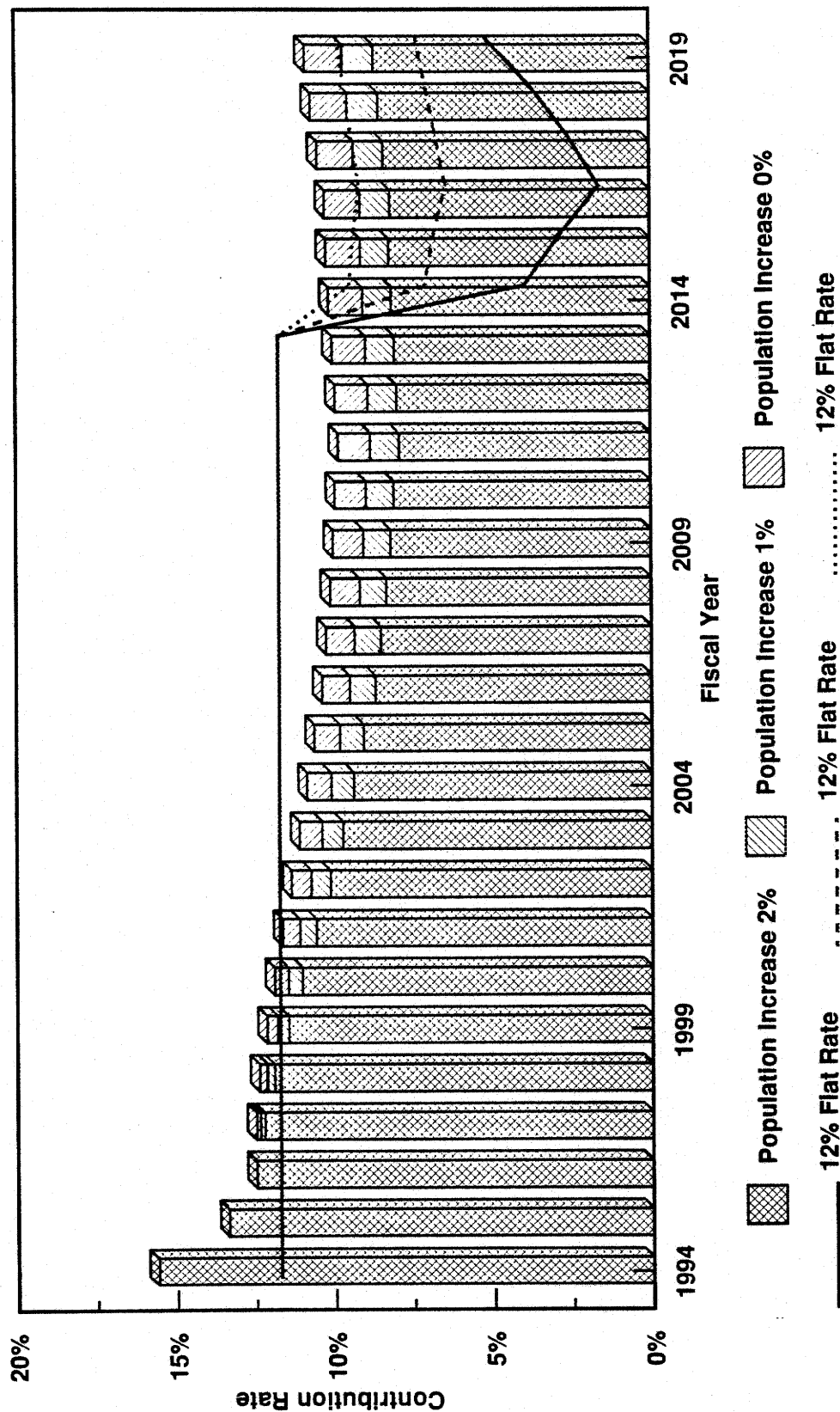
Table 3  
State of Alaska TRS  
Financial Projections ('000 omitted)

As of June 30	Investment Return 9.00%			Flow Amounts During Following 12 Months			Annual Population Increase 2.00%			Ending Asset Value		
	Valuation Amounts on July 1		Surplus* (Deficit)	Employer		Employee Contribs	Total		Net Contribs		Investment Earnings	
Total Assets	Accrued Liability	Funding Ratio		Total Salaries	Ctb Rate		Employer Contribs	Employee Contribs		Contribs		Benefit Payments
1993	2,261,082	2,429,456	93.1%	(168,374)	15.59%	73,184	41,310	114,494	130,431	(15,937)	202,780	2,447,925
1994	2,447,925	2,608,020	93.9%	(160,095)	13.36%	65,384	43,018	108,403	140,532	(32,130)	218,867	2,634,663
1995	2,634,663	2,794,540	94.3%	(159,877)	12.48%	63,717	44,827	108,544	152,979	(44,434)	235,120	2,825,349
1996	2,825,349	2,988,393	94.5%	(163,045)	12.22%	65,040	46,677	111,717	168,583	(56,866)	251,722	3,020,205
1997	3,020,205	3,185,956	94.8%	(165,751)	11.90%	66,026	48,587	114,613	185,740	(71,127)	268,618	3,217,696
1998	3,217,696	3,385,895	95.0%	(168,199)	11.46%	66,582	50,848	117,429	201,749	(84,319)	285,798	3,419,175
1999	3,419,175	3,589,722	95.2%	(170,548)	11.02%	67,321	53,388	120,709	222,230	(101,521)	303,157	3,620,811
2000	3,620,811	3,793,939	95.4%	(173,128)	10.56%	67,672	55,923	123,594	243,522	(119,927)	320,476	3,821,360
2001	3,821,360	3,997,611	95.6%	(176,251)	10.12%	67,808	58,451	126,259	265,522	(139,263)	337,656	4,019,753
2002	4,019,753	4,200,141	95.7%	(180,388)	9.71%	68,007	60,974	128,981	287,441	(158,460)	354,647	4,215,939
2003	4,215,939	4,401,270	95.8%	(185,331)	9.36%	69,020	64,163	133,183	310,342	(177,159)	371,462	4,410,243
2004	4,410,243	4,601,080	95.9%	(190,837)	9.05%	70,819	68,017	138,836	332,825	(193,989)	388,192	4,604,447
2005	4,604,447	4,799,988	95.9%	(195,541)	8.68%	71,866	71,862	143,728	356,339	(212,611)	404,833	4,796,668
2006	4,796,668	4,998,752	96.0%	(202,084)	8.49%	74,162	75,698	149,860	379,549	(229,689)	421,364	4,988,344
2007	4,988,344	5,198,467	96.0%	(210,123)	8.32%	76,406	79,525	155,931	402,006	(246,075)	437,878	5,180,146
2008	5,180,146	5,400,567	95.9%	(220,421)	8.19%	79,848	84,370	164,218	423,006	(258,785)	454,568	5,375,929
2009	5,375,929	5,606,825	95.9%	(230,896)	8.08%	84,408	90,335	174,743	443,936	(269,193)	471,720	5,578,456
2010	5,578,456	5,819,351	95.9%	(240,895)	7.90%	87,981	96,299	184,280	464,569	(280,289)	489,448	5,787,615
2011	5,787,615	6,040,594	95.8%	(252,979)	7.99%	94,404	102,263	196,667	484,166	(287,499)	507,948	6,008,064
2012	6,008,064	6,273,342	95.8%	(265,278)	8.05%	100,757	108,227	208,985	503,202	(294,218)	527,486	6,241,333
2013	6,241,333	6,520,721	95.7%	(279,389)	8.13%	108,650	115,606	224,256	521,697	(297,441)	548,335	6,492,226
2014	6,492,226	6,786,195	95.7%	(293,969)	8.20%	117,913	124,399	242,312	539,076	(296,764)	570,946	6,766,408
2015	6,766,408	7,073,567	95.7%	(307,159)	8.16%	125,713	133,192	258,904	554,399	(295,495)	595,679	7,066,592
2016	7,066,592	7,386,979	95.7%	(320,386)	8.37%	137,331	141,984	279,315	572,986	(293,671)	622,778	7,395,700
2017	7,395,700	7,730,909	95.7%	(335,209)	8.53%	148,728	150,777	299,505	592,789	(293,284)	652,415	7,754,831
2018	7,754,831	8,110,175	95.6%	(355,344)	8.68%	155,665	155,173	310,838	614,315	(303,777)	684,278	8,135,632

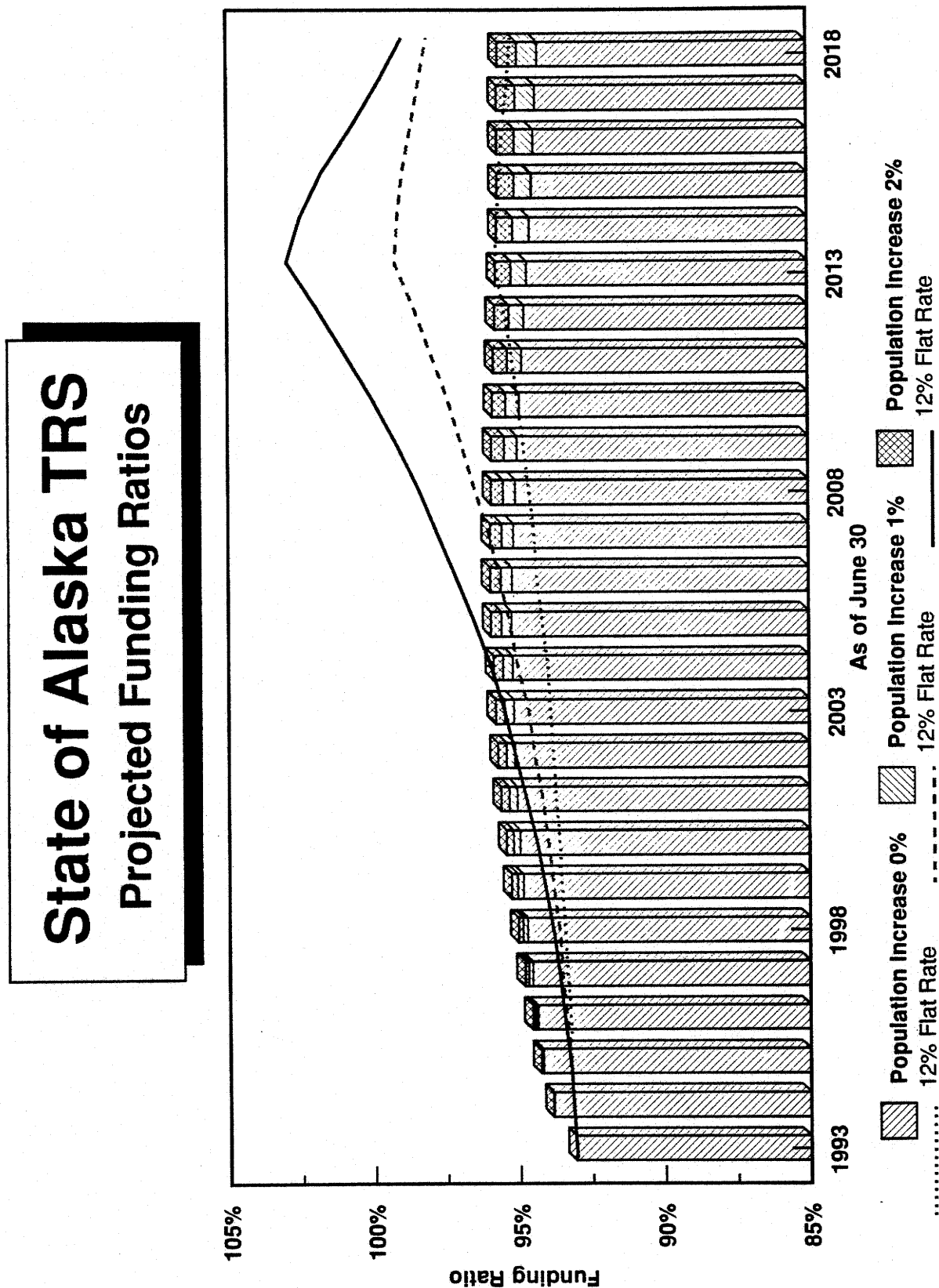
\* Surpluses reduce employer contributions over 5 years  
\* Deficits increase employer contributions over 25 years

# 1.6 Actuarial Projections (continued)

## State of Alaska TRS Projected Contribution Rates



## 1.6 Actuarial Projections (continued)



# 1.6 Actuarial Projections (continued)

Table 4  
State of Alaska TRS  
Financial Projections ('000 omitted)

As of June 30	Investment Return			9.00%			1--			Flow Amounts During Following 12 Months			0.00%			Ending Asset Value
	Valuation Amounts on July 1--			Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employee Contribs	Employer Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings				
	Total Assets	Accrued Liability	Funding Ratio													
1993	2,261,082	2,429,456	93.1%	(168,374)	459,744	12.00%	55,950	41,030	96,979	130,431	(33,452)	201,992	2,429,622			
1994	2,429,622	2,607,915	93.2%	(178,293)	472,751	12.00%	57,532	42,142	99,674	140,532	(40,858)	216,827	2,605,591			
1995	2,605,591	2,793,737	93.3%	(188,145)	486,115	12.00%	59,151	43,279	102,430	152,871	(50,440)	232,233	2,787,384			
1996	2,787,384	2,986,250	93.3%	(198,865)	499,739	12.00%	60,719	44,375	105,094	168,323	(63,229)	248,019	2,972,175			
1997	2,972,175	3,181,665	93.4%	(209,490)	512,242	12.00%	62,250	45,443	107,693	185,285	(77,592)	264,004	3,158,587			
1998	3,158,587	3,378,456	93.5%	(219,869)	525,262	12.00%	63,967	46,642	110,609	201,043	(90,433)	280,203	3,348,357			
1999	3,348,357	3,578,439	93.6%	(230,082)	540,852	12.00%	65,838	47,952	113,789	221,216	(107,426)	296,518	3,537,448			
2000	3,537,448	3,776,974	93.7%	(239,526)	556,441	12.00%	67,708	49,258	116,966	242,139	(125,173)	312,738	3,725,013			
2001	3,725,013	3,972,995	93.8%	(247,982)	572,031	12.00%	69,579	50,561	120,140	263,693	(143,553)	328,791	3,910,251			
2002	3,910,251	4,165,679	93.9%	(255,428)	587,620	12.00%	71,450	51,861	123,310	285,223	(161,912)	344,637	4,092,976			
2003	4,092,976	4,354,449	94.0%	(261,473)	603,210	12.00%	73,713	53,442	127,155	307,683	(180,528)	360,244	4,272,692			
2004	4,272,692	4,538,971	94.1%	(266,279)	625,339	12.00%	76,368	55,304	131,672	329,690	(198,018)	375,631	4,450,305			
2005	4,450,305	4,719,157	94.3%	(268,852)	647,469	12.00%	79,024	57,161	136,185	352,664	(216,480)	390,786	4,624,612			
2006	4,624,612	4,895,165	94.5%	(270,553)	669,599	12.00%	81,680	59,014	140,693	375,251	(234,558)	405,660	4,795,714			
2007	4,795,714	5,067,395	94.6%	(271,681)	691,728	12.00%	84,335	60,862	145,197	396,979	(251,782)	420,284	4,964,216			
2008	4,964,216	5,236,493	94.8%	(272,277)	713,858	12.00%	87,609	63,152	150,761	417,118	(266,357)	434,793	5,132,652			
2009	5,132,652	5,403,349	95.0%	(270,698)	746,298	12.00%	91,502	65,958	157,460	437,054	(279,594)	449,357	5,302,415			
2010	5,302,415	5,569,101	95.2%	(266,686)	778,739	12.00%	95,395	68,764	164,159	456,533	(292,374)	464,061	5,474,102			
2011	5,474,102	5,735,127	95.4%	(261,025)	811,180	12.00%	99,288	71,570	170,858	474,780	(303,922)	478,993	5,649,173			
2012	5,649,173	5,903,052	95.7%	(253,880)	843,620	12.00%	103,181	74,376	177,557	492,193	(314,636)	494,267	5,828,803			
2013	5,828,803	6,074,747	96.0%	(245,943)	876,061	9.70%	87,213	77,734	164,948	508,769	(343,822)	509,120	5,994,102			
2014	5,994,102	6,252,325	95.9%	(258,223)	921,261	9.58%	90,407	81,644	172,051	523,895	(351,843)	523,636	6,165,895			
2015	6,165,895	6,438,146	95.8%	(272,251)	966,461	9.39%	92,873	85,554	178,427	536,594	(358,167)	538,813	6,346,542			
2016	6,346,542	6,634,814	95.7%	(288,272)	1,011,661	9.63%	99,554	89,464	189,017	551,531	(362,514)	554,876	6,538,903			
2017	6,538,903	6,845,176	95.5%	(306,273)	1,056,861	9.86%	106,392	93,373	199,766	566,871	(367,105)	571,982	6,743,780			
2018	6,743,780	7,072,328	95.4%	(328,548)	1,102,061	10.08%	111,135	95,328	206,463	583,035	(376,571)	589,994	6,957,203			

\* Surpluses reduce employer contributions over 5 years  
\* Deficits increase employer contributions over 25 years

# 1.6 Actuarial Projections (continued)

Table 5

State of Alaska TRS  
Financial Projections ('000 omitted)

As of June 30	Investment Return			9.00%			Annual Population Increase										1.00%			Ending Asset Value
	Valuation Amounts on July 1			Surplus* (Deficit)	Flow Amounts During Following 12 Months--			Net			Investment Earnings									
	Total Assets	Accrued Liability	Funding Ratio		Total Salaries	Employer Ctb Rate	Employer Contribs	Employee Contribs	Total Contribs	Total Benefit Payments		Contribs								
1993	2,261,082	2,429,456	93.1%	(168,374)	459,744	12.00%	56,141	41,170	97,311	130,431	(33,121)	202,007	2,429,968							
1994	2,429,968	2,607,968	93.2%	(178,000)	475,934	12.00%	58,128	42,579	100,707	140,532	(39,825)	216,905	2,607,048							
1995	2,607,048	2,794,138	93.3%	(187,090)	492,868	12.00%	60,201	44,047	104,247	152,925	(48,677)	232,444	2,790,814							
1996	2,790,814	2,987,317	93.4%	(196,502)	510,476	12.00%	62,273	45,511	107,785	168,452	(60,667)	248,443	2,978,590							
1997	2,978,590	3,183,794	93.6%	(205,203)	527,411	12.00%	64,366	46,987	111,353	185,511	(74,158)	264,736	3,169,168							
1998	3,169,168	3,382,136	93.7%	(212,967)	545,354	12.00%	66,777	48,692	115,469	201,391	(85,921)	281,359	3,364,606							
1999	3,364,606	3,584,067	93.9%	(219,461)	567,603	12.00%	69,447	50,581	120,028	221,715	(101,687)	298,239	3,561,157							
2000	3,561,157	3,785,389	94.1%	(224,231)	589,851	12.00%	72,117	52,465	124,582	242,816	(118,233)	315,184	3,758,108							
2001	3,758,108	3,985,114	94.3%	(227,066)	612,100	12.00%	74,787	54,345	129,132	264,585	(135,453)	332,134	3,954,789							
2002	3,954,789	4,182,540	94.6%	(227,752)	634,349	12.00%	77,457	56,221	133,678	286,298	(152,621)	349,063	4,151,231							
2003	4,151,231	4,377,249	94.8%	(226,017)	656,598	12.00%	80,748	58,542	139,290	308,966	(169,676)	365,975	4,347,531							
2004	4,347,531	4,569,103	95.2%	(221,572)	689,201	12.00%	84,660	61,308	145,968	331,194	(185,225)	382,943	4,545,248							
2005	4,545,248	4,758,252	95.5%	(213,004)	721,803	12.00%	88,573	64,067	152,640	354,418	(201,778)	399,992	4,743,463							
2006	4,743,463	4,945,127	95.9%	(201,665)	754,406	12.00%	92,485	66,820	159,305	377,292	(217,986)	417,102	4,942,578							
2007	4,942,578	5,130,445	96.3%	(187,867)	787,008	12.00%	96,397	69,567	165,964	399,355	(233,391)	434,329	5,143,517							
2008	5,143,517	5,315,205	96.8%	(171,688)	819,611	12.00%	101,260	72,992	174,252	419,888	(245,636)	451,863	5,349,744							
2009	5,349,744	5,500,689	97.3%	(150,945)	868,061	12.00%	107,074	77,183	184,257	440,281	(256,024)	469,956	5,563,676							
2010	5,563,676	5,688,464	97.8%	(124,788)	916,511	12.00%	112,888	81,374	194,262	460,289	(266,026)	488,760	5,786,409							
2011	5,786,409	5,880,381	98.4%	(93,972)	964,961	12.00%	118,702	85,565	204,267	479,151	(274,884)	508,407	6,019,932							
2012	6,019,932	6,078,575	99.0%	(58,643)	1,013,412	12.00%	124,516	89,756	214,272	497,306	(283,034)	529,057	6,265,955							
2013	6,265,955	6,285,462	99.7%	(19,507)	1,061,862	7.29%	79,916	94,841	174,757	514,760	(340,003)	548,636	6,474,588							
2014	6,474,588	6,503,745	99.6%	(29,157)	1,130,989	7.00%	81,602	100,820	182,423	530,915	(348,493)	567,031	6,693,126							
2015	6,693,126	6,736,408	99.4%	(43,282)	1,200,116	6.62%	81,762	106,800	188,562	544,811	(356,249)	586,350	6,923,227							
2016	6,923,227	6,986,721	99.1%	(63,495)	1,269,243	6.94%	90,447	112,779	203,227	561,437	(358,210)	606,971	7,171,988							
2017	7,171,988	7,258,237	98.8%	(86,249)	1,338,370	7.25%	99,548	118,759	218,307	578,843	(360,536)	629,255	7,440,706							
2018	7,440,706	7,554,791	98.5%	(114,085)	1,407,497	7.57%	106,617	121,748	228,366	597,489	(369,124)	653,053	7,724,635							

\* Surpluses reduce employer contributions over 5 years

\* Deficits increase employer contributions over 25 years



# 1.6 Actuarial Projections (continued)

Table 6

State of Alaska TRS  
Financial Projections ('000 omitted)

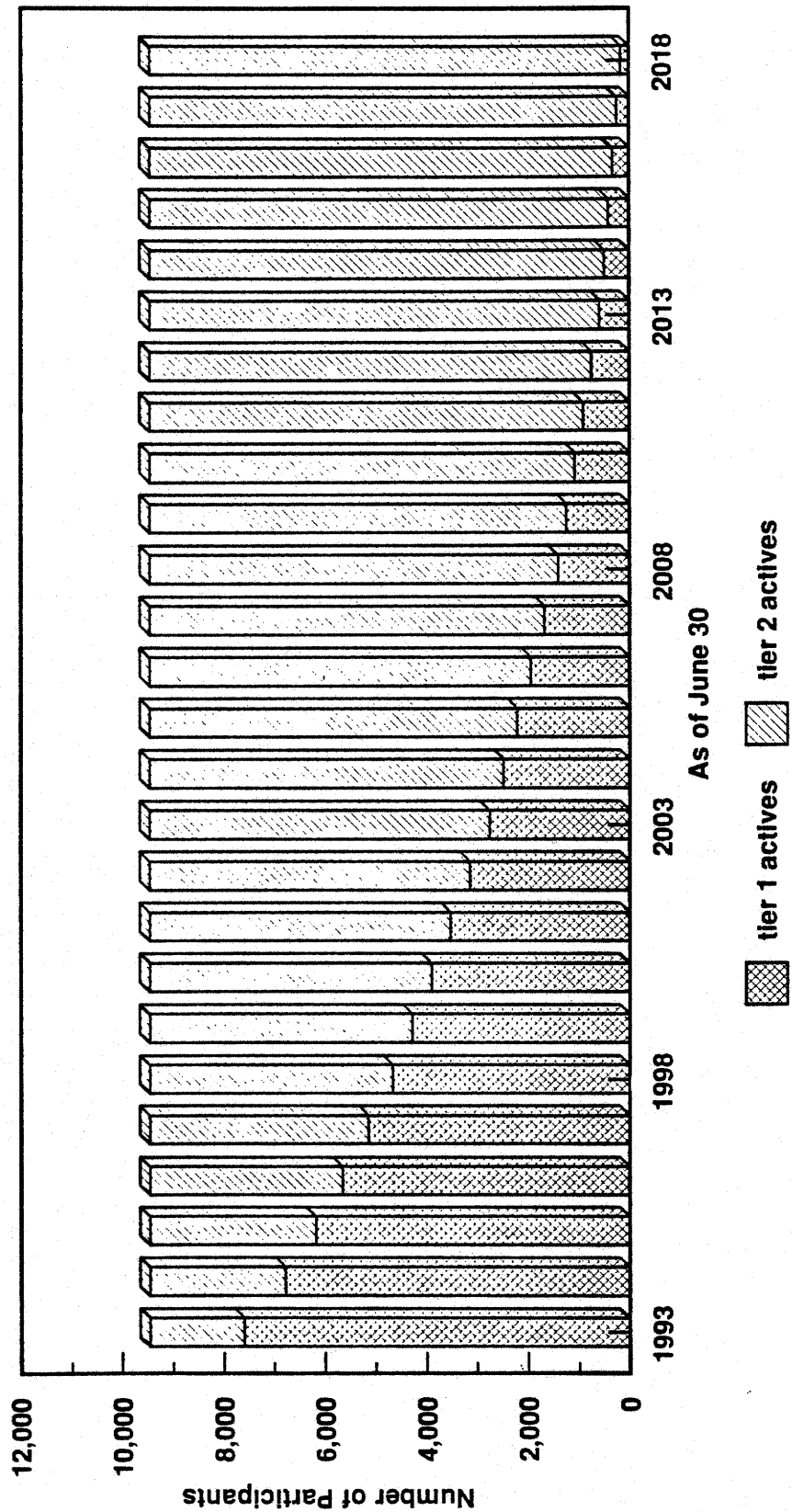
As of June 30	Investment Return		9.00%		Annual Population Increase										2.00%		Ending Asset Value
	Valuation Amounts on July 1				1-		Flow Amounts During Following 12 Months			Net		Investment Earnings					
	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employee Contribs	Total Contribs	Total Benefit Payments	Contribs							
1993	2,261,082	2,429,456	93.1%	(168,374)	459,744	12.00%	56,332	41,310	97,642	130,431	(32,790)	202,022	2,430,314				
1994	2,430,314	2,608,020	93.2%	(177,706)	479,117	12.00%	58,728	43,018	101,747	140,532	(38,786)	216,983	2,608,512				
1995	2,608,512	2,794,540	93.3%	(186,028)	499,689	12.00%	61,267	44,827	106,094	152,979	(46,885)	232,656	2,794,283				
1996	2,794,283	2,988,393	93.5%	(194,111)	521,425	12.00%	63,868	46,677	110,544	168,583	(58,039)	248,874	2,985,118				
1997	2,985,118	3,185,956	93.7%	(200,839)	543,034	12.00%	66,557	48,587	115,144	185,740	(70,596)	265,484	3,180,005				
1998	3,180,005	3,385,895	93.9%	(205,890)	566,251	12.00%	69,734	50,848	120,582	201,749	(81,167)	282,548	3,381,386				
1999	3,381,386	3,589,722	94.2%	(208,336)	595,982	12.00%	73,302	53,388	126,690	222,230	(95,540)	300,025	3,585,872				
2000	3,585,872	3,793,939	94.5%	(208,068)	625,713	12.00%	76,869	55,923	132,792	243,522	(110,730)	317,746	3,792,888				
2001	3,792,888	3,997,611	94.9%	(204,724)	655,444	12.00%	80,437	58,451	138,888	265,522	(126,634)	335,661	4,001,915				
2002	4,001,915	4,200,141	95.3%	(198,226)	685,176	12.00%	84,005	60,974	144,979	287,441	(142,463)	353,762	4,213,214				
2003	4,213,214	4,401,270	95.7%	(188,056)	714,907	12.00%	88,501	64,163	152,664	310,342	(157,678)	372,094	4,427,629				
2004	4,427,629	4,601,080	96.2%	(173,450)	760,106	12.00%	93,925	68,017	161,942	332,825	(170,883)	390,797	4,647,543				
2005	4,647,543	4,799,988	96.8%	(152,445)	805,305	12.00%	99,349	71,862	171,211	356,339	(185,129)	409,948	4,872,363				
2006	4,872,363	4,998,752	97.5%	(126,389)	850,505	12.00%	104,773	75,698	180,471	379,549	(199,078)	429,554	5,102,839				
2007	5,102,839	5,198,467	98.2%	(95,628)	895,704	12.00%	110,196	79,525	189,722	402,006	(212,284)	449,703	5,340,257				
2008	5,340,257	5,400,567	99.7%	(60,310)	940,903	12.00%	117,045	84,370	201,416	423,003	(221,587)	470,652	5,589,322				
2009	5,589,322	5,606,825	99.7%	(17,503)	1,009,855	12.00%	125,320	90,335	215,654	443,936	(228,281)	492,766	5,853,807				
2010	5,853,807	5,819,351	100.6%	34,456	1,078,806	12.00%	133,594	96,299	229,893	464,569	(234,676)	516,282	6,135,412				
2011	6,135,412	6,040,594	101.6%	94,818	1,147,757	12.00%	141,868	102,263	244,131	484,166	(240,035)	541,386	6,436,763				
2012	6,436,763	6,273,342	102.6%	163,421	1,216,708	12.00%	150,142	108,227	258,370	503,202	(244,833)	568,291	6,760,222				
2013	6,760,222	6,520,721	103.7%	239,501	1,285,660	12.00%	155,096	115,606	271,202	521,697	(250,995)	592,625	7,001,851				
2014	7,001,851	6,786,195	103.2%	215,656	1,387,310	2.99%	43,068	124,399	167,467	539,076	(371,609)	613,444	7,243,686				
2015	7,243,686	7,073,567	102.4%	170,119	1,488,961	1.74%	26,805	133,192	159,997	554,399	(394,403)	634,184	7,483,467				
2016	7,483,467	7,386,979	101.3%	96,489	1,590,611	2.72%	44,663	141,984	186,647	572,986	(386,339)	656,127	7,753,255				
2017	7,753,255	7,730,909	100.3%	22,346	1,692,262	3.91%	68,171	150,777	218,948	592,789	(373,841)	680,970	8,060,384				
2018	8,060,384	8,110,175	99.4%	(49,791)	1,793,913	5.37%	96,250	155,173	251,423	614,315	(362,892)	709,104	8,406,596				

\* Surpluses reduce employer contributions over 5 years  
\* Deficits increase employer contributions over 25 years

## 1.6 Actuarial Projections (continued)

### State of Alaska TRS

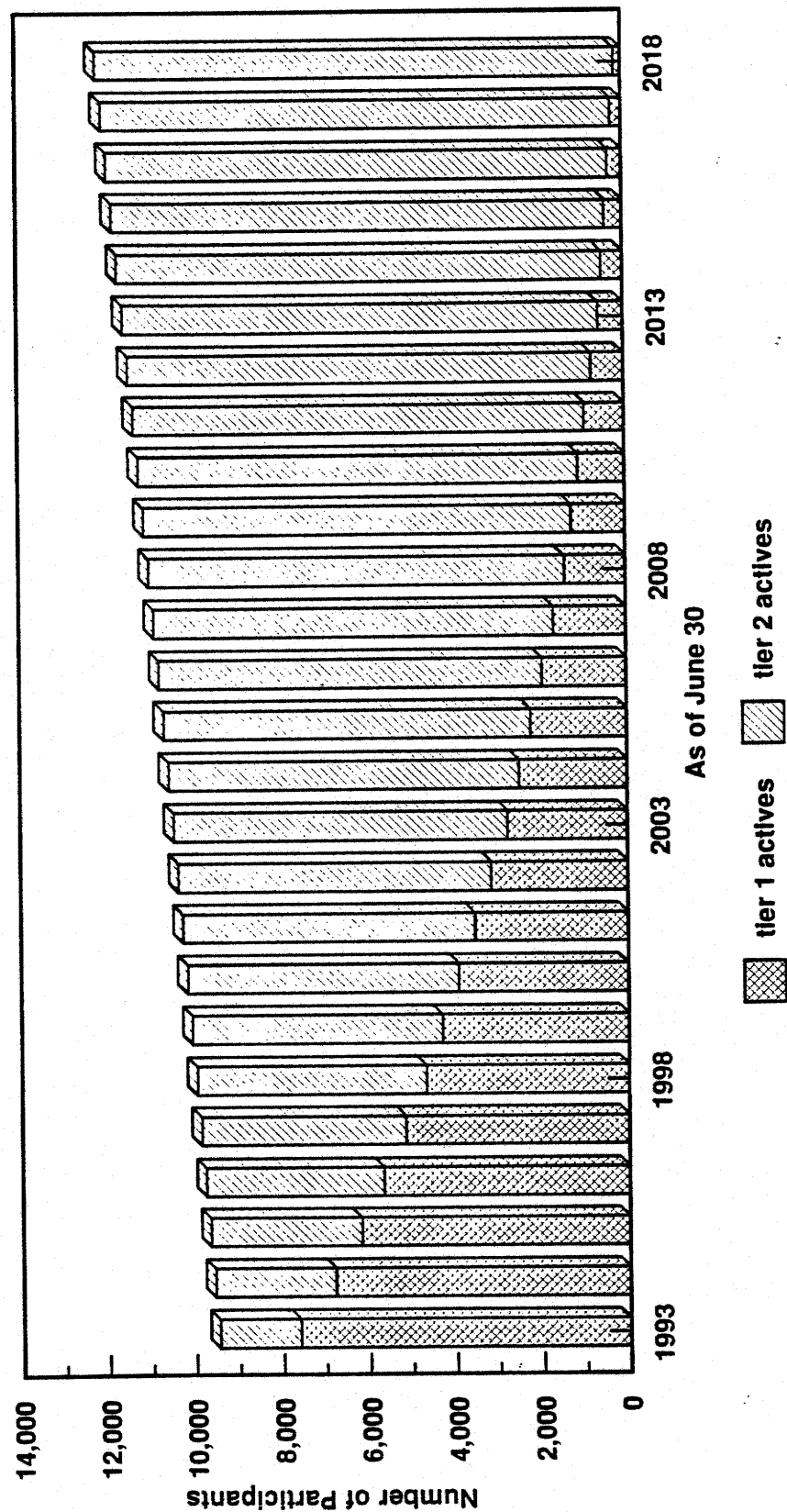
Projected Active Participant Count  
Annual Population Increase of 0%



## 1.6 Actuarial Projections (continued)

### State of Alaska TRS

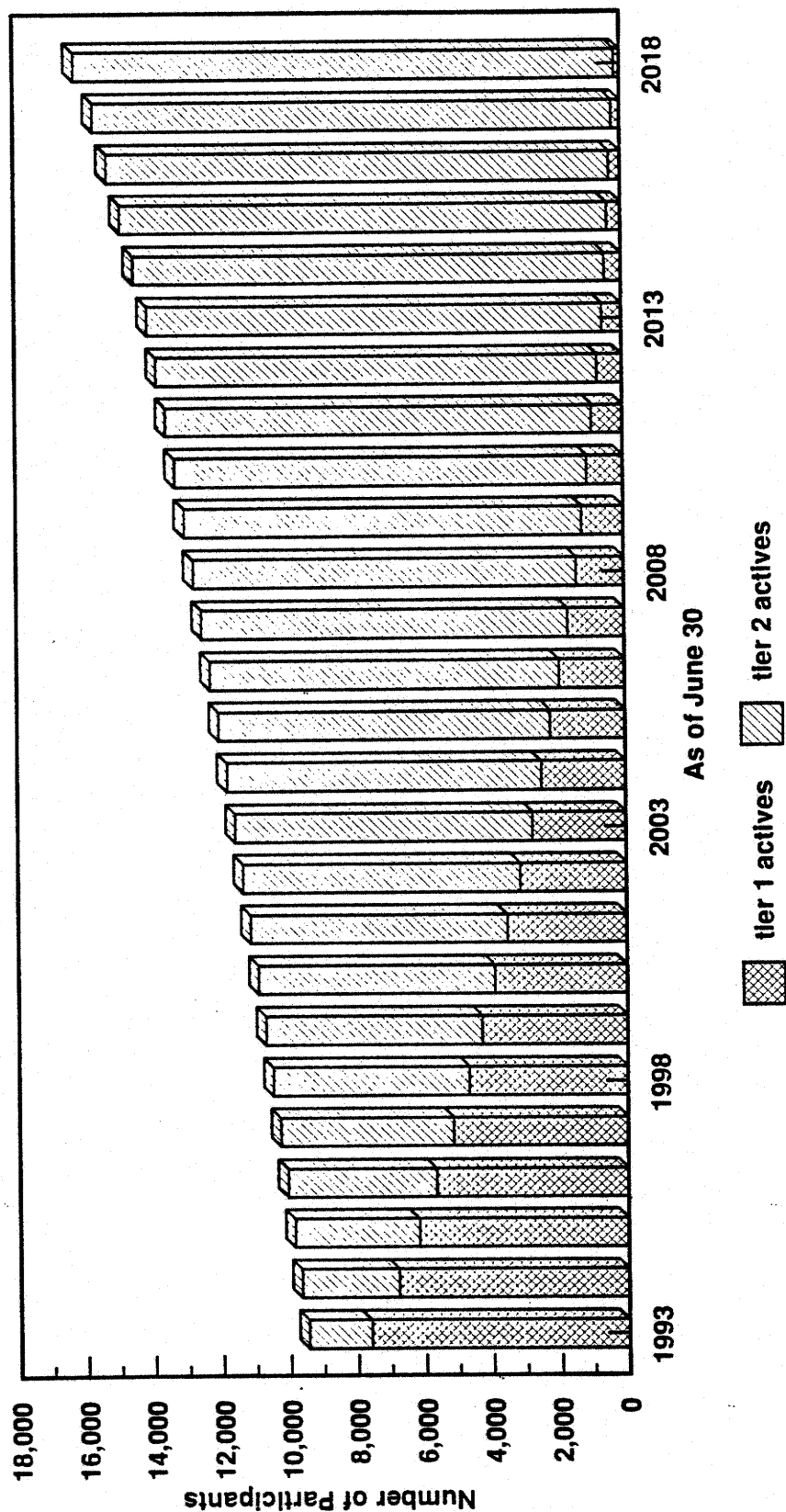
Projected Active Participant Count  
Annual Population Increase of 1%



## 1.6 Actuarial Projections (continued)

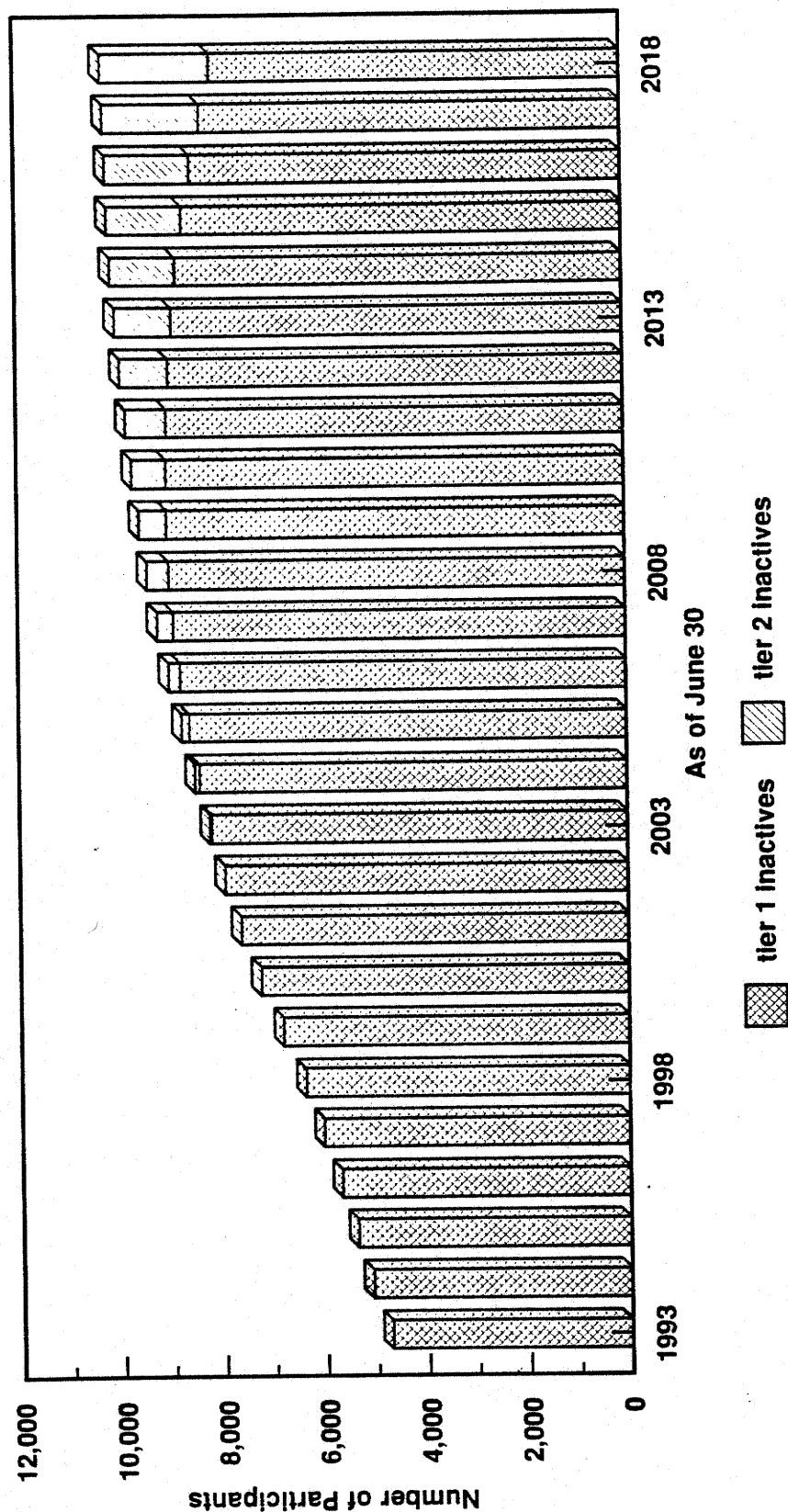
### State of Alaska TRS

Projected Active Participant Count  
Annual Population Increase of 2%



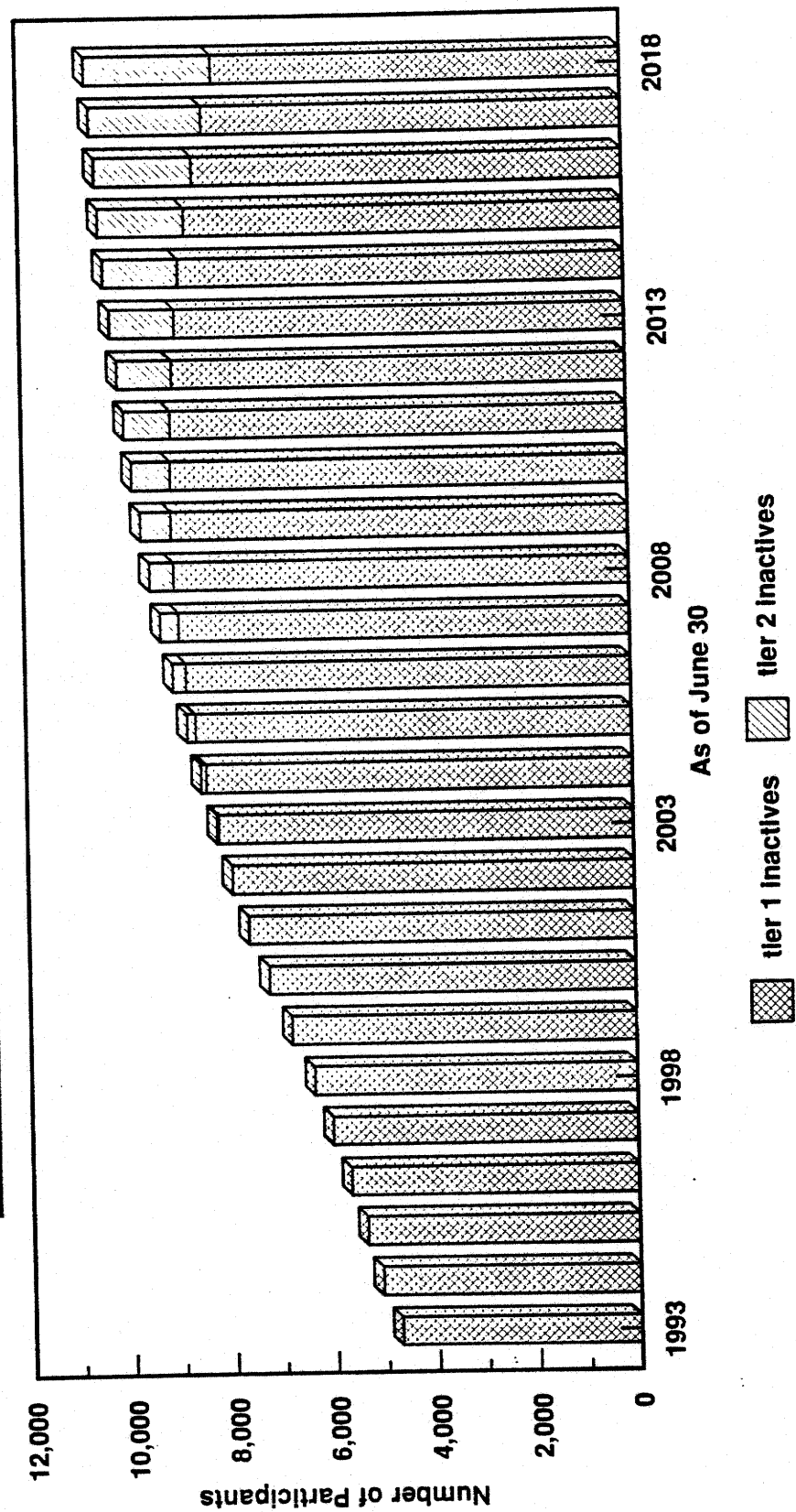
1.6 Actuarial Projections (continued)

**State of Alaska TRS**  
**Projected Inactive Participant Count**  
**Annual Population Increase of 0%**



## 1.6 Actuarial Projections (continued)

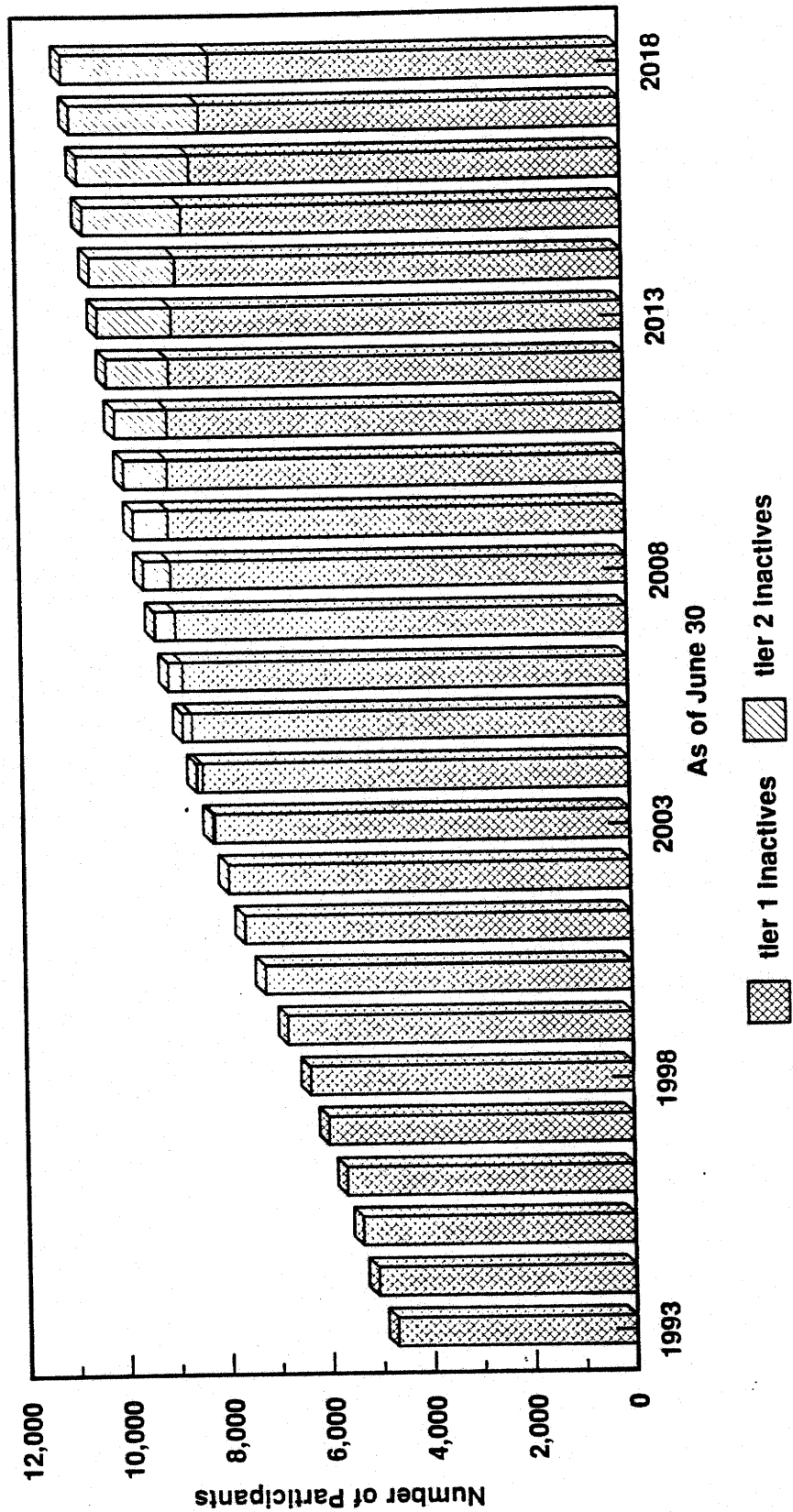
### State of Alaska TRS Projected Inactive Participant Count Annual Population Increase of 1%



## 1.6 Actuarial Projections (continued)

### State of Alaska TRS

Projected Inactive Participant Count  
Annual Population Increase of 2%



## **Section 2**

### **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 2.1 and participant census information is shown in Section 2.2.

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 2.3.



## **2.1 Summary of the Alaska Teachers' Retirement System**

### **(1) Effective Date**

June 30, 1955, with amendments through June 30, 1993. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under the TRS before July 1, 1990, are eligible for different benefits than members hired after June 30, 1990.

### **(2) Administration of Plan**

The Commissioner of Administration is responsible for administering the system. The Teachers' Retirement Board prescribes policies and regulations and performs other activities necessary to carry out the provisions of the system. The Alaska State Pension Investment Board, Department of Revenue, Treasury Division is responsible for investing TRS funds. The Attorney General represents the system in legal proceedings.

### **(3) Membership**

Membership in the Alaska TRS is mandatory for the following employees:

- certificated full-time and part-time elementary and secondary teachers, certificated school nurses, and certificated employees in positions requiring teaching certificates;
- the Commissioner of the Alaska Department of Education and certificated supervisors employed by the Department of Education in permanent positions requiring teaching certificates;
- University of Alaska full-time and part-time teachers, and full-time administrative employees in positions requiring academic standing if approved by the TRS administrator;
- certain full-time or part-time teachers of Alaska Native language or culture who have elected to be covered under the TRS;
- members on approved sabbatical leave under AS 14.20.310; and
- certain State legislators who have elected to be covered under the TRS.

Employees participating in the University of Alaska's Optional Retirement Plan or other retirement plans funded by the State are not covered by the TRS.

Employees who work half-time in the TRS and Public Employees' Retirement System (PERS) simultaneously are eligible for half-time TRS and PERS credit.

**(4) Credited Service**

TRS members receive a year of membership credit if they work a minimum of 172 days during the school year (July 1 through June 30 of the following year). Fractional credit is determined based on the number of days worked. Members receive one-half year of membership credit for each year of part-time service. Credit is granted for all Alaskan public school service.

Members may claim other types of service, including:

- Outside teaching service in out-of-state schools or Alaska private schools (not more than ten years may be claimed);
- Military service (not more than five years of military service or ten years of combined outside and military service may be claimed);
- Alaska Bureau of Indian Affairs (BIA) service;
- Retroactive Alaskan service that was not creditable at the time it occurred, but later became creditable because of legislative change;
- Unused sick leave credit after members retire; and
- Leave of absence without pay.

Except for retroactive Alaska service that occurred before July 1, 1955, and unused sick leave, contributions are required for all claimed service.

Members receiving TRS disability benefits continue to earn TRS credit while disabled.

**(5) Employer Contributions**

TRS employers contribute the amounts required, in addition to employees' contributions, to fund the benefits of the system.

**(6) Member Contributions**

**Mandatory Contributions:** Members are required to contribute 8.65% of their base salaries. Members' contributions are deducted from gross salaries before federal income taxes are withheld.

Contributions for Claimed Service: Member contributions are also required for most of the claimed service described in (4) above.

1% Supplemental Contributions: Members who joined the system before July 1, 1982, and elected to participate in the supplemental contributions provision, are required to contribute an additional 1% of their salaries. Under the supplemental provision, an eligible spouse or dependent child will receive a survivor's allowance or spouse's pension if the member dies (see (10) below).

Interest: Members' contributions earn 4.5% interest, compounded annually on June 30.

Refund of Contributions: Terminated members may receive refunds of their member contribution accounts, which includes their mandatory contributions, indebtedness payments, and interest earned. Terminated members' accounts may be attached to satisfy claims under Alaska Statute 09.38.065, federal income tax levies, and valid qualified domestic relations orders.

Reinstatement of Contributions: Refunded accounts and the corresponding TRS service may be reinstated upon reemployment in the TRS. Accounts attached to satisfy claims under Alaska Statute 09.38.065 or a federal tax levy may be reinstated at any time. Interest accrues on refunds until paid in full or members retire.

## **(7) Retirement Benefits**

### Eligibility:

- (a) Members, including deferred vested members, are eligible for normal retirement at age 60\*, or early retirement at age 55, if they have at least:
  - (i) eight years of paid-up membership service;
  - (ii) 15 years of paid-up creditable service, the last five years which are membership service, and they were first hired under the TRS before July 1, 1975;
  - (iii) five years of paid-up membership service and three years of paid-up Alaska Bureau of Indian Affairs service;
  - (iv) 12 years of combined part-time and full-time paid-up membership service;  
or
  - (v) two years of paid-up membership service if they are vested in the Public Employees' Retirement System (PERS).

\* Members participating before July 1, 1990, are eligible for normal retirement at age 55 or early retirement at age 50.

(b) Members may retire at any age when they have:

- (i) 25 years of paid-up creditable service, the last five years which are membership service;
- (ii) 20 years of paid-up membership service;
- (iii) 20 years of combined paid-up membership and Alaska Bureau of Indian Affairs service, the last five years which are membership service; or
- (iv) 20 years of combined paid-up part-time and full-time membership service.

**Benefit Type:** Lifetime benefits are paid to members. Eligible members may receive normal, unreduced benefits when they (1) reach normal retirement age and complete the service required; or (2) satisfy the minimum service requirements to retire at any age under (b) above. Members may receive early, actuarially reduced benefits when they reach early retirement age and complete the service required.

Members may also select joint and survivor options. Under those options and early retirement, benefits are actuarially adjusted so that members receive the actuarial equivalents of their normal benefit amounts.

**Benefit Calculation:** Retirement benefits are calculated by multiplying the average base salary (ABS) times the total TRS service times the percentage multiplier. The ABS is determined by averaging the salaries earned during the three highest, school years. Members must earn at least 115 days of credit in a school year to include it in the ABS calculation. The TRS pays a minimum benefit of \$25.00 per month for each year of service when the calculated benefit is less.

The percentage multipliers are 2% for the first 20 years and 2.5% for all remaining service. Service before July 1, 1990, is calculated at 2%.

**Indebtedness:** Members who terminate and refund their TRS contributions are not eligible to retire, unless they return to TRS employment and pay back their refunds, plus interest, or accrue additional service which qualifies them for retirement. TRS refunds must be paid in full if the corresponding service is to count toward the minimum service requirements for retirement. Refunded TRS service is included in total service for the purpose of calculating retirement benefits. However, when refunds are not completely paid before retirement, benefits are actuarially reduced for life.

#### **(8) Reemployment of Retired Members**

Retirement benefits are suspended while retired members are reemployed under the TRS. During reemployment, members earn additional TRS service and contributions are withheld from their wages.

Members retired under the Retirement Incentive Programs (RIPs) who return to employment under the TRS, Public Employees' Retirement System (PERS), or the University of Alaska's Optional Retirement Plan will:

- (a) forfeit the three years of incentive credits that they received;
- (b) owe the TRS 110% of the benefits that they received under the RIP, which may include costs for health insurance, excluding amounts that they paid to participate; and
- (c) be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

**(9) Disability Benefits**

Monthly disability benefits are paid to permanently disabled members until they die, recover or become eligible for normal retirement. To be eligible, members must have at least five years of paid-up membership service.

Disability benefits are equal to 50% of the member's base salary at the time of disability. The benefit is increased by 10% of the base salary for each minor child, up to a maximum of 40%. Members continue to earn TRS service until eligible for normal retirement.

Members are appointed to normal retirement on the first of the month after they become eligible.

**(10) Death Benefits**

Monthly death benefits may be paid to a spouse or dependent children upon the death of a member. If monthly benefits are not payable under the supplemental contributions provision or occupational and nonoccupational death provisions, the designated beneficiary receives the lump sum benefit described below.

Occupational Death: When an active member dies from occupational causes, a monthly survivor's pension may be paid to the spouse, unless benefits are payable under the supplemental contributions provision (below). The pension equals 40% of the member's base salary on the date of death or disability, if earlier. If there is no spouse, the pension may be paid to the member's dependent children. On the member's normal retirement date, the benefit converts to a normal retirement benefit. The normal benefit is based on the member's average base salary as existed on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date.

Nonoccupational Death: When a vested member dies from nonoccupational causes, the surviving spouse may elect to receive a monthly 50% joint and survivor benefit or a lump sum benefit, unless benefits are payable under the supplemental contributions provision (below). The monthly benefit is calculated on the member's average base salary and TRS service accrued at the time of death.

Lump Sum Benefit: Upon the death of an active member who has less than one year of service or an inactive member who is not vested, the designated beneficiary receives the member's contribution account, which includes mandatory contributions, indebtedness payments, and interest earned. Any supplemental contributions will also be refunded. If the member has more than one year of TRS service, the beneficiary also receives \$1,000 and \$100 for each year of TRS service, up to a maximum of \$3,000. An additional \$500 may be payable if the member is survived by dependent children.

Supplemental Contributions Provision: Members are eligible for supplemental coverage if they joined the TRS before July 1, 1982, elected to participate in the supplemental provision, and made the required contributions. A survivor's allowance or spouse's pension (below) may be payable if the member made supplemental contributions for at least one year and dies while in membership service or while disabled under the TRS. In addition, the allowance and pension may be payable if the member dies while retired or in deferred vested status if supplemental contributions were made for at least five years.

- (a) Survivor's Allowance: If the member is survived by dependent children, the surviving spouse and dependent children are entitled to a survivor's allowance. The allowance for the spouse is equal to 35% of the member's base salary at the time of death or disability, plus 10% for each dependent child up to a maximum of 40%. The allowance terminates and a spouse's pension becomes payable when there is no longer an eligible dependent child.
- (b) Spouse's Pension: The spouse's pension is equal to 50% of the retirement benefit that the deceased member was receiving or would have received if retired at the time of death. The spouse's pension begins on the first of the month after the member's death or termination of the survivor's allowance.

Death After Retirement: If a joint and survivor option was selected at retirement, the eligible spouse receives continuing, lifetime monthly benefits after the member dies. A survivor's allowance or spouse's pension may be payable if the member participated in the supplemental contributions provision. If a joint and survivor option was not selected and benefits are not payable under the supplemental contributions provision, the designated beneficiary receives the member's contribution account, less any benefits already paid.

## **(11) Post Retirement Pension Adjustments**

Post retirement pension adjustments (PRPAs) are granted annually to eligible benefit recipients when the consumer price index (CPI) increases during the preceding calendar year. PRPAs are calculated by multiplying the recipient's base benefit, including past PRPAs, times:

- (a) 75% of the CPI increase in the preceding calendar year or 9%, whichever is less, if the recipient is at least age 65 or on TRS disability; or
- (b) 50% of the CPI increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60, or under age 60 if the recipient has been receiving benefits for at least eight years.

Ad hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who were first hired before July 1, 1990, if the CPI increases and the financial condition of the fund will permit an increase.

## **(12) Alaska Cost of Living Allowance**

Eligible benefit recipients who reside in Alaska receive an Alaska cost of living allowance (COLA) equal to 10% of their base benefits. The following benefit recipients are eligible:

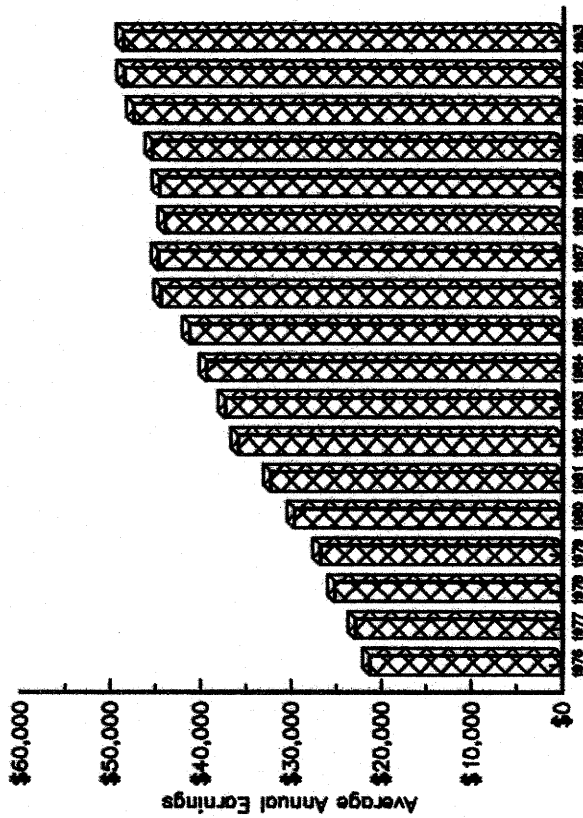
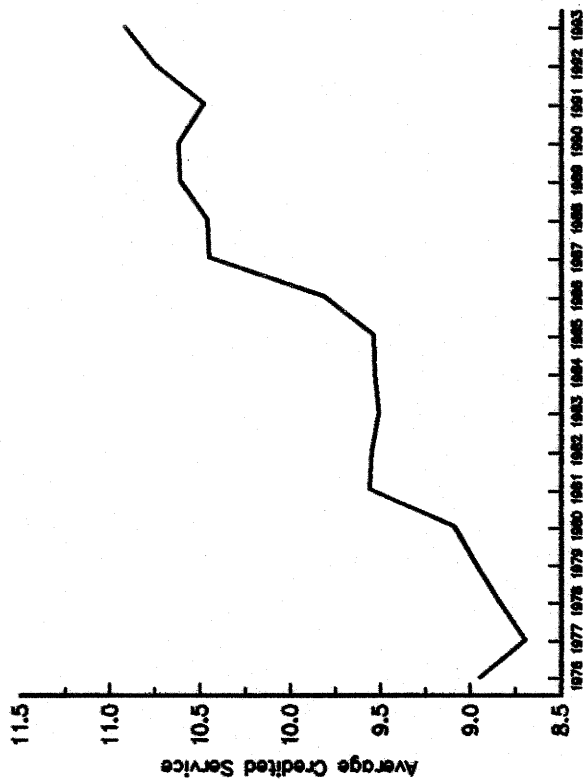
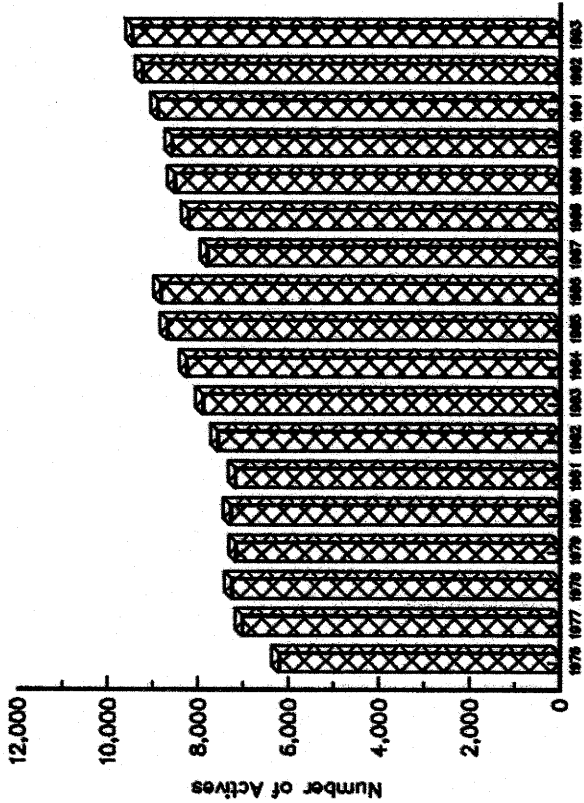
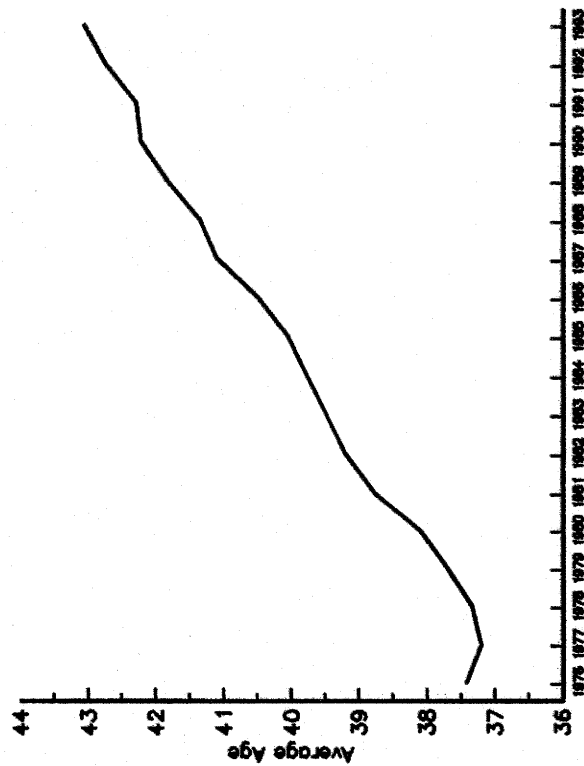
- (a) members who were first hired under the TRS before July 1, 1990, and their survivors;
- (b) members who were first hired under the TRS after June 30, 1990, and their survivors if they are at least age 65; and
- (c) all disabled members.

## 2.2(a) Participant Census Information as of June 30

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
<b>Active Members</b>					
(1) Number	8,527	8,586	8,903	9,238	9,459
(2) Number Vested	4,787	4,890	5,069	5,422	5,604
(3) Average Age	41.82	42.21	42.28	42.74	43.06
(4) Average Credited Service	10.61	10.62	10.48	10.75	10.92
(5) Average Annual Salary	\$ 44,596	\$ 45,388	\$ 47,473	\$ 48,515	\$ 48,604
<b>Retirees and Beneficiaries</b>					
(1) Number	3,098	3,184	3,544	3,602	3,891
(2) Average Age	61.85	62.45	61.64	61.97	62.47
(3) Average Monthly Benefit:					
Base	\$ 1,476	\$ 1,491	\$ 1,587	\$ 1,601	\$ 1,598
C.O.L.A.	\$ 102	\$ 100	\$ 105	\$ 102	\$ 98
P.R.P.A.	\$ 234	\$ 262	\$ 238	\$ 297	\$ 280
Adjustment	N/A	N/A	N/A	N/A	\$ 0
Total	\$ 1,812	\$ 1,853	\$ 1,930	\$ 2,000	\$ 1,976
<b>Vested Terminations</b>					
(1) Number	508	816	645	710	823
(2) Average Age	45.11	46.75	45.57	46.22	47.51
(3) Average Monthly Benefit	\$ 957	\$ 1,244	\$ 897	\$ 1,087	\$ 1,236
<b>Non-Vested Terminations With Account Balances</b>					
(1) Number	943	985	1,003	1,057	1,013
(2) Average Account Balance	\$ 9,765	\$ 10,244	\$ 10,270	\$ 10,411	\$ 11,208



# State of Alaska — TRS Actives



## 2.2(b) Distribution of Active Participants

----- Annual Earnings By Age -----			
Age Groups	Number of People	Total Annual Earnings	Average Annual Earnings
0-19	0	\$ 0	\$ 0
20-24	61	1,799,975	29,508
25-29	583	19,794,220	33,952
30-34	965	37,700,500	39,068
35-39	1,559	68,814,840	44,140
40-44	2,355	115,743,288	49,148
45-49	2,129	113,243,592	53,191
50-54	1,185	66,785,812	56,359
55-59	444	25,490,202	57,410
60-64	140	8,328,200	59,487
65-69	29	1,555,282	53,630
70-74	7	390,958	55,851
75-79	2	99,510	49,755
80+	0	0	0
Total	9,459	\$459,746,379	\$ 48,604

----- Annual Earnings By Credited Service -----			
Years of Service	Number of People	Total Annual Earnings	Average Annual Earnings
0	156	\$ 3,259,493	\$ 20,894
1	655	22,816,352	34,834
2	621	23,523,442	37,880
3	677	27,099,192	40,028
4	502	20,876,978	41,588
0- 4	2,611	97,575,457	37,371
5- 9	2,020	93,841,376	46,456
10-14	2,018	105,618,010	52,338
15-19	1,333	74,396,376	55,811
20-24	998	58,571,308	58,689
25-29	395	24,512,030	62,056
30-34	70	4,389,452	62,706
35-39	13	786,289	60,484
40+	1	56,081	56,081
Total	9,459	\$459,746,379	\$ 48,604

### Years of Credited Service By Age

Years of Service										
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	61	0	0	0	0	0	0	0	0	61
25-29	527	56	0	0	0	0	0	0	0	583
30-34	531	348	86	0	0	0	0	0	0	965
35-39	508	500	454	97	0	0	0	0	0	1,559
40-44	463	496	672	561	163	0	0	0	0	2,355
45-49	297	351	455	391	516	119	0	0	0	2,129
50-54	137	160	235	204	231	193	25	0	0	1,185
55-59	65	69	84	57	67	62	34	6	0	444
60-64	19	32	23	15	17	17	10	6	1	140
65-69	1	5	8	6	4	3	1	1	0	29
70-74	1	3	1	2	0	0	0	0	0	7
75-79	1	0	0	0	0	1	0	0	0	2
80+	0	0	0	0	0	0	0	0	0	0
Total	2,611	2,020	2,018	1,333	998	395	70	13	1	9,459

## 2.2(c) Schedule of Active Member Valuation Data

Valuation Date	Number	Annual Payroll (000's)	Annual Average Pay	Percent Increase In Average Pay
June 30, 1993	9,459	\$ 459,746	\$ 48,604	.2%
June 30, 1992	9,238	448,186	48,515	2.2%
June 30, 1991	8,903	422,655	47,473	4.6%
June 30, 1990	8,586	389,702	45,388	1.8%
June 30, 1989	8,527	380,267	44,596	1.4%
June 30, 1988	8,218	361,310	43,966	-1.7%
June 30, 1987	7,797	348,606	44,710	.6%
June 30, 1986	8,824	392,136	44,440	7.8%
June 30, 1985	8,684	358,110	41,238	4.6%
June 30, 1984	8,259	325,540	39,416	5.6%

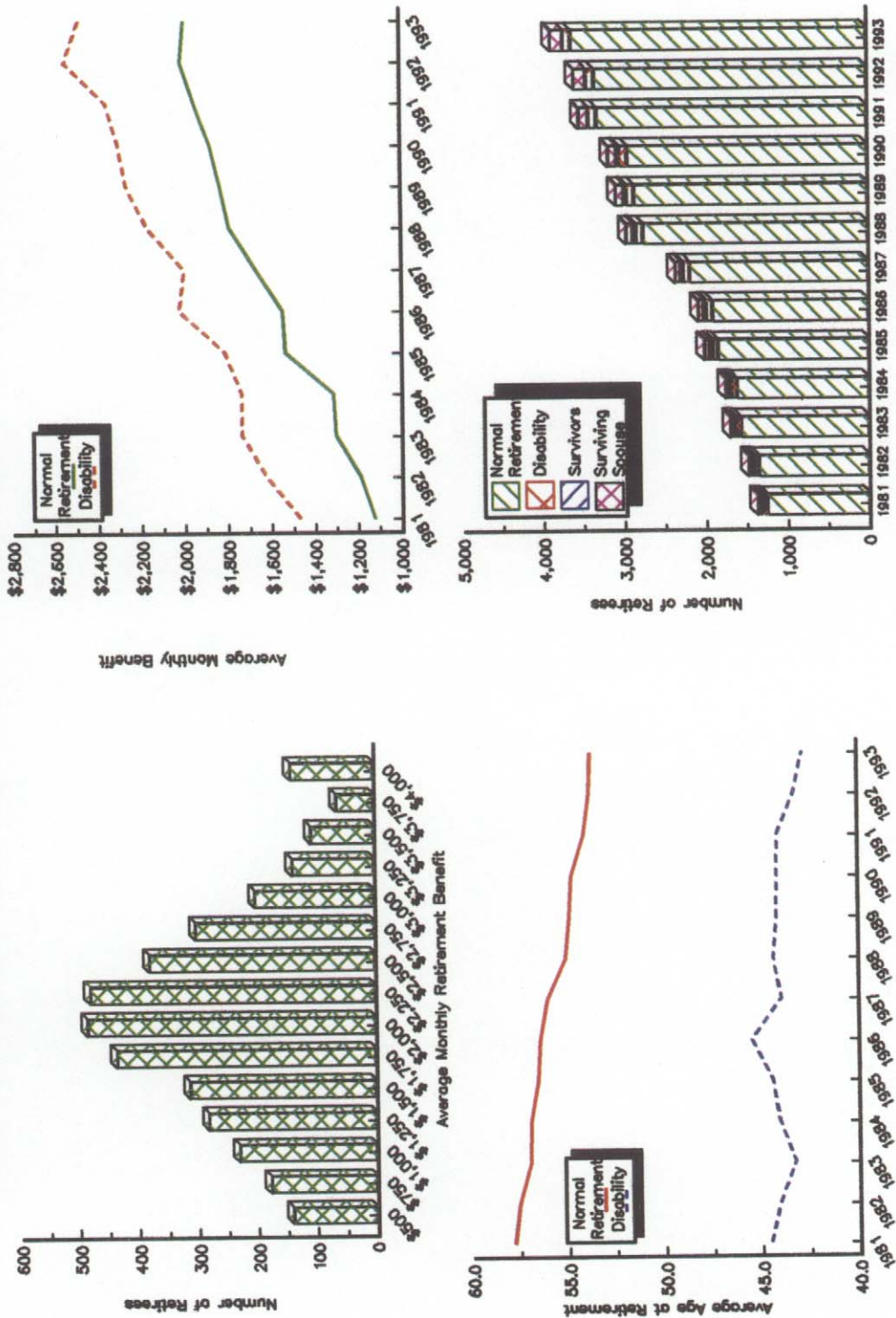
## 2.2(d) Statistics on New Retirees During the Year Ending June 30

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
<b>Service</b>					
(1) Number	187	199	507	110	158
(2) Average Age At Retirement	51.82	52.44	51.56	53.04	52.62
(3) Average Monthly Benefit	\$ 1,943	\$ 2,037	\$ 2,133	\$ 1,926	\$ 2,086
<b>Disability</b>					
(1) Number	12	8	8	8	4
(2) Average Age At Retirement	46.24	46.48	45.46	43.81	48.69
(3) Average Monthly Benefit	\$ 2,618	\$ 2,485	\$ 2,448	\$ 3,230	\$ 2,431
<b>Surviving Spouses</b>					
(1) Number	2	1	4	2	3
(2) Average Age At Retirement	43.81	63.96	45.40	49.46	49.37
(3) Average Monthly Benefit	\$ 2,318	\$ 1,203	\$ 435	\$ 620	\$ 930
<b>Total</b>					
(1) Number	201	208	519	120	165
(2) Average Age At Retirement	51.41	52.27	51.42	52.37	52.47
(3) Average Monthly Benefit	\$ 1,987	\$ 2,050	\$ 2,124	\$ 1,991	\$ 2,073

## 2.2(e) Statistics on All Retirees as of June 30

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
<b>Service Retirements</b>					
(1) Number, Fiscal Year Start	2,760	2,870	2,948	3,322	3,352
(2) Net Change During FY	110	78	374	30	284
(3) Number, Fiscal Year End	2,870	2,948	3,322	3,352	3,636
(4) Average Age At Retirement	54.91	54.80	54.14	53.83	53.75
(5) Average Age Now	62.25	62.84	61.82	62.15	62.60
(6) Average Monthly Benefit	\$ 1,834	\$ 1,879	\$ 1,950	\$ 2,013	\$ 1,998
<b>Surviving Spouse's Benefits</b>					
(1) Number, Fiscal Year Start	85	103	108	125	150
(2) Net Change During FY	18	5	17	25	11
(3) Number, Fiscal Year End	103	108	125	150	161
(4) Average Age At Retirement	55.56	55.76	54.44	54.04	53.91
(5) Average Age Now	67.26	67.79	65.95	65.90	66.72
(6) Average Monthly Benefit	\$ 738	\$ 794	\$ 1,093	\$ 1,339	\$ 1,187
<b>Survivor's Benefits (other than spouses)</b>					
(1) Number, Fiscal Year Start	36	31	31	1	2
(2) Net Change During FY	(5)	0	(30)	1	(2)
(3) Number, Fiscal Year End	31	31	1	2	0
(4) Average Age At Retirement	35.42	35.42	23.81	50.47	--
(5) Average Age Now	43.73	44.73	41.68	59.01	--
(6) Average Monthly Benefit	\$ 1,652	\$ 1,661	\$ 544	\$ 3,013	--
<b>Disabilities</b>					
(1) Number, Fiscal Year Start	91	94	97	96	98
(2) Net Change During FY93	3	3	(1)	2	(4)
(3) Number, Fiscal Year End	94	97	96	98	94
(4) Average Age At Retirement	44.22	44.18	44.15	43.30	42.85
(5) Average Age Now	49.71	50.14	50.33	49.97	49.97
(6) Average Monthly Benefit	\$ 2,267	\$ 2,304	\$ 2,358	\$ 2,552	2,484
<b>Total Number of Retirees</b>	<b>3,098</b>	<b>3,184</b>	<b>3,544</b>	<b>3,602</b>	<b>3,891</b>

# State of Alaska - TRS Retirees



## 2.2(f) Distribution of Annual Benefits for Benefit Recipients

----- Annual Benefit By Age -----			
Age Groups	Number of People	Total Annual Benefit	Average Annual Benefit
0-19	4	\$ 25,822	\$ 6,455
20-24	1	4,208	4,208
25-29	0	0	0
30-34	2	29,466	14,733
35-39	4	100,264	25,066
40-44	48	1,175,908	24,498
45-49	265	6,839,495	25,809
50-54	652	16,282,842	24,974
55-59	784	19,428,391	24,781
60-64	705	17,037,114	24,166
65-69	535	12,581,367	23,517
70-74	410	9,062,575	22,104
75-79	244	5,092,768	20,872
80+	237	4,622,501	19,504
Total	3,891	\$ 92,282,721	\$ 23,717

--- Annual Benefit By Years Since Retirement ---			
Years of Service	Number of People	Total Annual Benefit	Average Annual Benefit
0	165	\$ 4,104,577	\$ 24,876
1	125	2,861,576	22,893
2	529	13,230,941	25,011
3	221	5,382,893	24,357
4	112	2,530,349	22,592
0- 4	1,152	28,110,336	24,401
5- 9	1,413	37,255,447	26,366
10-14	645	13,743,104	21,307
15-19	506	9,839,516	19,446
20-24	133	2,440,907	18,353
25-29	35	728,384	20,811
30-34	6	142,468	23,745
35-39	1	22,559	22,559
40+	0	0	0
Total	3,891	\$ 92,282,721	\$ 23,717

### Years Since Retirement By Age

Age	----- Years Since Retirement -----									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-19	0	0	3	1	0	0	0	0	0	4
20-24	1	0	0	0	0	0	0	0	0	1
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	2	1	0	0	1	0	0	0	0	4
40-44	41	4	2	1	0	0	0	0	0	48
45-49	192	62	8	3	0	0	0	0	0	265
50-54	401	227	18	5	1	0	0	0	0	652
55-59	309	404	61	6	3	1	0	0	0	784
60-64	140	385	149	30	1	0	0	0	0	705
65-69	50	207	195	80	1	1	1	0	0	535
70-74	12	104	124	164	6	0	0	0	0	410
75-79	1	17	70	134	22	0	0	0	0	244
80+	1	2	15	82	98	33	5	1	0	237
Total	1,152	1,413	645	506	133	35	6	1	0	3,891

## 2.2(g) Schedule of Retired Members by Type of Retirant and Option Selected - June 30, 1993

Amount of Monthly Benefit	Number of Retirees	Type of Retirement			Option Selected #			
		<u>1</u>	<u>2</u>	<u>3</u>	<u>Opt. 1</u>	<u>Opt. 2</u>	<u>Opt. 3</u>	<u>Opt. 4</u>
\$ 1 - \$ 300	47	32	15	0	38	5	4	0
301 - 600	167	136	31	0	137	20	7	3
601 - 900	242	204	37	1	206	27	5	4
901 - 1200	317	295	19	3	268	30	15	4
1201 - 1500	376	359	15	2	341	25	10	0
1501 - 1800	542	520	15	7	493	33	16	0
1801 - 2100	592	568	9	15	529	44	18	1
2101 - 2400	526	502	5	19	471	41	12	2
2401 - 2700	377	359	3	15	340	32	5	0
2701 - 3000	254	244	1	9	235	15	2	2
over 3000	451	417	11	23	407	36	5	3
Totals	3,891	3,636	161	94	3,465	308	99	19

### Type of Retirement

- 1 - Normal retirement
- 2 - Survivor payment
- 3 - Disability retirement

- Option 1 - Whole Life Annuity
- Option 2 - 75% Joint and Survivor Annuity
- Option 3 - 50% Joint and Survivor Annuity
- Option 4 - 66⅔% Joint and Survivor Annuity



## 2.2(h) Schedule of Retirants and Beneficiaries Added to and Removed from Rolls

Year Ended	Added to Rolls		Removed from Rolls		Rolls - End of Year		Percent Increase in Annual Allowances	Average Annual Allowance
	No.*	Annual Allowances*	No.*	Annual Allowances*	No.	Annual Allowances		
June 30, 1993	344	\$ 8,557,344	55	\$ 1,044,709	3,891	\$ 92,282,721	6.74%	\$ 23,717
June 30, 1992	120	5,799,044	62	1,436,106	3,602	86,452,653	5.31%	24,001
June 30, 1991	519	14,827,829	159	3,535,365	3,544	82,089,715	15.95%	23,163
June 30, 1990	208	6,181,779	122	2,648,864	3,184	70,797,251	5.25%	22,235
June 30, 1989	201	5,730,311	75	1,593,075	3,098	67,264,336	6.55%	21,712
June 30, 1988	639	16,668,442	43	856,302	2,972	63,127,100	33.42%	21,241
June 30, 1987	301	8,922,546	23	425,546	2,376	47,314,960	21.89%	19,914
June 30, 1986	189	3,685,188	113	2,079,652	2,098	38,817,960	4.31%	18,502
June 30, 1985	289	9,844,034	31	489,552	2,022	37,212,424	33.58%	18,404
June 30, 1984	192	3,214,991	140	2,194,640	1,764	27,857,942	3.80%	15,792
* Numbers are estimated, and include other internal transfers.								

## 2.3 Actuarial Basis

The assumptions used in this valuation were adopted at the Fall 1991 TRS Board Meeting. The funding method used in this valuation was adopted June 30, 1985. The five-year smoothing method used to determine valuation assets was adopted June 30, 1989.

### Valuation of Liabilities

- A. Actuarial Method - Projected Unit Credit (no change).** Liabilities and contributions shown in the report are computed using the Projected Unit Credit method of funding. The unfunded accrued liability is amortized over a rolling 25 years. Any funded 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. Actuarial Assumptions -

- |                      |  |
|----------------------|--|
| 1. Investment Return | 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. Total Inflation  
Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 5% annually.
4. Health Cost Trend  
FY92 - 12.5%  
FY93 - 11.5%  
FY94 - 10.5%  
FY95 - 9.5%  
FY96 - 8.5%  
FY97 and later - 7.5%
5. Mortality  
1984 Unisex Pension Mortality Table, set forward one year for male members and set backward four years for female members. All deaths are assumed to result from nonoccupational causes.
6. Turnover  
Based upon the 1986-90 actual total turnover experience. (See Table 1).
7. Disability  
Incidence rates based upon the 1986-90 actual experience, 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.
8. Retirement Age  
Retirement rates based upon the 1986-90 actual experience in accordance with Table 3.
9. Spouse's Age  
Wives are assumed to be four years younger than husbands.
10. Dependent Children  
Benefits to dependent children have been valued assuming members who are not single have one dependent child.
11. Contribution Refunds  
100% of those terminating after age 35 who are vested will leave their contributions in the fund and thereby retain their deferred vested benefit. All others who terminate are assumed to have their contributions refunded.

12. C.O.L.A.

Of those benefit recipients who are eligible for the C.O.L.A., 66% are assumed to remain in Alaska and receive the C.O.L.A.

13. New Entrants

Growth projections are made for the active TRS population under three scenarios:

Pessimistic:	0% per year
Median:	1% per year
Optimistic:	2% per year

14. 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.

15. Expenses

Expenses are covered in the investment return assumption.

### Valuation of Assets

Based upon the five-year average ratio between actuarial and book values of the System's assets. Prior to June 30, 1992, the actuarial value of assets equalled the market value, except that fixed income investments were carried at amortized cost value. Effective June 30, 1992, the actuarial value of assets equals the full market value. Assets are accounted for on an accrued basis and are taken directly from audited financial statements provided by KPMG Peat Marwick. Valuation assets cannot be outside the range of book and actuarial values.

### 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) are assumed such that the total rate for all retirees equals the present premium rate assumption. 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.

For FY95, the pre-65 monthly premium is \$382.93 and the post-65 premium is \$133.52, based on an assumed total blended premium of \$279.55. For FY95, the actual blended premium is \$336.05. The FY95 blended premium was provided by the State of Alaska Division of Retirement and Benefits.

# Table 1

## Alaska TRS

### Total Turnover Assumptions

#### Select Rates of Turnover During the First 10 Years of Employment

<u>Year of Employment</u>	<u>Rate</u>
1	.26
2	.24
3	.16
4	.12
5	.11
6	.10
7	.09
8	.09
9	.09
10	.09

#### Ultimate Rates of Turnover After the First 10 Years of Employment

<u>Ages</u>	<u>Rate</u>
20-39	.03
40+	.02

**Table 2**  
**Alaska TRS**  
**Disability Rates**  
**Annual Rates Per 1,000 Employees**

<u>Age</u>	<u>Rate</u>
20	.14
21	.14
22	.14
23	.15
24	.15
25	.15
26	.15
27	.15
28	.16
29	.16
30	.16
31	.17
32	.17
33	.25
34	.34
35	.44
36	.53
37	.64
38	.75
39	.87
40	.99
41	1.12
42	1.25
43	1.39
44	1.53
45	1.68
46	1.84
47	2.00
48	2.17
49	2.34
50	2.52
51	2.70
52	2.89
53	3.08
54	3.29
55	3.49
56	3.70
57	3.92
58	4.14
59	4.37
60	4.61
61	4.84
62	5.09
63	5.34
64	5.60

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**Table 3**  
**Alaska TRS**  
**Retirement Rates**

<u>Age at Retirement</u>	<u>Retirement Rate</u>
50	.10
51	.07
52	.07
53	.07
54	.07
55	.16
56	.16
57	.16
58	.16
59	.13
60	.13
61	.13
62	.13
63	.13
64	.10
65	.47
66	.82
67	1.00

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

## **Section 3**

### **Other Historical Information**

3.1 shows the analysis of financial experience.

3.2 shows the summary of accrued and unfunded accrued liabilities.

3.3 shows the solvency test.

3.4 shows the statement of actuarial present value of accumulated plan benefits.



### 3.1 Analysis of Financial Experience

Change in Contribution Rate Due to Gains and Losses in Accrued Liabilities During the Last Five Fiscal Years Resulting From Differences Between Assumed Experience and Actual Experience						
Type of Gain or Loss	Change in Contribution Rate During Fiscal Year					
	93	92	91	90	89	
(1) Health Experience	0%	0%	-3.01%	-2.28%	3.06%	
(2) Salary Experience	-.45%	-.34%	-.20%	-.49%	-.45%	
(3) Investment Experience	-1.66%	0%	.70%	-1.04%	-.76%	
(4) Demographic Experience	1.23%	-.59%	.96%	1.10%	.65%	
(5) Miscellaneous	0%	0%	0%	.44%	.39%	
(6) Gain (or Loss) During Year From Experience, (1) + (2) + (3) + (4) + (5)	-.88%	-.93%	-1.55%	-2.27%	2.89%	
Non-recurring Changes						
(7) Contribution Rate Smoothing Method	0%	0%	1.21%	-3.96%	0%	
(8) Projection Valuation Method	0%	-1.36%	-4.80%	0%	0%	
(9) Asset Valuation Method	0%	-1.30%	0%	0%	0%	
(10) Assumption Changes	0%	0%	-2.51%	0%	0%	
(11) Plan Changes	0%	0%	0%	6.76%	0%	
Composite Gain (or Loss) During Year, (6) + (7) + (8) + (9) + (10) + (11)	-.88%	-3.59%	-7.65%	.53%	2.89%	

### 3.2 Summary of Accrued and Unfunded Accrued Liabilities

Valuation Date	Aggregate Accrued Liability ('000's)	Valuation Assets ('000's)	Assets as a Percent of Accrued Liability	Unfunded Accrued Liabilities (UAL) ('000's)	Annual Active Member Payroll ('000's)	UAL as a Percent of Annual Active Member Payroll
June 30, 1993	\$ 2,429,456	\$ 2,261,082	93.1%	\$ 168,374	\$ 459,746	36.6%
June 30, 1992 <sup>(1)</sup>	2,231,746	2,001,864	89.7%	229,882	448,186	51.3%
June 30, 1991 <sup>(2)</sup>	2,075,405	1,779,579	85.7%	295,826	422,655	70.0%
June 30, 1990 <sup>(3)</sup>	1,895,030	1,662,242	87.7%	232,788	389,702	59.7%
June 30, 1989 <sup>(1)</sup>	1,557,643	1,480,389	95.0%	77,254	380,267	20.3%
June 30, 1988 <sup>(2)</sup>	1,347,859	1,331,905	98.8%	15,954	361,310	4.4%
June 30, 1987	1,210,909	1,225,009	101.2%	0	348,606	0%
June 30, 1986	1,115,773	1,040,173	93.2%	75,600	392,136	19.3%
June 30, 1985 <sup>(2)(4)</sup>	1,042,551	833,617	80.0%	208,934	358,110	58.3%
June 30, 1984	804,018	674,382	83.9%	129,636	325,540	39.8%
<sup>(1)</sup> Change in Asset Valuation Method. <sup>(2)</sup> Change of Assumptions. <sup>(3)</sup> Change in Plan Provisions. <sup>(4)</sup> Change in Funding Method.						

### 3.3 Solvency Test

Valuation Date	Aggregate Accrued Liability For:			Valuation Assets ('000's)	Portion of Accrued Liabilities Covered by Assets		
	(1) Active Member Contributions ('000's)	(2) Inactive Members ('000's)	(3) Active Members (Employer-Financed Portion) ('000's)		(1)	(2)	(3)
June 30, 1993	\$ 370,667	\$ 1,223,220	\$ 835,569	\$ 2,261,082	100%	100%	79.8%
June 30, 1992 <sup>(1)</sup>	341,204	1,110,981	779,561	2,001,864	100%	100%	70.5%
June 30, 1991 <sup>(2)</sup>	293,136	1,056,453	725,816	1,779,579	100%	100%	59.2%
June 30, 1990 <sup>(3)</sup>	269,491	940,475	685,064	1,662,242	100%	100%	66.0%
June 30, 1989 <sup>(1)</sup>	253,436	779,296	524,911	1,480,389	100%	100%	85.3%
June 30, 1988 <sup>(2)</sup>	228,217	688,090	431,552	1,331,905	100%	100%	96.3%
June 30, 1987	210,493	578,468	421,948	1,225,009	100%	100%	100%
June 30, 1986	214,192*	426,333	475,248*	1,040,173	100%	100%	84.1%
June 30, 1985 <sup>(2)(4)</sup>	194,215*	419,694	428,642*	833,617	100%	100%	51.3%
June 30, 1984	168,942*	340,441	294,635*	674,382	100%	100%	56.0%
* Estimated (1) Change in Asset Valuation Method. (2) Change of Assumptions. (3) Change in Plan Provisions. (4) Change in Funding Method.							

### **3.4 Statement of Actuarial Present Value of Accumulated Plan Benefits**

#### **Actuarial Present Value of Accumulated Plan Benefits at June 30, 1993 (000's)**

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Retired participants and beneficiaries of deceased participants	\$ 1,086,182
Terminated participants with deferred benefits	137,038
Active participants - Vested	881,186
Active participants - Non-vested	61,752
Total Actuarial Present Value of Accumulated Plan Benefits	2,166,158

#### **Notes to the Statement of Accumulated Plan Benefits:**

1. The actuarial present value of accumulated plan benefits presented in this statement was determined using the following assumptions:
  - a. Future salary was not considered.
  - b. Future service was considered only to the extent that it would permit active plan participants to become eligible for benefits attributable to service rendered prior to the date of determination.
  - c. Regular valuation assumptions were used as to mortality, withdrawal, retirement ages, disability, and investment return.
2. Accumulated employee contributions with interest total \$370,667(000).

### 3.4 Statement of Actuarial Present Value of Accumulated Plan Benefits (continued)

3. As with many of the comparative plan financial relationships otherwise available, an examination, over periods of time, of the relationship between the *value of accumulated plan benefits* and the *value of plan assets* may give an indication of the progress being made toward the funding of plan benefits. However, in the context of a "going concern" environment, a point in time comparison of these two values *should not be construed to be indicative of the expected ability of the plan to pay future benefits when due*. Furthermore, *that comparison is not valid for assessing a plan termination situation*. Consideration of inflation in the assumed return on plan assets while ignoring inflation's effect on future benefit levels *produces a significant understatement of the value of accumulated plan benefits* when applying going concern concepts. *The accumulated plan benefit value presented in this statement should not be confused with information presented elsewhere regarding funding requirements.*

4. The change in the Present Value of Accumulated Plan Benefits during the prior fiscal year is as follows:

A.	Actuarial Present Value of Accumulated Plan Benefits at June 30, 1992, (000's)	\$ 1,929,921
B.	Increase (Decrease) Attributable to:	
i.	Additional Benefits Accumulated, including Actuarial Experience	174,610
ii.	Increase due to Decrease in the Discount Period	168,867
iii.	Benefits Paid to Participants	(107,240)
iv.	Material System Change	0
v.	Change in Assumptions	<u>0</u>
C.	Actuarial Present Value of Accumulated Plan Benefits at June 30, 1993 (000's)	\$ 2,166,158