

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

**Actuarial Valuation Report**  
**as of June 30, 1998**

**Prepared by:**

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

**State of Alaska  
Teachers' Retirement System**

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# WILLIAM M. MERCER

March 17, 1999

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 annual actuarial valuation required for the State of Alaska Teachers' Retirement System has been prepared as of June 30, 1998 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, 1998;
- (2) a determination of the appropriate contribution rate for all employers in the System;
- (3) the provision of reporting and disclosure information for financial statements, governmental agencies, and other interested parties.

The following schedules that we have prepared are included in this report:

- (1) Summary of actuarial assumptions and methods (Section 2.3)
- (2) Schedule of active member valuation data (Section 2.2(c))
- (3) Schedule of retirants and beneficiaries added to and removed from rolls (Section 2.2(i))
- (4) Solvency test (Section 3.3)
- (5) Analysis of financial experience (Section 3.1)

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, LLP, 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 1996.

The contribution requirements are determined as a percentage of payroll, and reflect the cost of benefits accruing in FY99 and a rolling amortization of the unfunded accrued liability. The amortization period is set by the Board. Contribution levels are recommended by the

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Teachers' Retirement Board  
March 17, 1999  
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Actuary and adopted by the Board each year. Over time, the contribution rate is expected to remain constant as a percentage of payroll. The ratio of assets to liabilities increased from 94.0% to 97.7% during the year, primarily due to continued favorable investment experience. Over the years, progress has been made toward achieving the funding objectives of the System.

There were no significant changes in the actuarial assumptions or actuarial methods used in the determination of system 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:

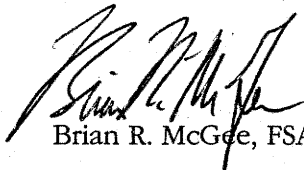
- (1) differences between actual experience and anticipated experience based on the assumptions;
- (2) changes in actuarial assumptions or methods;
- (3) changes in statutory provisions; or
- (4) differences between the contribution rates determined by the valuation and those adopted by the Board.

The undersigned are members of the American Academy of Actuaries or the Society of Actuaries and are fully qualified to provide actuarial services to the State of Alaska.

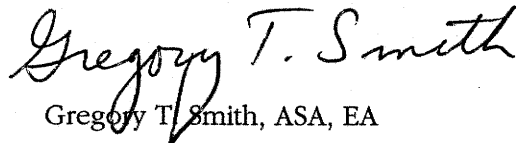
We believe that the assumptions and methods used for funding purposes and for the disclosures presented in this report satisfy the parameter requirements set forth in the Government Accounting Standards Board (GASB) Statement Nos. 25 and 27.

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, MAAA



Gregory T. Smith, ASA, EA



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## Highlights

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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, 1998;
- (2) review experience under the plan for the year ended June 30, 1998;
- (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 1998 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.

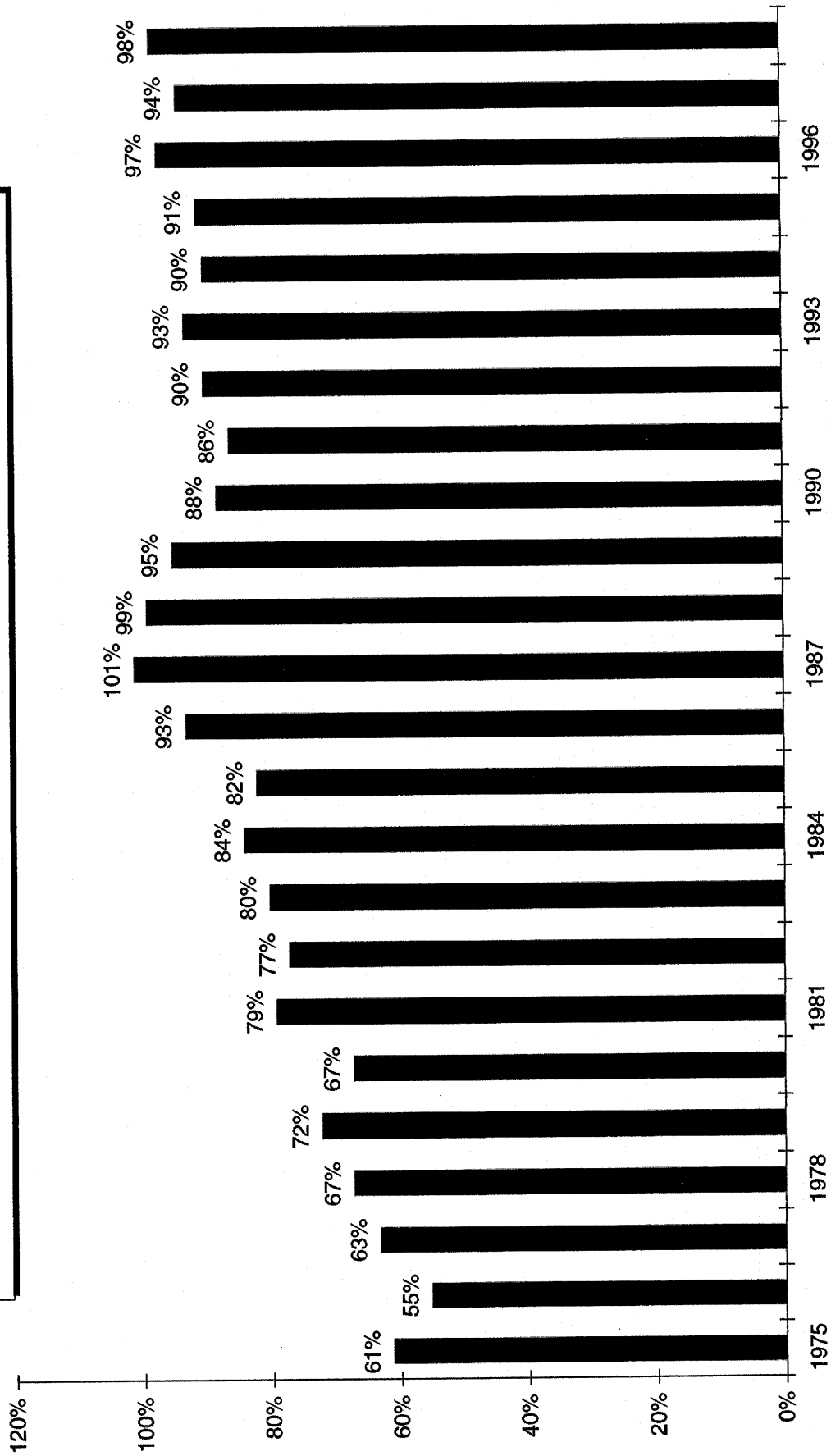
Section 3 contains additional exhibits showing historical information on system experience and unfunded liabilities.

The principle results are as follows:

	<u>1997</u>	<u>1998</u>
Funding Status as of June 30:		
(a) Valuation Assets*	\$ 3,120,044	\$ 3,446,070
(b) Accrued Liability*		
i) Non-Medical Benefits	2,728,050	2,893,325
ii) Total Benefits (including medical)	3,320,069	3,528,757
(c) Funding Ratio, (a) / (b)		
i) Non-Medical Benefits	114.4%	119.1%
ii) Total Benefits (including medical)	94.0%	97.7%

\* In thousands.

## State of Alaska - TRS Funding Ratio History



At June 30

Employer Contribution Rates  
for Fiscal Year:

	<u>2000</u>	<u>2001</u>
(a) Normal Cost Rate	9.21%	8.99%
(b) Past Service Rate	3.79%	1.56%
(c) Total Contribution Rate	13.00%	10.55%
(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, 1998 has increased from 94.0% to 97.7%, an increase of 3.7%. The total employer contribution rate has decreased from 13.00% of payroll for FY00 to 10.55% for FY01, a decrease of 2.45% of payroll. The reasons for the change in the funded status and contribution rate are explained below.

### (1) Retiree Medical Insurance

The following table summarizes the monthly premium per benefit recipient since retiree medical benefits have been provided under PERS and TRS.

<u>Time Period</u>	<u>Monthly Premium Per Retiree For Health Coverage</u>	<u>Annual Percentage Increase</u>	<u>Average Annual Increase Since 1978</u>
2/1/76-1/31/77	\$ 34.75	--	--
2/1/77-1/31/78	57.64	66%	--
2/1/78-1/31/79	69.10	20%	20%
2/1/79-1/31/80	64.70	- 6%	6%
2/1/80-1/31/81	96.34	49%	19%
2/1/81-1/31/82	96.34	0%	14%
2/1/82-1/31/83	115.61	20%	15%
2/1/83-1/31/84	156.07	35%	18%
2/1/84-1/31/85	191.85	23%	19%
2/1/85-1/31/86	168.25	-12%	14%
2/1/86-1/31/87	165.00	- 2%	12%
2/1/87-1/31/88	140.25	-15%	9%
2/1/88-1/31/89	211.22	51%	13%
2/1/89-1/31/90	252.83	20%	13%
2/1/90-1/31/91	243.98	- 4%	12%
2/1/91-1/31/92	243.98	0%	11%
2/1/92-1/31/93	226.90	- 7%	10%
2/1/93-1/31/94	309.72	37%	11%
2/1/94-1/31/95	336.05	9%	11%
2/1/95-1/31/96	350.50	4%	11%
2/1/96-1/31/97	350.50	0%	10%
2/1/97-1/31/98	368.00	5%	10%
2/1/98-12/31/98	368.00	0%	9%
1/1/99-12/31/99	442.00	22%	10%

As you can see from the above table, the monthly retiree medical premium for the January 1, 1999 to December 31, 1999 time period has increased to \$442.00. Since FY87, annual premium rate changes have ranged from 51% up to 15% down, but the average compound annual increase has been about 8%.

Four 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 inflation plus 1.5%, or 5.5% for FY99 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.

## **Analysis of the Valuation (continued)**

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To help avoid the volatility in the funding and solvency of the System from bringing large health-related gains and losses into the System every year, we have been using 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.

Because no adjustments were made to the assumed medical premium rate this year, the total employer contribution rate was unaffected by medical cost experience.

### **(2) Investment Performance**

The approximate FY98 investment return based on market values was 14.32%. The Asset Valuation Method was changed four years ago to smooth over five years the difference between actual and expected investment return. One purpose of this change was to adopt a method which better accomplished the goal of smoothing volatility in investment returns.

The approximate rate of return in FY98 based on valuation assets, after applying the smoothing technique, was 12.89%, 4.64% higher than the 8.25% investment return assumption. This produced a gain of approximately \$143,181,000 to the System from investment performance, which increased the funding ratio by 4.1% and lowered the total employer contribution rate by 2.70% of total payroll.

### **(3) Salary Increases**

Last year, salary increases were slightly less than anticipated in the valuation assumptions. Salary experience resulted in an actuarial gain which increased the funding ratio by 0.7% and lowered the total employer contribution rate by 0.84% of total payroll.

### **(4) Employee Data**

Section 2.2 provides statistics on active and inactive participants. The number of active participants increased 1.0% from 9,164 at June 30, 1997 to 9,262 at June 30, 1998. The average age of active participants decreased from 43.93 to 43.69 and average credited service decreased from 11.12 to 10.62 years.

The number of retirees and beneficiaries increased 11.9% from 5,343 to 5,979, and their average age decreased from 62.87 to 62.67. There was a 16.8% decrease in the number of vested terminated participants from 1,279 to 1,064. Their average age decreased from 49.62 to 49.59.

The overall effect of these participant data changes was an actuarial loss to the System, resulting in an increase in the total employer contribution rate equal to 0.54% of total payroll.

### **(5) Ad hoc PRPA**

An ad hoc Post Retirement Pension Adjustment (PRPA) was granted during FY98. This increased benefit payments to many Tier I (hired before July 1, 1990) retirees. This action produced a loss to the system of approximately \$28,954,000.

The overall effect of the ad hoc PRPA was an actuarial loss to the System which lowered the funding ratio by 0.8% and increased the average employer contribution rate by 0.55% of total payroll.

## Analysis of the Valuation (continued)

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### (6) 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 1.5, Actuarial Projections, contains the results of this analysis.

This type of information can be especially useful to multi-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. This year, the calculated contribution rate declined to the level shown two years ago, primarily due to continued asset gains. As you can see in Section 1.5, based on the actuarial assumption and cost method, future contribution rates are expected to decline, and then level out in about 15 years.

Consistent with the Board's long term strategy, sound actuarial principles would support leveling out this contribution pattern. In this way, a more stable contribution pattern could be adopted to help the employers budget retirement expenses. This enhanced projection technique will be used annually so that a continuous tracking of the contribution rate to the requirements will be made. Appropriate adjustments to the rate will 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 FY01 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, plus the deferred asset gains, intergenerational inequities could occur. 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.
- (c) The large asset gains over the last four years are being partially deferred under the asset smoothing method. As these deferred gains become recognized over the next 5 years the funded status is expected to improve. However, if the long-term investment return assumption remains valid, investment losses can be anticipated which would offset these gains.

## Analysis of the Valuation (continued)

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### Summary

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

Last year's total employer contribution rate.....	13.00%
Change due to:	
Retiree medical insurance .....	0.00%
Investment performance .....	(2.70%)
Salary increases .....	(0.84%)
Demographic experience.....	0.54%
Ad hoc PRPA.....	0.55%
Total employer contribution rate this year .....	10.55%
Effect of enhanced Actuarial Projection system .....	1.45%
Proposed employer contribution rate .....	12.00%



## **Section 1**

### **Valuation Results**

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This section sets forth the results of the actuarial valuation.

Section 1.1(a) shows the distribution of the assets as of June 30, 1998.

Section 1.1(b) shows the transactions of the plan's fund during FY98.

Section 1.1(c) develops the expected valuation assets and investment return as of June 30, 1998.

Section 1.1(d) develops the actual valuation assets as of June 30, 1998.

Section 1.2 shows the actuarial present values as of June 30, 1998.

Section 1.3 calculates the total contribution rate for FY01.

Section 1.4 calculates the actuarial gain or loss for FY98.

Section 1.5 contains the financial projections.

**1.1(a) Statement of Net Assets as of June 30, 1998**  
**(in thousands)**

	<u>Pension</u>	<u>Postemployment Health</u>	<u>Total Market Value</u>
Cash and Cash Equivalents	\$ 5,441	\$ 1,189	\$ 6,630
Retirement Fixed Income Pool	1,057,759	231,090	1,288,849
United States Common Stocks	1,300,334	332,801	1,633,135
International Stocks	501,482	109,559	611,041
International Fixed Income Pool	170,011	37,143	207,154
Emerging Markets Stocks	29,189	6,377	35,566
Real Estate Equities	89,891	19,639	109,530
Private Equity Pool	603	132	735
Mortgages (net of reserves)	1,041	227	1,268
Net Accrued Receivables	<u>17,504</u>	<u>3,823</u>	<u>21,327</u>
Total Assets	\$ 3,173,255	\$ 741,980	\$ 3,915,235

**1.1(b) Changes in Net Assets During Fiscal Year 1998**  
**(in thousands)**

	<u>Pension</u>	<u>Postemployment Health</u>	<u>Total Market Value</u>
(1) Net Assets, June 30, 1997, (market value)	\$ 2,834,976	\$ 657,095	\$ 3,492,071
(2) Additions:			
(a) Employee Contributions	39,951	8,728	48,679
(b) Employer Contributions	50,432	11,018	61,450
(c) Retirement Incentive Program - Employee	1,130	247	1,377
(d) Retirement Incentive Program - Employer	13,404	2,928	16,332
(e) Interest and Dividend Income	116,299	25,408	141,707
(f) Net Appreciation on Investments	298,475	65,208	363,683
(g) Net Recognized Mortgage Loan Recovery	103	23	126
(h) Other	<u>8</u>	<u>2</u>	<u>10</u>
(i) Total Additions	519,802	113,562	633,364
(3) Deductions:			
(a) Medical Benefits	0	26,123	26,123
(b) Retirement Benefits	169,831	0	169,831
(c) Refunds of Contributions	2,864	625	3,489
(d) Investment Expenses	6,997	1,529	8,526
(e) Administrative Expenses	<u>1,831</u>	<u>400</u>	<u>2,231</u>
(f) Total Deductions	181,523	28,677	210,200
(4) Net Assets, June 30, 1998, (market value)	\$ 3,173,255	\$ 741,980	\$ 3,915,235

Approximate Market Value Investment Return  
Rate During the Year, Net of Expenses

14.32%

**1.1(c) Development of Expected Valuation Assets as of  
June 30, 1998 (in thousands)**

(1)	June 30, 1997 Valuation Assets	\$ 3,120,044
(2)	Total Contributions for FY98, (Item (2a) + (2b) + (2c) + (2d) from 1.1(b))	127,838
(3)	Total Benefit Payments for FY98, (Item (3a) + (3b) + (3c) from 1.1(b))	199,443
(4)	Expected Investment Return, Net of Expenses, for the period July 1, 1997 through June 30, 1998 $((1) + .5 \times [(2) - (3)]) \times 8.25\%$	254,450
(5)	Actual Investment Return, Net of Expenses, for the period July 1, 1997 through June 30, 1998 [Item (2e) + (2f) + (2g) + (2h) - (3d) - (3e) from 1.1(b)]	494,769
(6)	Total Investment Gain/(Loss) (5) - (4)	240,319
(7)	Expected Valuation Assets, (1) + (2) - (3) + (4)	\$ 3,302,889

**1.1(d) Development of Valuation Assets as of June 30, 1998**  
**(in thousands)**

	<b>A</b>	<b>B</b>	<b>C</b>
	<b>Total Investment Gain/(Loss)</b>	<b>Gain/(Loss) Recognized in Prior Fiscal Years</b>	<b>Gain/(Loss) Recognized this Fiscal Year (A ÷ 5)</b>
(1) Fiscal Year Ending June 30, 1998	\$ 240,319	\$ 0	\$ 48,064
(2) Fiscal Year Ending June 30, 1997	295,258	59,052	59,052
(3) Fiscal Year ending June 30, 1996	166,896	66,758	33,379
(4) Fiscal Year ending June 30, 1995	164,985	98,991	32,997
(5) Fiscal Year ending June 30, 1994	(151,547)	(121,236)	(30,311)
(6) Total Gain/(Loss) Recognized this Fiscal Year			143,181
(7) Expected Valuation Assets, June 30, 1998, (Item (7) from 1.1(c))			\$ 3,302,889
(8) Valuation Assets at June 30, 1998, (6) + (7), but not outside a corridor of 80% to 120% of the market value of assets			\$ 3,446,070
Approximate Valuation Assets Investment Return Rate During the Year, Net of Expenses			12.89%

**1.2 Actuarial Present Values as of June 30, 1998**  
**(in thousands)**

	<u>Normal Cost</u>	<u>Accrued Liabilities</u>
<u>Active Members</u>		
Retirement Benefits	\$ 54,626	\$ 858,677
Termination Benefits	4,625	57,615
Disability Benefits	735	17,663
Death Benefits	1,433	23,709
Return of Contributions	3,200	16,660
Medical Benefits	18,511	247,708
Indebtedness	0	(22,470)
Retirement Incentive Program Receivable	<u>0</u>	<u>(15,068)</u>
Subtotal	83,130	1,184,494
<u>Inactive Members</u>		
Not Vested	0	15,981
Vested Terminations		
- Retirement Benefits	0	153,671
- Medical Benefits	0	67,401
Retirees & Beneficiaries		
- Retirement Benefits	0	1,786,887
- Medical Benefits	<u>0</u>	<u>320,323</u>
Subtotal	0	2,344,263
<u>Totals</u>	\$ 83,130	\$ 3,528,757

### 1.3 Development of Total Employer Contribution Rate - FY01 (in thousands)

#### Normal Cost Rate

(1)	Total Normal Cost	\$ 83,130
(2)	Total Salaries	469,433
(3)	Normal Cost Rate, (1) ÷ (2)	17.71%
(4)	Average Member Contribution Rate	8.72%
(5)	Employer Normal Cost Rate, (3) - (4)	8.99%

#### Past Service Rate

(1)	Accrued Liability	\$ 3,528,757
(2)	Valuation Assets	3,446,070
(3)	Total Unfunded Liability, (1) - (2)	82,687
(4)	Amortization Factor (25 year)	11.312888
(5)	Past Service Cost, (3) ÷ (4)	7,309
(6)	Total Salaries	469,433
(7)	Past Service Rate, (5) ÷ (6)	1.56%
	Total Employer Contribution Rate	10.55%

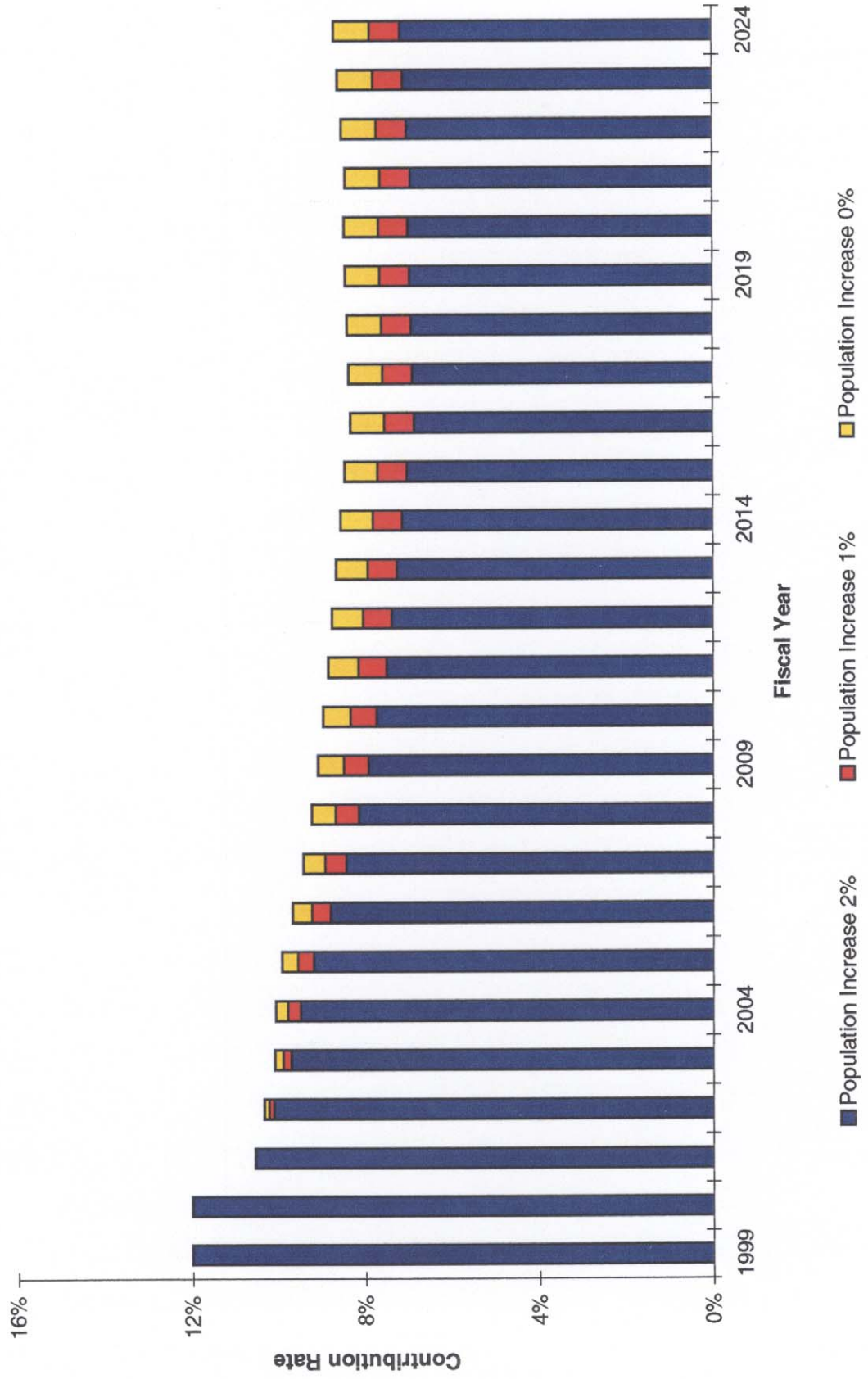
#### 1.4      **Development of Actuarial Gain/(Loss) for FY98** **(in thousands)**

(1)	Unfunded Liability, June 30, 1997	\$ 200,025
(2)	Normal Cost for FY98	83,735
(3)	Interest on (1) and (2) at 8.25%	23,410
(4)	Employee Contributions for FY98	50,056
(5)	Employer Contributions for FY98	77,782
(6)	Interest on (4) and (5) at 8.25% for one-half year	5,273
(7)	Expected Unfunded Liability, June 30, 1998, (1) + (2) + (3) - (4) - (5) - (6)	174,059
(8)	Actual Unfunded Liability, June 30, 1998	82,687
(9)	Actuarial Gain/(Loss) for the Year, (7) - (8)	\$ 91,372



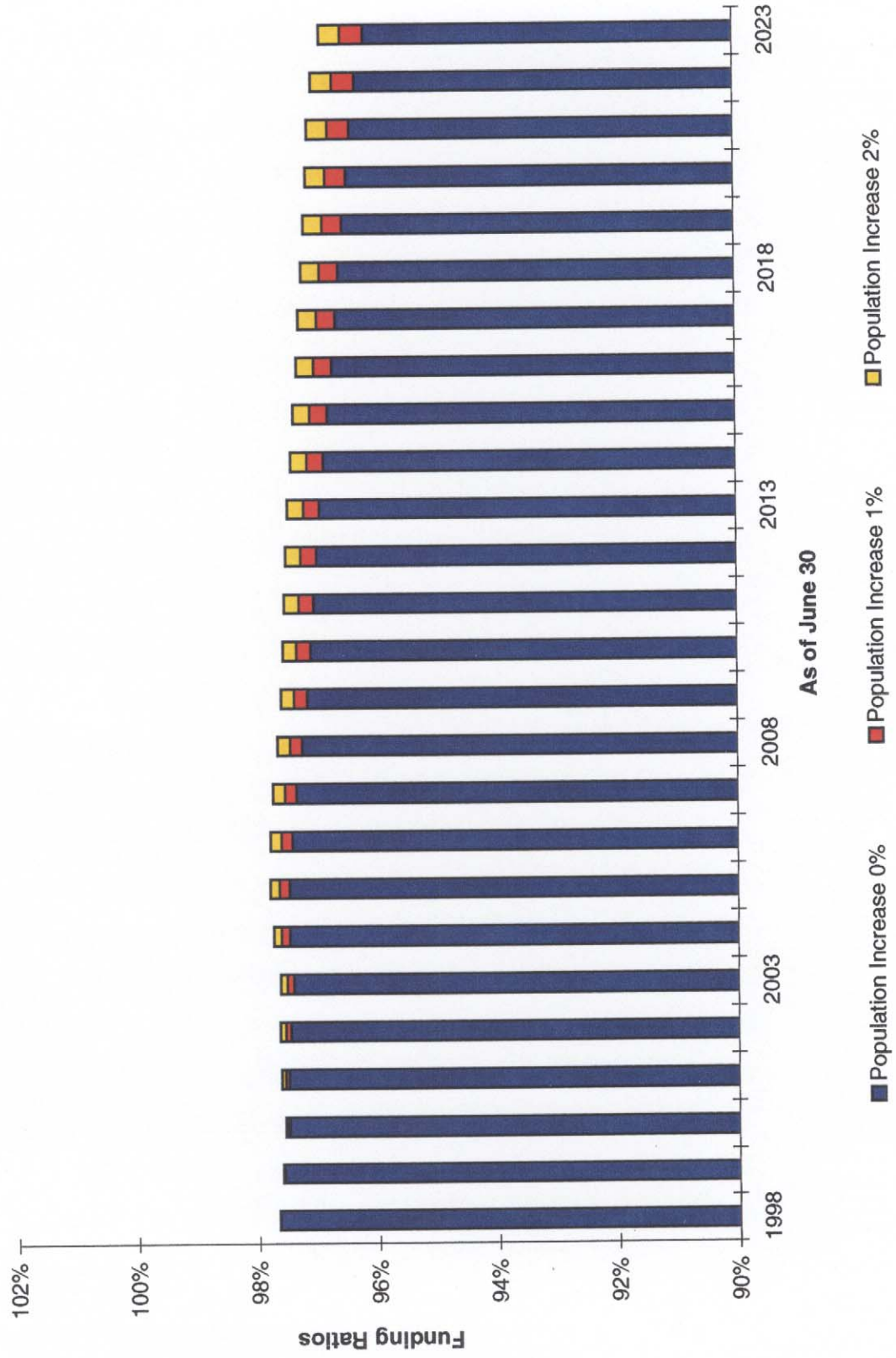
## 1.5 Actuarial Projections

### State of Alaska TRS Projected Contribution Rates



# 1.5 Actuarial Projections (continued)

## State of Alaska TRS Projected Funding Ratios



# 1.5 Actuarial Projections (continued)

Table 1  
State of Alaska TRS  
Financial Projections ('000 omitted)

Investment Return	8.25%				Annual Population Increase								Ending Asset Value	
	-----Valuation Amounts on July 1-----				-----Flow Amounts During Following 12 Months-----									
	As of June 30	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employer Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs		Investment Earnings
1998	3,446,070	3,528,757	97.7%	97.7%	(82,687)	469,433	12.00%	57,076	41,476	98,552	226,281	(127,729)	279,032	3,597,373
1999	3,597,373	3,686,772	97.6%	97.6%	(89,399)	481,841	12.00%	58,580	42,519	101,099	233,167	(132,068)	291,335	3,756,641
2000	3,756,641	3,853,422	97.5%	97.5%	(96,781)	494,491	10.55%	52,524	43,314	95,838	250,914	(155,077)	303,526	3,905,090
2001	3,905,090	4,005,410	97.5%	97.5%	(100,320)	501,224	10.34%	52,395	44,032	96,427	264,049	(167,623)	315,255	4,052,723
2002	4,052,723	4,158,407	97.5%	97.5%	(105,684)	512,168	10.09%	52,260	44,941	97,201	278,863	(181,662)	326,856	4,197,917
2003	4,197,917	4,309,664	97.4%	97.4%	(111,747)	523,332	10.07%	53,346	45,912	99,258	295,347	(196,089)	338,239	4,340,067
2004	4,340,067	4,452,705	97.5%	97.5%	(112,638)	535,775	9.93%	53,799	46,937	100,736	311,905	(211,169)	349,345	4,478,243
2005	4,478,243	4,594,304	97.5%	97.5%	(116,061)	548,218	9.68%	53,667	47,959	101,626	329,059	(227,433)	360,073	4,610,884
2006	4,610,884	4,733,094	97.4%	97.4%	(122,211)	560,661	9.43%	53,458	48,979	102,437	345,176	(242,740)	370,385	4,738,529
2007	4,738,529	4,867,956	97.3%	97.3%	(129,427)	573,104	9.23%	53,492	49,996	103,488	362,168	(258,681)	380,258	4,860,106
2008	4,860,106	4,998,017	97.2%	97.2%	(137,911)	585,547	9.09%	53,990	51,205	105,195	378,104	(272,909)	389,701	4,976,899
2009	4,976,899	5,122,653	97.2%	97.2%	(145,754)	602,499	8.97%	54,789	52,605	107,394	394,099	(286,704)	398,768	5,088,962
2010	5,088,962	5,241,486	97.1%	97.1%	(152,524)	619,452	8.84%	55,494	54,002	109,496	410,188	(300,692)	407,436	5,195,705
2011	5,195,705	5,354,387	97.0%	97.0%	(158,681)	636,404	8.75%	56,455	55,460	111,914	426,459	(314,545)	415,671	5,296,832
2012	5,296,832	5,461,471	97.0%	97.0%	(164,640)	653,356	8.66%	57,319	56,918	114,237	442,316	(328,079)	423,455	5,392,208
2013	5,392,208	5,563,104	96.9%	96.9%	(170,897)	670,308	8.55%	58,323	58,636	116,959	458,170	(341,211)	430,782	5,481,779
2014	5,481,779	5,659,898	96.9%	96.9%	(178,119)	693,331	8.45%	59,560	60,617	120,177	472,066	(351,889)	437,731	5,567,621
2015	5,567,621	5,752,710	96.8%	96.8%	(185,089)	716,355	8.32%	60,533	62,597	123,129	485,073	(361,943)	444,399	5,650,076
2016	5,650,076	5,842,648	96.7%	96.7%	(192,572)	739,379	8.35%	62,734	64,577	127,311	496,442	(369,131)	450,905	5,731,850
2017	5,731,850	5,931,065	96.6%	96.6%	(199,215)	762,403	8.39%	64,910	66,557	131,467	506,997	(375,530)	457,387	5,813,707
2018	5,813,707	6,019,562	96.6%	96.6%	(205,855)	785,427	8.42%	67,507	68,918	136,425	517,019	(380,594)	463,931	5,897,044
2019	5,897,044	6,109,987	96.5%	96.5%	(212,943)	817,310	8.45%	70,399	71,660	142,059	526,241	(384,183)	470,659	5,983,520
2020	5,983,520	6,204,435	96.4%	96.4%	(220,915)	849,194	8.42%	72,874	74,402	147,276	531,664	(384,388)	477,784	6,076,917
2021	6,076,917	6,305,249	96.4%	96.4%	(228,332)	881,077	8.51%	76,339	77,144	153,482	539,067	(385,585)	485,440	6,176,772
2022	6,176,772	6,415,019	96.3%	96.3%	(238,246)	912,961	8.60%	79,884	79,886	159,769	546,697	(386,928)	493,623	6,283,467
2023	6,283,467	6,536,582	96.1%	96.1%	(253,114)	944,844	8.68%	83,418	82,675	166,093	555,199	(389,106)	502,335	6,396,697

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

# 1.5 Actuarial Projections (continued)

Table 2  
State of Alaska TRS  
Financial Projections ('000 omitted)

As of June 30	Investment Return			8.25%			Annual Population Increase										1.00%		Ending Asset Value
	-----Valuation Amounts on July 1-----			-----Flow Amounts During Following 12 Months-----															
	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employer Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings							
1998	3,446,070	3,528,757	97.7%	(82,687)	469,433	12.00%	57,290	41,631	98,921	226,281	(127,360)	279,047	3,597,757						
1999	3,597,757	3,686,817	97.6%	(89,060)	485,407	12.00%	59,234	42,994	102,229	233,167	(130,938)	291,414	3,758,233						
2000	3,758,233	3,853,860	97.5%	(95,627)	501,834	10.55%	53,518	44,133	97,651	250,953	(153,303)	303,731	3,908,661						
2001	3,908,661	4,006,628	97.6%	(97,967)	512,718	10.23%	53,247	45,228	98,476	264,156	(165,680)	315,630	4,058,611						
2002	4,058,611	4,160,853	97.5%	(102,242)	528,210	9.90%	53,102	46,549	99,652	279,067	(179,415)	327,435	4,206,630						
2003	4,206,630	4,313,861	97.5%	(107,231)	544,350	9.78%	54,187	48,013	102,200	295,667	(193,467)	339,067	4,352,230						
2004	4,352,230	4,459,206	97.6%	(106,976)	563,217	9.56%	54,731	49,592	104,323	312,363	(208,040)	350,477	4,494,667						
2005	4,494,667	4,603,875	97.6%	(109,208)	582,084	9.23%	54,618	51,166	105,785	329,676	(223,891)	361,575	4,632,351						
2006	4,632,351	4,746,627	97.6%	(114,276)	600,952	8.93%	54,485	52,737	107,222	345,984	(238,762)	372,320	4,765,909						
2007	4,765,909	4,886,487	97.5%	(120,578)	619,819	8.68%	54,603	54,304	108,907	363,111	(254,204)	382,702	4,894,407						
2008	4,894,407	5,022,752	97.4%	(128,345)	638,686	8.49%	55,322	56,192	111,514	379,198	(267,685)	392,747	5,019,469						
2009	5,019,469	5,154,986	97.4%	(135,517)	665,075	8.33%	56,468	58,399	114,867	395,362	(280,495)	402,536	5,141,510						
2010	5,141,510	5,283,022	97.3%	(141,513)	691,464	8.14%	57,386	60,601	117,987	411,644	(293,657)	412,061	5,259,913						
2011	5,259,913	5,406,963	97.3%	(147,050)	717,853	8.04%	58,759	62,870	121,629	428,140	(306,511)	421,299	5,374,701						
2012	5,374,701	5,527,180	97.2%	(152,478)	744,242	7.93%	60,028	65,140	125,168	444,266	(319,098)	430,250	5,485,853						
2013	5,485,853	5,644,311	97.2%	(158,458)	770,632	7.81%	61,581	67,845	129,427	460,434	(331,007)	438,929	5,593,775						
2014	5,593,775	5,759,265	97.1%	(165,490)	807,170	7.69%	63,508	70,988	134,496	474,689	(340,192)	447,453	5,701,036						
2015	5,701,036	5,873,219	97.1%	(172,183)	843,709	7.54%	64,986	74,130	139,116	488,111	(348,994)	455,939	5,807,981						
2016	5,807,981	5,987,619	97.0%	(179,638)	880,247	7.57%	68,055	77,272	145,327	499,979	(354,652)	464,529	5,917,858						
2017	5,917,858	6,104,180	96.9%	(186,322)	916,786	7.60%	71,087	80,415	151,502	511,155	(359,653)	473,388	6,031,593						
2018	6,031,593	6,224,885	96.9%	(193,292)	953,324	7.64%	74,740	84,174	158,913	521,900	(362,986)	482,633	6,151,240						
2019	6,151,240	6,351,985	96.8%	(200,746)	1,004,200	7.66%	78,867	88,549	167,416	531,955	(364,539)	492,440	6,279,140						
2020	6,279,140	6,488,002	96.8%	(208,862)	1,055,075	7.62%	82,329	92,924	175,253	538,336	(363,084)	503,052	6,419,109						
2021	6,419,109	6,635,726	96.7%	(216,617)	1,105,950	7.70%	87,138	97,299	184,438	547,248	(362,811)	514,611	6,570,909						
2022	6,570,909	6,798,214	96.7%	(227,306)	1,156,826	7.78%	92,004	101,675	193,678	556,722	(363,044)	527,124	6,734,989						
2023	6,734,989	6,978,794	96.5%	(243,805)	1,207,701	7.85%	96,912	106,146	203,058	567,372	(364,314)	540,609	6,911,284						

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

# 1.5 Actuarial Projections (continued)

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

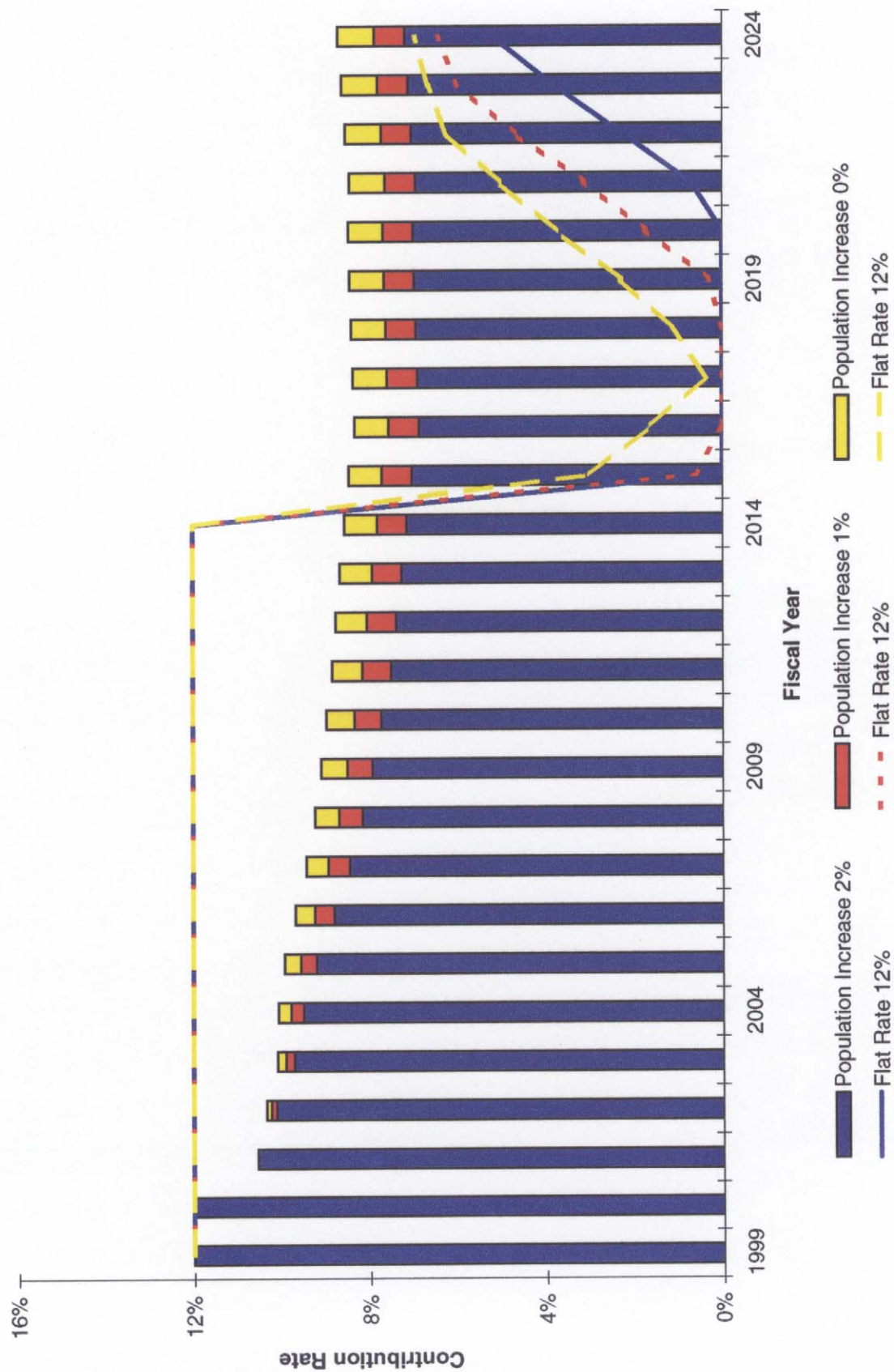
Investment Return	8.25%					Annual Population Increase										2.00%	
	-----Valuation Amounts on July 1-----					-----Flow Amounts During Following 12 Months-----											
	As of June 30	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employer Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings	Ending Asset Value			
1998	3,446,070	3,528,757	97.7%	97.7%	(82,687)	469,433	12.00%	57,505	41,787	99,293	226,281	(126,989)	279,062	3,598,144			
1999	3,598,144	3,686,862	97.6%	97.6%	(88,718)	488,991	12.00%	59,896	43,474	103,370	233,167	(129,797)	291,493	3,759,840			
2000	3,759,840	3,854,301	97.5%	97.5%	(94,461)	509,271	10.55%	54,529	44,967	99,497	250,992	(151,496)	303,938	3,912,282			
2001	3,912,282	4,007,856	97.6%	97.6%	(95,574)	524,460	10.12%	54,116	46,457	100,573	264,264	(163,691)	316,011	4,064,602			
2002	4,064,602	4,163,336	97.6%	97.6%	(98,734)	544,756	9.71%	53,958	48,217	102,175	279,274	(177,099)	328,024	4,215,527			
2003	4,215,527	4,318,147	97.6%	97.6%	(102,620)	566,233	9.50%	55,040	50,224	105,264	295,994	(190,730)	339,913	4,364,711			
2004	4,364,711	4,465,807	97.7%	97.7%	(101,096)	592,338	9.20%	55,686	52,427	108,113	312,835	(204,722)	351,644	4,511,632			
2005	4,511,632	4,613,679	97.8%	97.8%	(102,047)	618,442	8.80%	55,573	54,624	110,198	330,318	(220,120)	363,130	4,654,642			
2006	4,654,642	4,760,636	97.8%	97.8%	(105,995)	644,546	8.44%	55,499	56,816	112,315	346,831	(234,516)	374,334	4,794,460			
2007	4,794,460	4,905,853	97.7%	97.7%	(111,393)	670,651	8.15%	55,692	59,004	114,696	364,113	(249,417)	385,254	4,930,297			
2008	4,930,297	5,048,804	97.7%	97.7%	(118,507)	696,755	7.92%	56,661	61,689	118,350	380,375	(262,024)	395,941	5,064,214			
2009	5,064,214	5,189,266	97.6%	97.6%	(125,052)	734,553	7.73%	58,218	64,872	123,090	396,737	(273,647)	406,510	5,197,077			
2010	5,197,077	5,327,319	97.6%	97.6%	(130,242)	772,350	7.50%	59,349	68,047	127,396	413,244	(285,847)	416,968	5,328,197			
2011	5,328,197	5,463,342	97.5%	97.5%	(135,145)	810,148	7.38%	61,197	71,298	132,495	430,005	(297,510)	427,304	5,457,990			
2012	5,457,990	5,598,018	97.5%	97.5%	(140,028)	847,946	7.26%	62,930	74,549	137,479	446,445	(308,966)	437,539	5,586,563			
2013	5,586,563	5,732,330	97.5%	97.5%	(145,767)	885,743	7.14%	65,139	78,495	143,634	462,978	(319,344)	447,719	5,714,938			
2014	5,714,938	5,867,563	97.4%	97.4%	(152,625)	939,722	7.02%	67,906	83,137	151,044	477,659	(326,615)	458,010	5,846,333			
2015	5,846,333	6,005,304	97.4%	97.4%	(158,972)	993,701	6.85%	69,936	87,779	157,715	491,572	(333,856)	468,551	5,981,027			
2016	5,981,027	6,147,442	97.3%	97.3%	(166,415)	1,047,680	6.89%	74,058	92,422	166,480	504,027	(337,547)	479,511	6,122,991			
2017	6,122,991	6,296,165	97.2%	97.2%	(173,174)	1,101,659	6.92%	78,123	97,064	175,187	515,927	(340,741)	491,091	6,273,342			
2018	6,273,342	6,453,966	97.2%	97.2%	(180,625)	1,155,638	6.96%	83,092	102,694	185,786	527,521	(341,735)	503,454	6,435,061			
2019	6,435,061	6,623,639	97.2%	97.2%	(188,578)	1,232,594	6.99%	88,798	109,312	198,110	538,557	(340,446)	516,849	6,611,464			
2020	6,611,464	6,808,276	97.1%	97.1%	(196,813)	1,309,551	6.93%	93,430	115,930	209,361	546,071	(336,710)	531,556	6,806,310			
2021	6,806,310	7,011,276	97.1%	97.1%	(204,966)	1,386,507	7.02%	99,995	122,549	222,544	556,696	(334,152)	547,737	7,019,895			
2022	7,019,895	7,236,336	97.0%	97.0%	(216,441)	1,463,463	7.10%	106,569	129,167	235,736	568,263	(332,527)	565,425	7,252,792			
2023	7,252,792	7,487,455	96.9%	96.9%	(234,663)	1,540,420	7.16%	113,263	135,959	249,222	581,363	(332,141)	584,655	7,505,306			

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



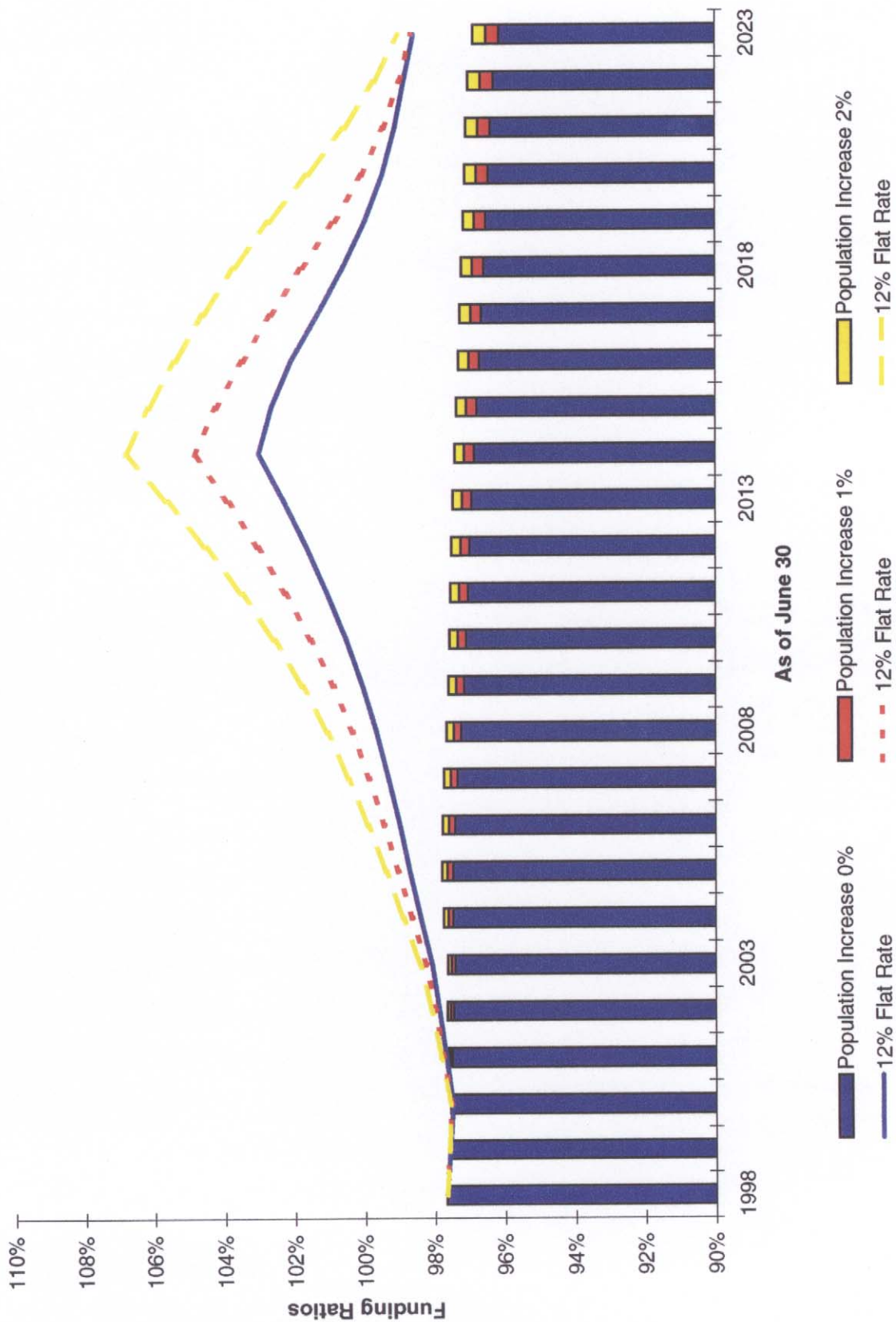
## 1.5 Actuarial Projections (continued)

### State of Alaska TRS Projected Contribution Rates



## 1.5 Actuarial Projections (continued)

### State of Alaska TRS Projected Funding Ratios



# 1.5 Actuarial Projections (continued)

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

Investment Return	8.25%				Annual Population Increase										Ending Asset Value	
	-----Valuation Amounts on July 1-----				-----Flow Amounts During Following 12 Months-----											0.00%
	As of June 30	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employer Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings			
1998	3,446,070	3,528,757	97.7%	97.7%	(82,687)	469,433	12.00%	57,076	41,476	98,552	226,281	(127,729)	279,032	3,597,373		
1999	3,597,373	3,686,772	97.6%	97.6%	(89,399)	481,841	12.00%	58,580	42,519	101,099	233,167	(132,068)	291,335	3,756,641		
2000	3,756,641	3,853,422	97.5%	97.5%	(96,781)	494,491	12.00%	59,743	43,314	103,057	250,914	(147,858)	303,824	3,912,607		
2001	3,912,607	4,005,410	97.7%	97.7%	(92,803)	501,224	12.00%	60,804	44,032	104,835	264,049	(159,214)	316,222	4,069,615		
2002	4,069,615	4,158,407	97.9%	97.9%	(88,791)	512,168	12.00%	62,130	44,941	107,071	278,863	(171,792)	328,657	4,226,480		
2003	4,226,480	4,309,664	98.1%	98.1%	(83,184)	523,332	12.00%	63,546	45,912	109,459	295,347	(185,888)	341,017	4,381,609		
2004	4,381,609	4,452,705	98.4%	98.4%	(71,096)	535,775	12.00%	65,040	46,937	111,977	311,905	(199,929)	353,236	4,534,916		
2005	4,534,916	4,594,304	98.7%	98.7%	(59,388)	548,218	12.00%	66,533	47,959	114,492	329,059	(214,567)	365,280	4,685,629		
2006	4,685,629	4,733,094	99.0%	99.0%	(47,465)	560,661	12.00%	68,026	48,979	117,005	345,176	(228,172)	377,152	4,834,610		
2007	4,834,610	4,867,956	99.3%	99.3%	(33,346)	573,104	12.00%	69,519	49,996	119,515	362,168	(242,653)	388,846	4,980,802		
2008	4,980,802	4,998,017	99.7%	99.7%	(17,215)	585,547	12.00%	71,283	51,205	122,488	378,104	(255,616)	400,372	5,125,558		
2009	5,125,558	5,122,653	100.1%	100.1%	2,905	602,499	12.00%	73,317	52,605	125,922	394,099	(268,177)	411,796	5,269,177		
2010	5,269,177	5,241,486	100.5%	100.5%	27,691	619,452	12.00%	75,351	54,002	129,353	410,188	(280,835)	423,123	5,411,465		
2011	5,411,465	5,354,387	101.1%	101.1%	57,079	636,404	12.00%	77,386	55,460	132,845	426,459	(293,614)	434,334	5,552,186		
2012	5,552,186	5,461,471	101.7%	101.7%	90,715	653,356	12.00%	79,420	56,918	136,337	442,316	(305,979)	445,434	5,691,641		
2013	5,691,641	5,563,104	102.3%	102.3%	128,536	670,308	12.00%	81,818	58,636	140,455	458,170	(317,715)	456,455	5,830,380		
2014	5,830,380	5,659,898	103.0%	103.0%	170,482	693,331	2.99%	21,068	60,617	81,684	472,066	(390,381)	464,903	5,904,902		
2015	5,904,902	5,752,710	102.6%	102.6%	152,192	716,355	1.60%	11,623	62,597	74,220	485,073	(410,853)	470,207	5,964,256		
2016	5,964,256	5,842,648	102.1%	102.1%	121,607	739,379	0.36%	2,682	64,577	67,258	496,442	(429,184)	474,347	6,009,420		
2017	6,009,420	5,931,065	101.3%	101.3%	78,354	762,403	1.16%	8,942	66,557	75,499	506,997	(431,498)	477,978	6,055,899		
2018	6,055,899	6,019,562	100.6%	100.6%	36,337	785,427	2.29%	18,361	68,918	87,279	517,019	(429,740)	481,885	6,108,044		
2019	6,108,044	6,109,987	100.0%	100.0%	(1,943)	817,310	3.75%	31,209	71,660	102,868	526,241	(423,373)	486,450	6,171,121		
2020	6,171,121	6,204,435	99.5%	99.5%	(33,314)	849,194	5.03%	43,510	74,402	117,911	531,664	(413,752)	492,050	6,249,419		
2021	6,249,419	6,305,249	99.1%	99.1%	(55,830)	881,077	6.23%	55,868	77,144	133,012	539,067	(406,055)	498,827	6,342,191		
2022	6,342,191	6,415,019	98.9%	98.9%	(72,828)	912,961	6.65%	61,744	79,886	141,630	546,697	(405,067)	506,522	6,443,645		
2023	6,443,645	6,536,582	98.6%	98.6%	(92,936)	944,844	6.95%	66,781	82,675	149,456	555,199	(405,743)	514,864	6,552,766		

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



# 1.5 Actuarial Projections (continued)

Table 5  
State of Alaska TRS  
Financial Projections ('000 omitted)

Investment Return	-----Valuation Amounts on July 1-----				8.25%		-----Flow Amounts During Following 12 Months-----										1.00%		Ending Asset Value
	As of June 30	Total Assets	Accrued Liability	Funding Ratio	Surplus* (Deficit)	Total Salaries	Employer Ctb Rate	Employer Contribs	Employee Contribs	Total Contribs	Benefit Payments	Net Contribs	Investment Earnings						
1998	3,446,070	3,528,757	97.7%	97.7%	(82,687)	469,433	12.00%	57,290	41,631	98,921	226,281	(127,360)	279,047	3,597,757					
1999	3,597,757	3,686,817	97.6%	97.6%	(89,060)	485,407	12.00%	59,234	42,994	102,229	233,167	(130,938)	291,414	3,758,233					
2000	3,758,233	3,853,860	97.5%	97.5%	(95,627)	501,834	12.00%	60,873	44,133	105,006	250,953	(145,947)	304,034	3,916,320					
2001	3,916,320	4,006,628	97.7%	97.7%	(90,308)	512,718	12.00%	62,456	45,228	107,684	264,156	(156,472)	316,642	4,076,490					
2002	4,076,490	4,160,853	98.0%	98.0%	(84,363)	528,210	12.00%	64,354	46,549	110,903	279,067	(168,164)	329,374	4,237,700					
2003	4,237,700	4,313,861	98.2%	98.2%	(76,161)	544,350	12.00%	66,454	48,013	114,467	295,667	(181,200)	342,136	4,398,636					
2004	4,398,636	4,459,206	98.6%	98.6%	(60,571)	563,217	12.00%	68,718	49,592	118,310	312,363	(194,054)	354,883	4,559,465					
2005	4,559,465	4,603,875	99.0%	99.0%	(44,411)	582,084	12.00%	70,982	51,166	122,148	329,676	(207,527)	367,595	4,719,533					
2006	4,719,533	4,746,627	99.4%	99.4%	(27,094)	600,952	12.00%	73,246	52,737	125,984	345,984	(220,001)	380,286	4,879,819					
2007	4,879,819	4,886,487	99.9%	99.9%	(6,668)	619,819	12.00%	75,510	54,304	129,815	363,111	(233,296)	392,962	5,039,484					
2008	5,039,484	5,022,752	100.3%	100.3%	16,732	638,686	12.00%	78,226	56,192	134,418	379,198	(244,781)	405,660	5,200,363					
2009	5,200,363	5,154,986	100.9%	100.9%	45,378	665,075	12.00%	81,392	58,399	139,791	395,362	(255,571)	418,488	5,363,280					
2010	5,363,280	5,283,022	101.5%	101.5%	80,258	691,464	12.00%	84,559	60,601	145,160	411,644	(266,485)	431,478	5,528,274					
2011	5,528,274	5,406,963	102.2%	102.2%	121,310	717,853	12.00%	87,726	62,870	150,596	428,140	(277,544)	444,634	5,695,363					
2012	5,695,363	5,527,180	103.0%	103.0%	168,183	744,242	12.00%	90,892	65,140	156,032	444,266	(288,234)	457,978	5,865,107					
2013	5,865,107	5,644,311	103.9%	103.9%	220,796	770,632	12.00%	94,668	67,845	162,514	460,434	(297,920)	471,582	6,038,769					
2014	6,038,769	5,759,265	104.9%	104.9%	279,504	807,170	0.62%	5,117	70,988	76,105	474,689	(398,584)	481,757	6,121,942					
2015	6,121,942	5,873,219	104.2%	104.2%	248,723	843,709	0.00%	0	74,130	74,130	488,111	(413,981)	487,983	6,195,945					
2016	6,195,945	5,987,619	103.5%	103.5%	208,325	880,247	0.00%	0	77,272	77,272	499,979	(422,706)	493,729	6,266,967					
2017	6,266,967	6,104,180	102.7%	102.7%	162,787	916,786	0.00%	0	80,415	80,415	511,155	(430,741)	499,257	6,335,483					
2018	6,335,483	6,224,885	101.8%	101.8%	110,599	953,324	0.32%	3,136	84,174	87,309	521,900	(434,591)	504,751	6,405,643					
2019	6,405,643	6,351,985	100.8%	100.8%	53,658	1,004,200	1.73%	17,791	88,549	106,339	531,955	(425,616)	510,909	6,490,936					
2020	6,490,936	6,488,002	100.0%	100.0%	2,934	1,055,075	3.13%	33,769	92,924	126,693	538,336	(411,643)	518,522	6,597,815					
2021	6,597,815	6,635,726	99.4%	99.4%	(37,911)	1,105,950	4.69%	53,067	97,299	150,366	547,248	(396,882)	527,948	6,728,881					
2022	6,728,881	6,798,214	99.0%	99.0%	(69,333)	1,156,826	5.97%	70,550	101,675	172,225	556,722	(384,498)	539,272	6,883,655					
2023	6,883,655	6,978,794	98.6%	98.6%	(95,139)	1,207,701	6.42%	79,282	106,146	185,429	567,372	(381,943)	552,146	7,053,859					

\* Surpluses reduce employer contributions over 25 years

\* Deficits increase employer contributions over 25 years

# 1.5 Actuarial Projections (continued)

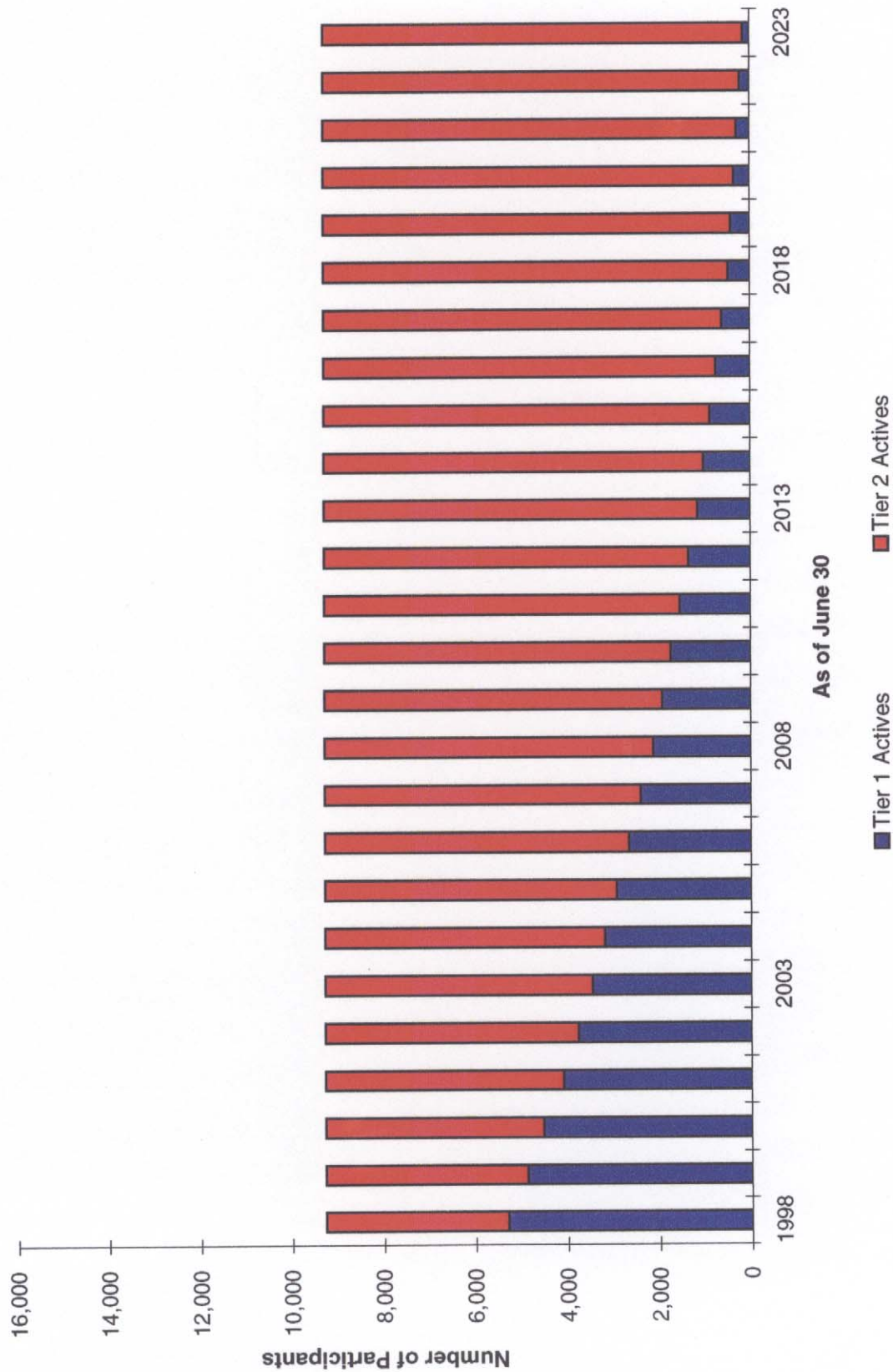
Table 6  
State of Alaska TRS  
Financial Projections ('000 omitted)

As of June 30	Investment Return				8.25%				Annual Population Increase				2.00%			
	-----Valuation Amounts on July 1-----				-----Flow Amounts During Following 12 Months-----											
	Total	Accrued	Funding	Surplus*	Total	Employer	Employer	Employee	Total	Benefit	Net	Investment	Asset	Value	Value	Value
	Assets	Liability	Ratio	(Deficit)	Salaries	Cth Rate	Contribs	Contribs	Contribs	Payments	Contribs	Earnings				
1998	3,446,070	3,528,757	97.7%	(82,687)	469,433	12.00%	57,505	41,787	99,293	226,281	(126,989)	279,062	3,759,840	3,759,840		
1999	3,598,144	3,686,862	97.6%	(88,718)	488,991	12.00%	59,896	43,474	103,370	233,167	(129,797)	291,493	3,920,086	3,920,086		
2000	3,759,840	3,854,301	97.5%	(94,461)	509,271	12.00%	62,024	44,967	106,991	250,992	(144,001)	304,247	4,083,501	4,083,501		
2001	3,920,086	4,007,856	97.8%	(87,770)	524,460	12.00%	64,153	46,457	110,610	264,264	(153,654)	317,069	4,249,211	4,249,211		
2002	4,083,501	4,163,336	98.1%	(79,835)	544,756	12.00%	66,659	48,217	114,876	279,274	(164,397)	330,107	4,416,245	4,416,245		
2003	4,249,211	4,318,147	98.4%	(68,936)	566,233	12.00%	69,514	50,224	119,738	295,994	(176,256)	343,289	4,585,078	4,585,078		
2004	4,416,245	4,465,807	98.9%	(49,562)	592,338	12.00%	72,647	52,427	125,074	312,835	(187,762)	356,595	4,755,187	4,755,187		
2005	4,585,078	4,613,679	99.4%	(28,601)	618,442	12.00%	75,779	54,624	130,404	330,318	(199,914)	370,023	4,927,679	4,927,679		
2006	4,755,187	4,760,636	99.9%	(5,450)	644,546	12.00%	78,912	56,816	135,728	346,831	(211,103)	383,595	5,101,946	5,101,946		
2007	4,927,679	4,905,853	100.4%	21,826	670,651	12.00%	82,044	59,004	141,048	364,113	(223,065)	397,332	5,280,446	5,280,446		
2008	5,101,946	5,048,804	101.1%	53,142	696,755	12.00%	85,878	61,689	147,568	380,375	(232,807)	411,307	5,464,673	5,464,673		
2009	5,280,446	5,189,266	101.8%	91,180	734,553	12.00%	90,414	64,872	155,286	396,737	(241,450)	425,677	5,654,939	5,654,939		
2010	5,464,673	5,327,319	102.6%	137,354	772,350	12.00%	94,950	68,047	162,997	413,244	(250,246)	440,513	5,851,557	5,851,557		
2011	5,654,939	5,463,342	103.5%	191,597	810,148	12.00%	99,486	71,298	170,784	430,005	(259,222)	455,840	6,055,385	6,055,385		
2012	5,851,557	5,598,018	104.5%	253,539	847,946	12.00%	104,021	74,549	178,570	446,445	(267,875)	471,704	6,268,658	6,268,658		
2013	6,055,385	5,732,330	105.6%	323,055	885,743	12.00%	109,528	78,495	188,023	462,978	(274,955)	488,227	6,375,026	6,375,026		
2014	6,268,658	5,867,563	106.8%	401,094	939,722	0.00%	0	83,137	83,137	477,659	(394,522)	509,890	6,480,517	6,480,517		
2015	6,375,026	6,005,304	106.2%	369,722	993,701	0.00%	0	87,779	87,779	491,572	(403,792)	509,283	6,586,576	6,586,576		
2016	6,480,517	6,147,442	105.4%	333,076	1,047,680	0.00%	0	92,422	92,422	504,027	(411,605)	517,664	6,693,827	6,693,827		
2017	6,586,576	6,296,165	104.6%	290,411	1,101,659	0.00%	0	97,064	97,064	515,927	(418,863)	526,114	6,803,717	6,803,717		
2018	6,693,827	6,453,966	103.7%	239,861	1,155,638	0.00%	0	102,694	102,694	527,521	(424,827)	534,717	6,918,073	6,918,073		
2019	6,803,717	6,623,639	102.7%	180,078	1,232,594	0.00%	0	109,312	109,312	538,557	(429,245)	543,600	7,050,972	7,050,972		
2020	6,918,073	6,808,276	101.6%	109,796	1,309,551	0.72%	9,644	115,930	125,574	546,071	(420,496)	553,396	7,214,189	7,214,189		
2021	7,050,972	7,011,276	100.6%	39,695	1,386,507	2.26%	32,239	122,549	154,787	556,696	(401,909)	565,126	7,411,802	7,411,802		
2022	7,214,189	7,236,336	99.7%	(22,147)	1,463,463	3.81%	57,288	129,167	186,455	568,263	(381,808)	579,421	7,644,947	7,644,947		
2023	7,411,802	7,487,455	99.0%	(75,653)	1,540,420	5.19%	82,063	135,959	218,023	581,363	(363,341)	596,486				

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

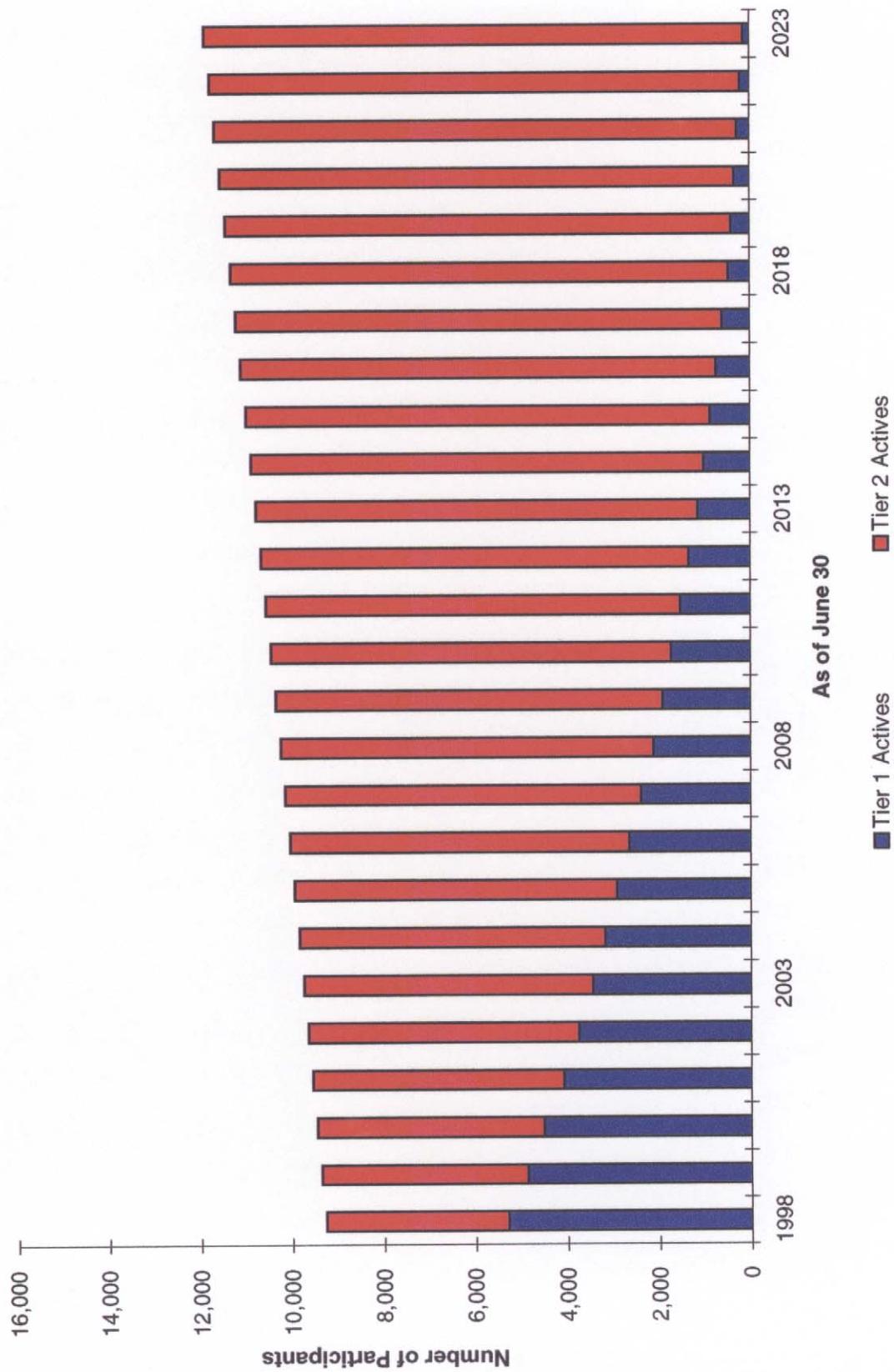
# 1.5 Actuarial Projections (continued)

## State of Alaska TRS Projected Active Participant Count Annual Population Increase 0%



## 1.5 Actuarial Projections (continued)

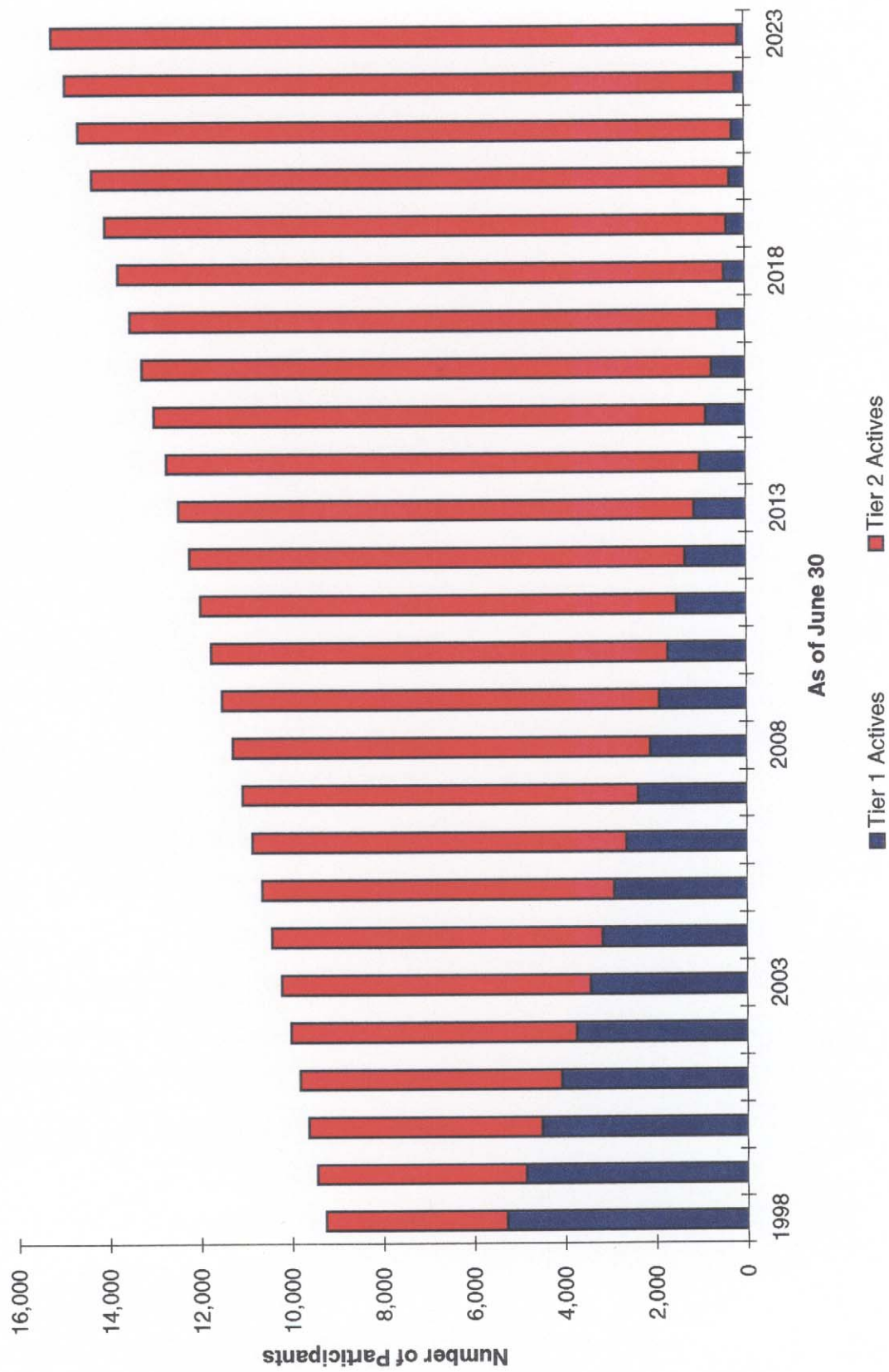
### State of Alaska TRS Projected Active Participant Count Annual Population Increase 1%



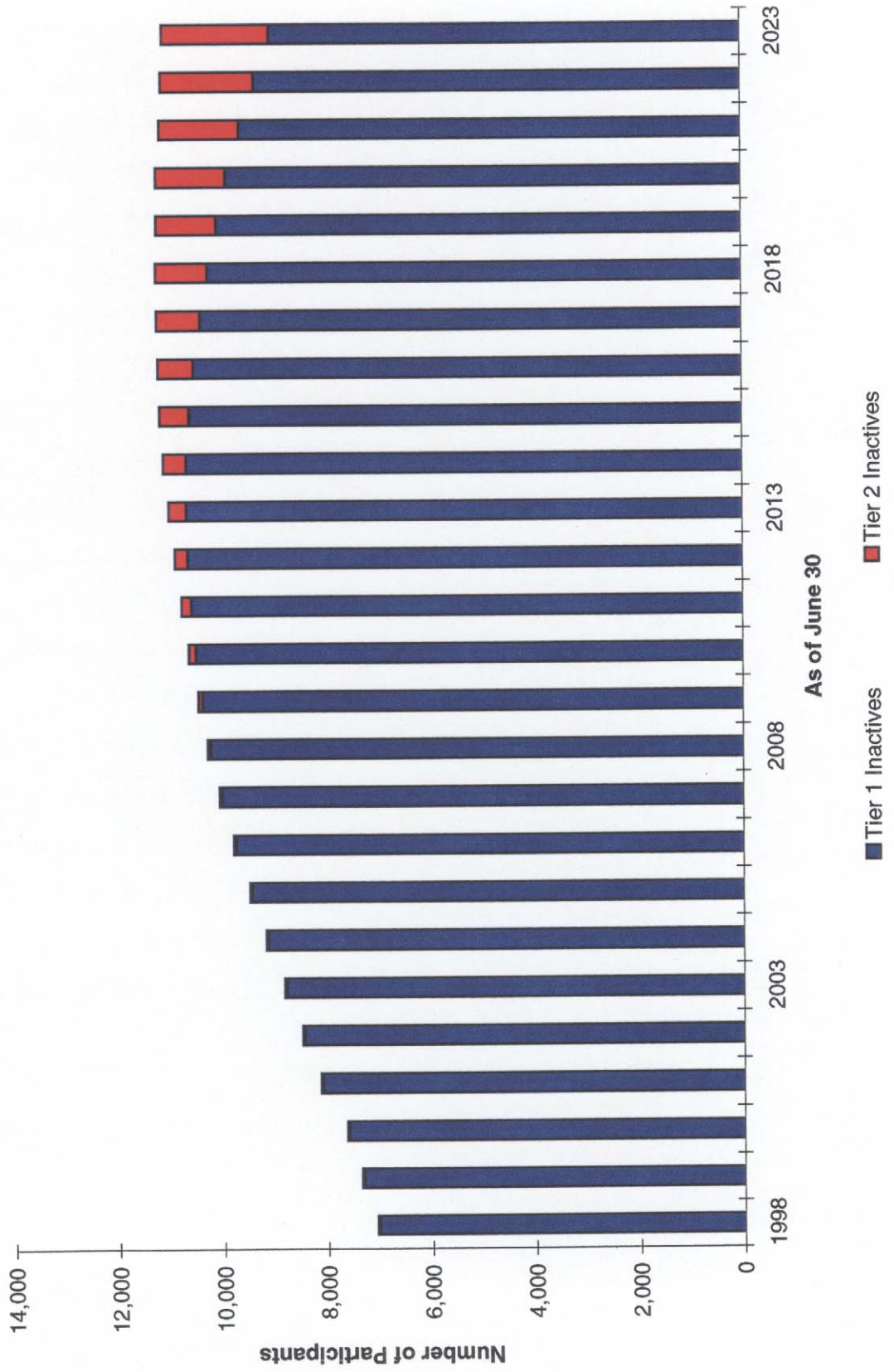


## 1.5 Actuarial Projections (continued)

### State of Alaska TRS Projected Active Participant Count Annual Population Increase 2%

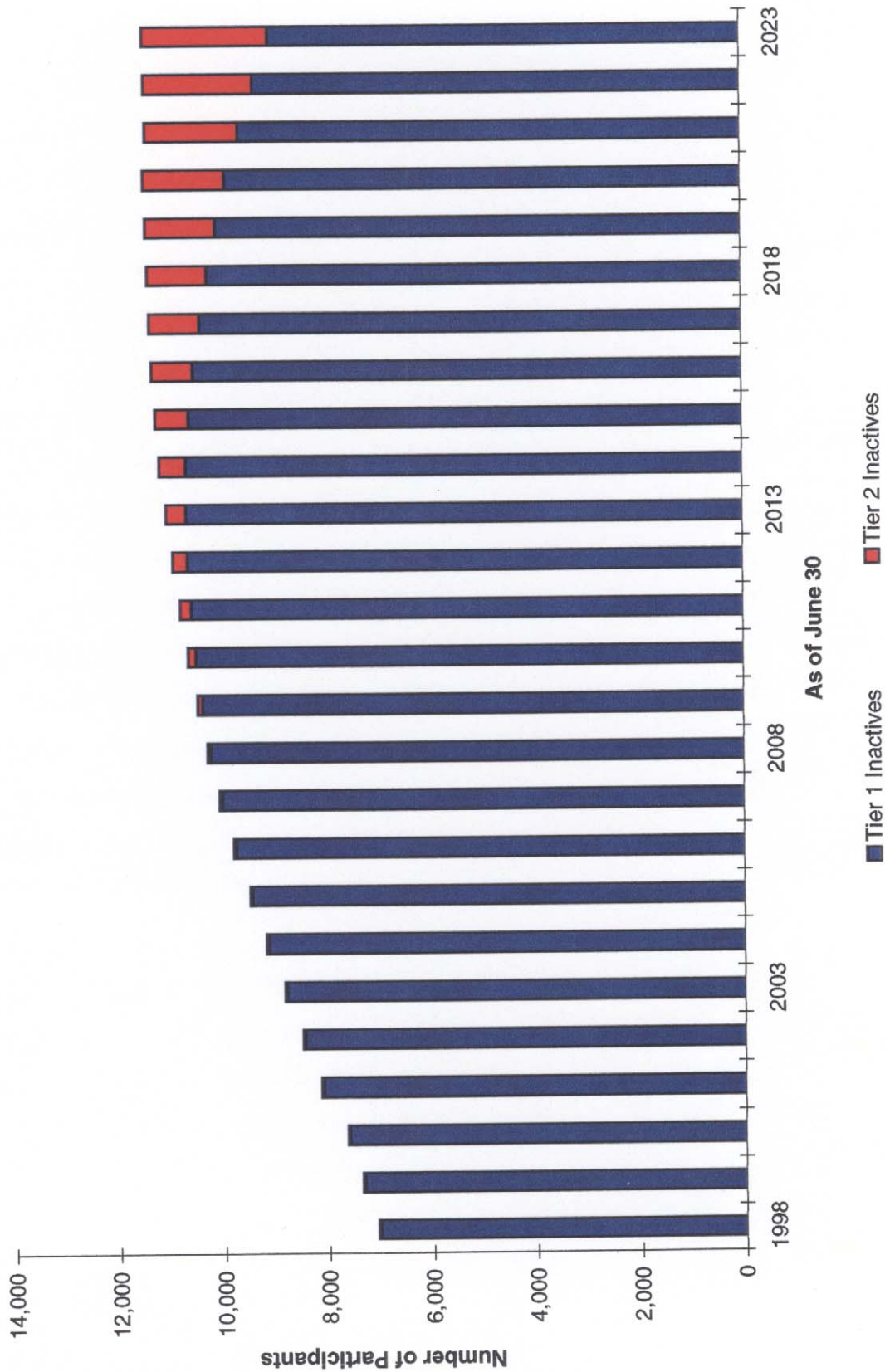


# State of Alaska TRS Projected Inactive Participant Count Annual Population Increase 0%



1.5 Actuarial Projections (continued)

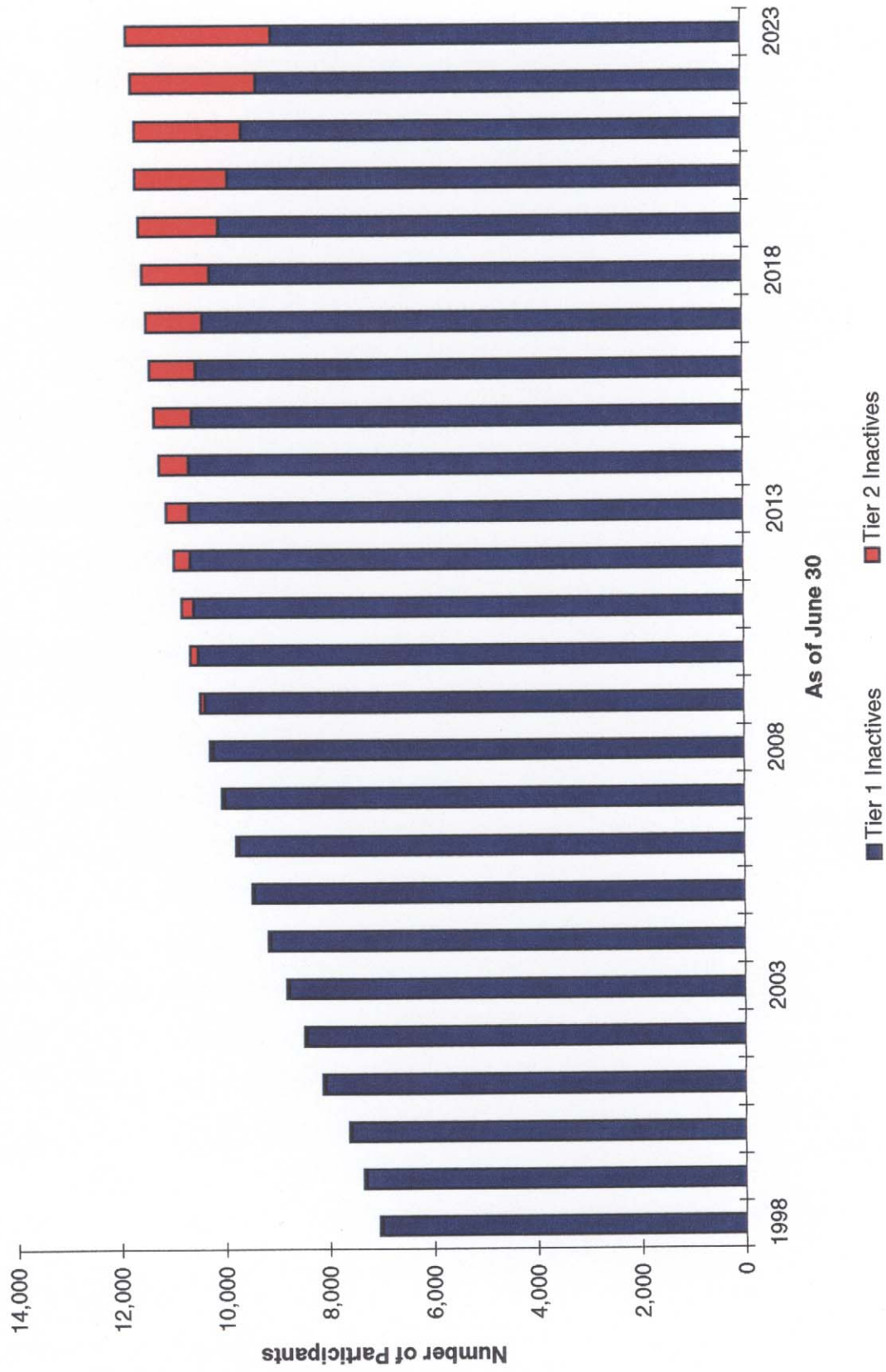
**State of Alaska TRS Projected Inactive Participant Count  
Annual Population Increase 1%**





1.5 Actuarial Projections (continued)

**State of Alaska TRS Projected Inactive Participant Count  
Annual Population Increase 2%**





## **Section 2**

### **Basis of the Valuation**

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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**

July 1, 1955, with amendments through June 30, 1998. 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. Members who were first hired after June 30, 1996 are eligible for different health benefits than members from the other tiers.

### **(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 membership credit for each day of part-time service. Credit is granted for all Alaskan public school service.

## 2.1 Summary of the Alaska Teachers' Retirement System *(continued)*

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.

## 2.1 Summary of the Alaska Teachers' Retirement System *(continued)*

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<sup>1</sup>, 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).
- (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.

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<sup>1</sup> Members participating before July 1, 1990, are eligible for normal retirement at age 55 or early retirement at age 50.

## 2.1 Summary of the Alaska Teachers' Retirement System *(continued)*

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 are refunded 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) Postemployment Healthcare Benefits

When pension benefits begin, major medical benefits are provided without cost to (1) all employees first hired before July 1, 1990, and (2) employees who are disabled or age sixty-five or older, regardless of their initial hire dates. Employees first hired after June 30, 1990, may receive major medical benefits prior to age sixty-five by paying premiums.

### (10) 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.

## 2.1 Summary of the Alaska Teachers' Retirement System *(continued)*

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.

### (11) 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

## 2.1 Summary of the Alaska Teachers' Retirement System *(continued)*

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.

### (12) 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.

### (13) 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:

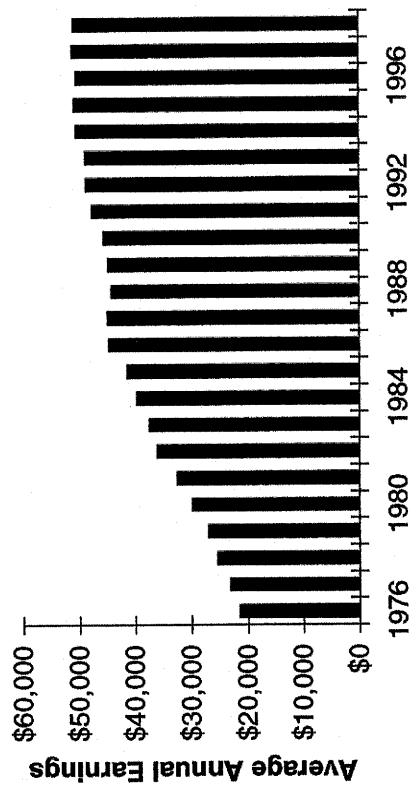
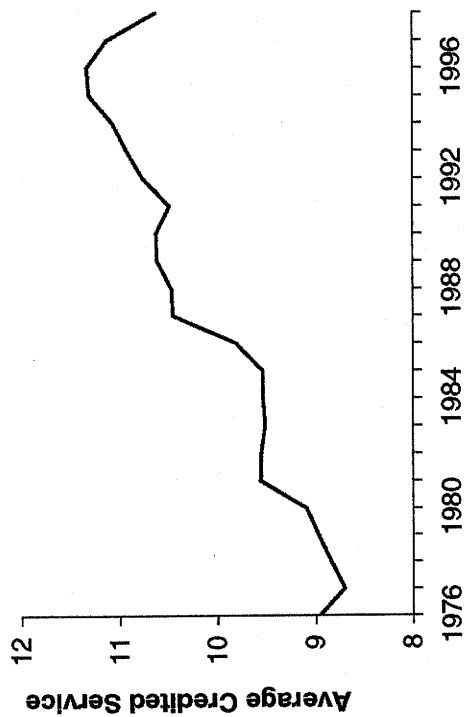
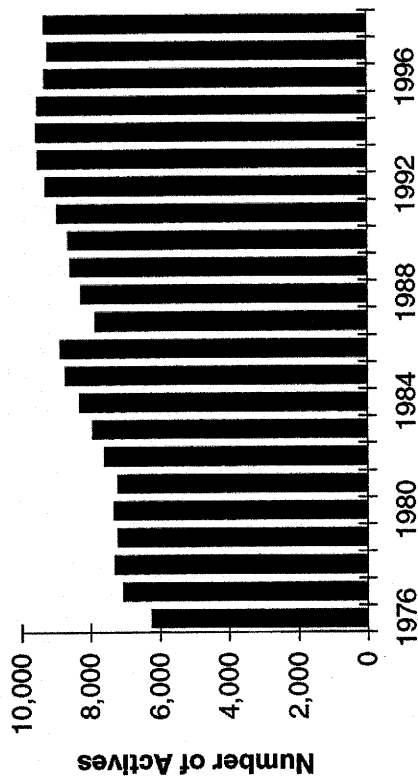
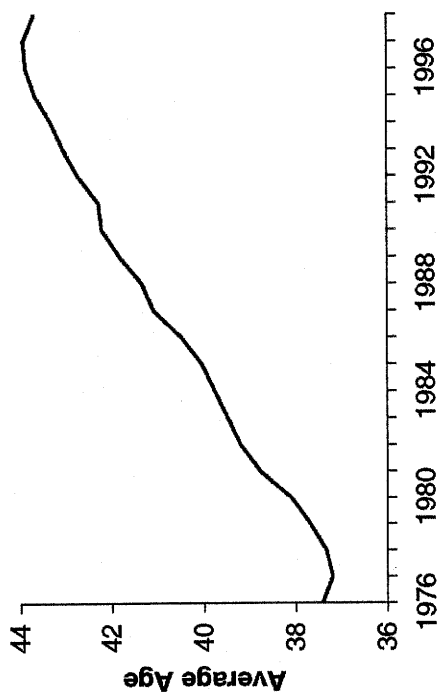
- (a) members who were first hired under the TRS before July 1, 1990, and their survivors;
- (b) members who were first hired under the TRS after June 30, 1990, and their survivors if they are at least age 65; and
- (c) all disabled members.

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

	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
<b>Active Members</b>					
(1) Number	9,489	9,452	9,259	9,164	9,262
(2) Average Age	43.32	43.68	43.87	43.93	43.69
(3) Average Credited Service	11.06	11.30	11.33	11.12	10.62
(4) Average Annual Salary	\$ 50,174	\$ 50,487	\$ 50,241	\$ 50,901	\$ 50,684
(5) Number Vested	5,562	5,578	5,491	5,366	5,285
(6) Percent Who Are Vested	58.6%	59.0%	59.3%	58.6%	57.1%
<b>Retirees and Beneficiaries</b>					
(1) Number	4,134	4,459	4,803	5,343	5,979
(2) Average Age	62.73	62.83	62.94	62.87	62.67
(3) Average Monthly Benefit:					
Base	\$ 1,643	\$ 1,694	\$ 1,703	\$ 1,750	\$ 1,819
C.O.L.A.	102	105	105	110	115
P.R.P.A.	283	274	258	441	431
Adjustment	0	-1	-4	-15	1
Total	2,028	2,072	2,062	2,286	2,366
<b>Vested Terminations</b>					
(1) Number	930	859	1,116	1,279	1,064
(2) Average Age	48.10	48.08	49.31	49.62	49.59
(3) Average Monthly Benefit	\$ 1,294	\$ 1,233	\$ 1,431	\$ 1,471	\$ 1,397
<b>Non-Vested Terminations With Account Balances</b>					
(1) Number	1,090	1,140	1,195	1,310	1,285
(2) Average Account Balance	\$ 11,807	\$ 12,165	\$ 12,782	\$ 14,387	\$ 12,437



# State of Alaska - TRS Actives



## 2.2(b) Distribution of Active Participants

----- Annual Earnings By Age -----				----- Annual Earnings By Credited Service -----			
Age Groups	Number of People	Total Annual Earnings	Average Annual Earnings	Years of Service	Number of People	Total Annual Earnings	Average Annual Earnings
0-19	0	\$ 0	\$ 0	0	182	\$ 6,232,212	\$ 34,243
20-24	78	2,598,567	33,315	1	806	29,269,743	36,315
25-29	655	24,163,113	36,890	2	573	22,122,360	38,608
30-34	997	40,928,281	41,051	3	473	19,817,077	41,897
35-39	1,224	55,754,759	45,551	4	448	19,786,066	44,165
40-44	1,819	91,526,659	50,317	0- 4	2,482	97,227,458	39,173
45-49	2,230	121,498,869	54,484	5- 9	2,332	110,659,587	47,453
50-54	1,519	87,625,269	57,686	10-14	1,681	92,082,791	54,779
55-59	574	34,932,845	60,859	15-19	1,571	93,330,996	59,409
60-64	135	8,424,048	62,400	20-24	775	47,948,603	61,869
65-69	25	1,647,806	65,912	25-29	334	21,935,790	65,676
70-74	5	282,664	56,533	30-34	80	5,653,391	70,667
75+	1	50,554	50,554	35-39	7	594,818	84,974
				40+	0	0	0
Total	9,262	\$ 469,433,434	\$ 50,684	Total	9,262	\$ 469,433,434	\$ 50,684

### Years of Credited Service By Age

Age	----- Years of Service -----									Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	
0-19	0	0	0	0	0	0	0	0	0	0
20-24	78	0	0	0	0	0	0	0	0	78
25-29	579	76	0	0	0	0	0	0	0	655
30-34	516	440	41	0	0	0	0	0	0	997
35-39	364	479	306	75	0	0	0	0	0	1,224
40-44	395	466	471	415	72	0	0	0	0	1,819
45-49	303	465	444	570	375	73	0	0	0	2,230
50-54	174	265	292	350	226	185	27	0	0	1,519
55-59	61	103	96	130	82	59	41	2	0	574
60-64	9	30	26	28	16	16	6	4	0	135
65-69	2	7	5	3	2	0	5	1	0	25
70-74	1	0	0	0	2	1	1	0	0	5
75+	0	1	0	0	0	0	0	0	0	1
Total	2,482	2,332	1,681	1,571	775	334	80	7	0	9,262

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

<b>Valuation Date</b>	<b>Number</b>	<b>Annual Payroll (000's)</b>	<b>Annual Average Pay</b>	<b>Percent Increase/(Decrease) In Average Pay</b>	<b>Number of Participating Employers</b>
June 30, 1998	9,262	\$ 469,433	\$ 50,684	(0.4%)	61
June 30, 1997	9,164	466,455	50,901	1.3%	61
June 30, 1996	9,259	465,182	50,241	(0.5%)	61
June 30, 1995	9,452	477,205	50,487	0.6%	61
June 30, 1994	9,489	476,098	50,174	3.2%	61
June 30, 1993	9,459	459,746	48,604	0.2%	61
June 30, 1992	9,238	448,186	48,515	2.2%	62
June 30, 1991	8,903	422,655	47,473	4.6%	62
June 30, 1990	8,586	389,702	45,388	1.8%	60
June 30, 1989	8,527	380,267	44,596	1.4%	61

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

	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
<b>Service</b>					
(1) Number	267	359	308	510	657
(2) Average Age At Retirement	54.14	53.88	53.77	53.68	53.09
(3) Average Monthly Benefit	\$ 2,349	\$ 2,358	\$ 2,349	\$ 2,488	\$ 2,551
<b>Disability</b>					
(1) Number	6	3	13	8	9
(2) Average Age At Retirement	48.31	48.58	52.98	44.02	44.96
(3) Average Monthly Benefit	\$ 2,870	\$ 3,353	\$ 2,542	\$ 2,409	\$ 2,065
<b>Survivor (including surviving spouse and QDROs)</b>					
(1) Number	7	6	20	47	47
(2) Average Age At Retirement	44.47	52.86	53.14	60.37	61.39
(3) Average Monthly Benefit	\$ 2,554	\$ 1,522	\$ 1,038	\$ 1,226	\$ 1,128
<b>Total</b>					
(1) Number	280	368	341	565	713
(2) Average Age At Retirement	53.77	53.82	53.70	54.10	53.52
(3) Average Monthly Benefit	\$ 2,365	\$ 2,352	\$ 2,279	\$ 2,382	\$ 2,451

## 2.2(e) Schedule of Average Benefit Payments - New Retirees

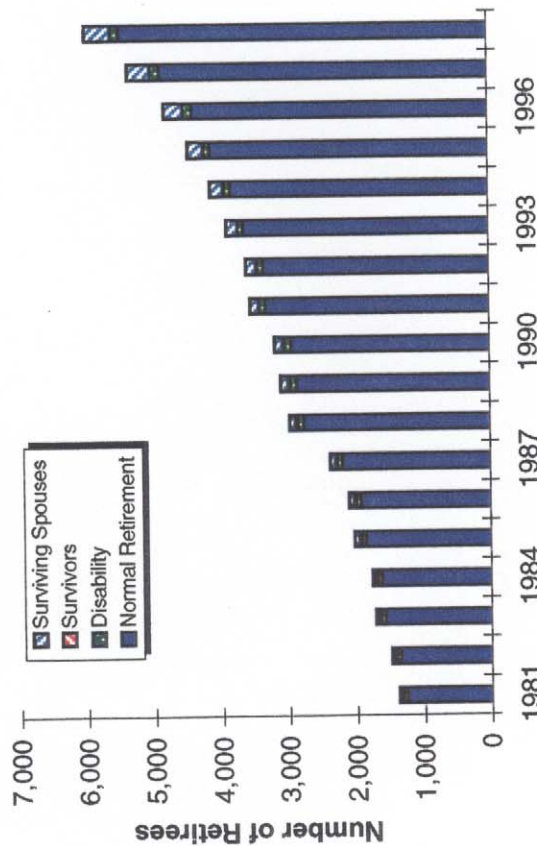
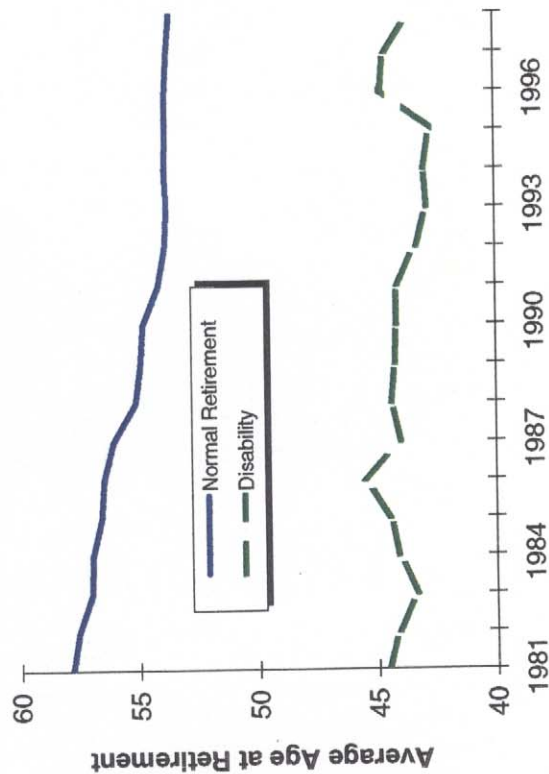
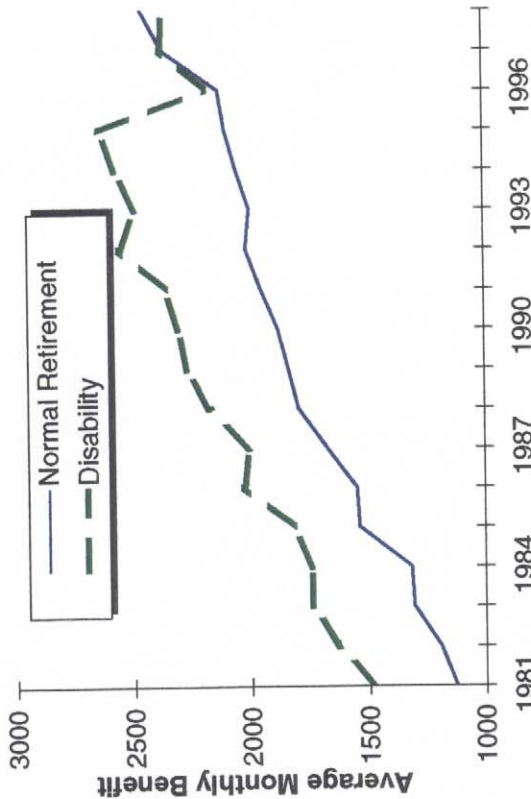
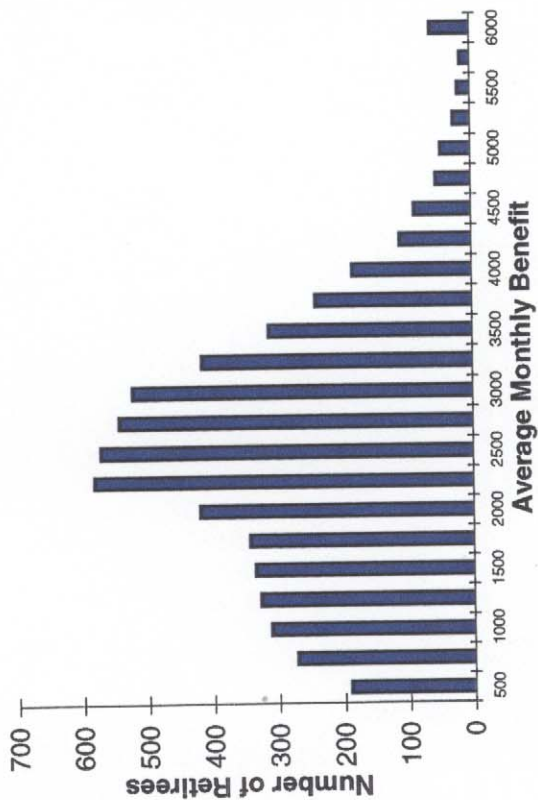
	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/97 - 6/30/98:							
Average Monthly Benefit	\$ 1,051	\$ 850	\$ 1,095	\$ 1,842	\$ 2,590	\$ 3,443	\$ 4,280
Number of Active Retireants	26	51	80	105	240	154	57
Period 7/1/96 - 6/30/97:							
Average Monthly Benefit	\$ 996	\$ 828	\$ 1,042	\$ 1,692	\$ 2,493	\$ 3,353	\$ 3,812
Number of Active Retireants	19	42	71	77	151	153	52
Period 7/1/95 - 6/30/96:							
Average Monthly Benefit	\$ 952	\$ 836	\$ 1,145	\$ 1,731	\$ 2,389	\$ 3,138	\$ 3,317
Number of Active Retireants	15	24	40	31	115	86	30
Period 7/1/94 - 6/30/95:							
Average Monthly Benefit	\$ 1,204	\$ 748	\$ 1,033	\$ 1,716	\$ 2,398	\$ 3,041	\$ 3,958
Number of Active Retireants	7	22	47	36	129	89	38
Period 7/1/93 - 6/30/94:							
Average Monthly Benefit	\$ 1,161	\$ 576	\$ 1,151	\$ 1,605	\$ 2,354	\$ 3,176	\$ 3,685
Number of Active Retireants	7	11	35	24	107	72	24
Period 7/1/92 - 6/30/93:							
Average Monthly Benefit	\$ 408	\$ 1,002	\$ 1,015	\$ 1,561	\$ 2,258	\$ 3,090	\$ 3,043
Number of Active Retireants	7	17	23	9	62	37	10
Period 7/1/91 - 6/30/92:							
Average Monthly Benefit	\$ 819	\$ 1,205	\$ 1,941	\$ 2,256	\$ 2,290	\$ 3,159	\$ 3,930
Number of Active Retireants	4	27	25	17	38	8	1

"Average Monthly Benefit" includes post-retirement pension adjustments and cost-of-living increases.

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

	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
<b>Service Retirements</b>					
(1) Number, Fiscal Year Start	3,636	3,831	4,130	4,395	4,873
(2) Net Change During FY	195	299	265	478	594
(3) Number, Fiscal Year End	3,831	4,130	4,395	4,873	5,467
(4) Average Age At Retirement	53.85	53.78	53.78	53.70	53.57
(5) Average Age Now	63.00	63.04	63.20	63.07	62.69
(6) Average Monthly Benefit \$	2,052	\$ 2,099	\$ 2,126	\$ 2,365	\$ 2,451
<b>Surviving Spouse's Benefits</b>					
(1) Number, Fiscal Year Start	161	200	229	279	334
(2) Net Change During FY	39	29	50	55	48
(3) Number, Fiscal Year End	200	229	279	334	382
(4) Average Age At Retirement	51.51	52.04	54.59	55.37	57.95
(5) Average Age Now	64.25	65.06	64.56	64.61	66.59
(6) Average Monthly Benefit \$	1,299	\$ 1,373	\$ 1,016	\$ 1,132	\$ 1,173
<b>Survivor's Benefits (other than spouses)</b>					
(1) Number, Fiscal Year Start	0	9	8	3	3
(2) Net Change During FY	9	(1)	(5)	0	3
(3) Number, Fiscal Year End	9	8	3	3	6
(4) Average Age At Retirement	37.25	28.14	15.12	30.75	33.76
(5) Average Age Now	42.87	36.03	26.08	40.16	47.04
(6) Average Monthly Benefit \$	2,166	\$ 1,822	\$ 466	\$ 537	\$ 464
<b>Disabilities</b>					
(1) Number, Fiscal Year Start	94	94	92	126	133
(2) Net Change During FY93	0	(2)	34	7	(9)
(3) Number, Fiscal Year End	94	92	126	133	124
(4) Average Age At Retirement	42.98	42.71	44.74	44.60	43.44
(5) Average Age Now	50.28	50.36	51.31	51.66	50.81
(6) Average Monthly Benefit \$	2,569	\$ 2,637	\$ 2,185	\$ 2,370	\$ 2,361
<b>Total Number of Retirees</b>	<b>4,134</b>	<b>4,459</b>	<b>4,803</b>	<b>5,343</b>	<b>5,979</b>

# State of Alaska - TRS Retirees



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

----- Annual Benefit By Age -----				-- Annual Benefit By Years Since Retirement --			
Age Groups	Number of People	Total Annual Benefit	Average Annual Benefit	Years Since Retirement	Number of People	Total Annual Benefit	Average Annual Benefit
0-19	2	\$ 11,098	\$ 5,549	0	713	\$ 20,968,930	\$ 29,409
20-24	2	9,435	4,717	1	576	16,415,905	28,500
25-29	0	0	0	2	350	9,568,497	27,339
30-34	2	33,458	16,729	3	394	11,207,554	28,446
35-39	8	141,618	17,702	4	290	8,399,196	28,963
40-44	45	1,025,360	22,786	0- 4	2,323	66,560,082	28,653
45-49	319	9,191,313	28,813	5- 9	1,213	32,670,185	26,933
50-54	941	28,473,626	30,259	10-14	1,342	43,521,294	32,430
55-59	1,417	41,319,702	29,160	15-19	571	14,106,008	24,704
60-64	1,113	32,811,458	29,480	20-24	423	10,173,118	24,050
65-69	821	23,170,050	28,222	25-29	89	2,188,129	24,586
70-74	543	14,513,569	26,728	30-34	15	411,289	27,419
75+	766	19,026,712	24,839	35-39	3	97,296	32,432
				40+	0	0	0
Total	5,979	\$ 169,727,400	\$ 28,387	Total	5,979	\$ 169,727,400	\$ 28,387

### Years Since Retirement By Age

----- Years Since Retirement -----										
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
0-19	1	1	0	0	0	0	0	0	0	2
20-24	0	0	0	2	0	0	0	0	0	2
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	6	2	0	0	0	0	0	0	0	8
40-44	41	3	1	0	0	0	0	0	0	45
45-49	268	45	5	0	1	0	0	0	0	319
50-54	677	197	61	6	0	0	0	0	0	941
55-59	783	396	216	17	4	1	0	0	0	1,417
60-64	338	318	391	55	9	1	1	0	0	1,113
65-69	133	150	363	147	26	2	0	0	0	821
70-74	45	61	192	169	73	1	1	1	0	543
75+	29	40	113	175	310	84	13	2	0	766
Total	2,323	1,213	1,342	571	423	89	15	3	0	5,979



## 2.2(h) Schedule of Retired Members by Type of Retirant and Option Selected - June 30, 1998

Amount of Monthly Benefit	Number of Retirees	Type of Retirement			Option Selected #			
		1	2	3	Opt. 1	Opt. 2	Opt. 3	Opt. 4
\$ 1 - \$ 300	68	53	14	1	53	9	5	1
301 - 600	214	146	62	6	184	13	11	6
601 - 900	366	284	77	5	309	28	19	10
901 - 1,200	379	289	80	10	318	37	16	8
1,201 - 1,500	408	351	57	0	339	36	28	5
1,501 - 1,800	415	375	39	1	373	22	16	4
1,801 - 2,100	580	543	24	13	501	35	39	5
2,101 - 2,400	702	665	13	24	605	53	35	9
2,401 - 2,700	654	629	9	16	582	35	31	6
2,701 - 3,000	630	606	5	19	574	28	25	3
3,001 - 3,300	476	455	4	17	434	21	17	4
3,301 - 3,600	356	349	2	5	334	7	10	5
3,601 - 3,900	232	226	2	4	209	13	9	1
over 3900	499	496	0	3	462	21	9	7
Totals	5,979	5,467	388	124	5,277	358	270	74

### Type of Retirement

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

- Option 1 - Whole Life Annuity
- Option 2 - 75% Joint and Contingent Annuity
- Option 3 - 50% Joint and Contingent Annuity
- Option 4 - 66 2/3% Joint and Survivor Annuity

## 2.2(i) 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, 1998	674	\$24,479,595	38	\$ 1,380,155	5,979	\$169,727,400	15.75%	\$ 28,387
June 30, 1997	583	29,988,351 <sup>(1)</sup>	43	2,211,834 <sup>(1)</sup>	5,343	146,627,960	23.37%	27,443
June 30, 1996	376	8,410,895	32	441,353	4,803	118,851,443	7.19%	24,745
June 30, 1995	368	10,386,432	43	94,443	4,459	110,881,901	10.23%	24,867
June 30, 1994	280	8,923,551	37	616,360	4,134	100,589,912	9.00%	24,332
June 30, 1993	344	6,874,777	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
* Numbers are estimated, and include other internal transfers.								

<sup>(1)</sup> Includes additional benefits to current retirees from a one time retroactive ad hoc Post-Retirement Pension Adjustments

## 2.3 Summary of Actuarial Assumptions and Methods

The demographic and economic assumptions used in this valuation were recommended by William M. Mercer, Incorporated and were adopted at the Fall 1996 TRS Board Meeting. These assumptions were the result of an experience study performed in the Fall of 1996. The funding method used in this valuation was adopted June 30, 1985. The five-year smoothing method used to determine valuation assets was changed effective June 30, 1994.

### 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. Any funding surpluses or unfunded accrued liability is amortized over a rolling 25 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 | 8.25% per year, compounded annually, net of expenses.  |
| 2. Salary Scale      | Inflation - 4.0% per year<br>Productivity - 0.5% per year<br>Merit (first 5 years of employment) - 1.0% per year.                        |
| 3. Total Inflation   | Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 4% annually. |
| 4. Health Cost Trend | FY98 - 6.5%<br>FY99 and later - 5.5%   |

## 2.3 Summary of Actuarial Assumptions and Methods *(continued)*

- |     |                                    |   |
|-----|------------------------------------|---|
| 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 1991-95 actual total turnover experience. (See Table 1).   |
| 7.  | Disability                         | Incidence rates based upon the 1991-95 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 1991-95 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., 62% 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:<br><br>Pessimistic:        0% per year<br>Median:            1% per year<br>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. | Post-Retirement Pension Adjustment | 50% and 75% of assumed inflation is valued for the automatic Post-Retirement Pension Adjustment (PRPA) as specified in the statute.   |
| 16. | Expenses                           | Expenses are covered in the investment return assumption.   |

## **2.3 Summary of Actuarial Assumptions and Methods *(continued)***

### **Valuation of Assets**

Effective June 30, 1994, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. All assets are valued at market value. Assets are accounted for on an accrued basis and are taken directly from audited financial statements provided by KPMG Peat Marwick, LLP. Valuation assets cannot be outside a range of 80% to 120% of the market value of assets.

### **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 the June 30, 1998 valuation, the pre-65 monthly premium is \$600.44 and the post-65 premium is \$228.72, based on an assumed total blended premium of \$459.33. For the time period January 1, 1999 to December 31, 1999, the actual blended premium as provided by the State of Alaska Division of Retirement and Benefits is \$442.00.

## 2.3 Summary of Actuarial Assumptions and Methods *(continued)*

**Table 1**

### **Alaska TRS**

#### **Total Turnover Assumptions**

Select Rates of Turnover  
During the First 8 Years  
of Employment

Ultimate Rates of Turnover  
After the First 8 Years  
of Employment

<u>Year of Employment</u>	<u>Rate</u>
1	.15
2	.14
3	.12
4	.11
5	.09
6	.08
7	.07
8	.07

<u>Ages</u>	<u>Rate</u>
20+	.04

## 2.3 Summary of Actuarial Assumptions and Methods *(continued)*

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

<u>Age</u>	<u>Rate</u>
20	.28
21	.28
22	.29
23	.29
24	.30
25	.30
26	.30
27	.31
28	.32
29	.33
30	.34
31	.34
32	.35
33	.36
34	.37
35	.38
36	.40
37	.41
38	.43
39	.44
40	.46
41	.48
42	.51
43	.54
44	.59
45	.65
46	.70
47	.76
48	.83
49	.89
50	.96
51	1.04
52	1.14
53	1.27
54	1.42
55	1.60
56	1.84
57	2.14
58	2.44
59	2.88
60	3.37
61	3.90
62	4.52
63	5.22
64	5.96



## 2.3 Summary of Actuarial Assumptions and Methods *(continued)*

**Table 3**

### **Alaska TRS**

#### **Retirement Rates**

<u>Age at Retirement</u>	<u>Retirement Rate</u>
50	.05
51	.05
52	.05
53	.05
54	.05
55	.15
56	.13
57	.10
58	.10
59	.10
60	.10
61	.10
62	.10
63	.17
64	.17
65	.50
66	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**

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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.

### 3.1 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 Average Contribution Rate During Fiscal Year					
	98	97	96	95	94	
(1) Health Experience	0.00%	0.00%	0.00%	0.00%	0.25%	
(2) Salary Experience	(0.30%)	(0.05%)	(0.62%)	(0.29%)	(0.20%)	
(3) Investment Experience	(2.70%)	(1.80%)	(0.69%)	(0.05%)	0.55%	
(4) Demographic Experience	0.55%	1.56%	0.68%	0.32%	0.47%	
(5) Miscellaneous	0.00%	0.00%	0.00%	0.00%	0.00%	
(6) Gain (or Loss) During Year From Experience, (1) + (2) + (3) + (4) + (5)	(2.45%)	(0.29%)	(0.63%)	(0.02%)	1.07%	
Non-recurring Changes						
(7) Contribution Rate Smoothing Method	0.00%	0.00%	0.00%	0.00%	0.00%	
(8) Asset Valuation Method	0.00%	0.00%	0.00%	0.00%	(0.89%)	
(9) Assumption Changes	0.00%	0.00%	(3.79%)	0.00%	2.30%	
(10) Ad hoc PRPA	0.00%	2.77%	0.00%	0.00%	0.00%	
Composite Gain (or Loss) During Year, (6) + (7) + (8) + (9) + (10) + (11) + (12)	(2.45%)	2.48%	(4.42%)	(0.02%)	2.48%	
Beginning Total Employment Contribution Rate	13.00%	10.52%	14.94%	14.96%	12.48%	
Ending Total Employment Contribution Rate	10.55%	13.00%	10.52%	14.94%	14.96%	

### 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, 1998	\$ 3,528,757	\$ 3,446,070	97.7%	\$ 82,687	\$ 469,433	17.6%
June 30, 1997	3,320,069	3,120,044	94.0%	200,025	466,455	42.9%
June 30, 1996 <sup>(2)</sup>	2,940,437	2,858,756	97.2%	81,681	465,182	17.6%
June 30, 1995	2,913,467	2,647,392	90.9%	266,075	477,205	55.8%
June 30, 1994 <sup>(1)(2)</sup>	2,761,409	2,472,957	89.6%	288,452	476,098	60.6%
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%
<sup>(1)</sup> Change in Asset Valuation Method. <sup>(2)</sup> Change of Assumptions. <sup>(3)</sup> Change in Plan Provisions.						

### 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, 1998	\$ 449,383	\$ 2,344,263	\$ 735,111	\$ 3,446,070	100%	100%	88.8%
June 30, 1997	483,735	2,095,843	780,491	3,120,044	100%	100%	69.2%
June 30, 1996 <sup>(2)</sup>	451,249	1,689,636	799,552	2,858,756	100%	100%	89.8%
June 30, 1995	437,089	1,531,406	944,972	2,647,392	100%	100%	71.8%
June 30, 1994 <sup>(1)(2)</sup>	398,990	1,419,506	942,913	2,472,957	100%	100%	69.4%
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%
<sup>(1)</sup> Change in Asset Valuation Method. <sup>(2)</sup> Change of Assumptions. <sup>(3)</sup> Change in Plan Provisions.							

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