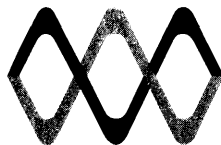


Teachers Retirement Association Fund
ACTUARIAL VALUATION REPORT

July 1, 1994



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December 6, 1994

Legislative Commission on
Pensions and Retirement
55 State Office Building
St. Paul, Minnesota 55155

RE: **Teachers Retirement Association Fund**

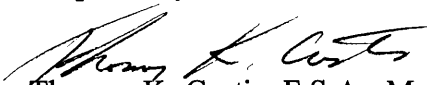
Commission Members:

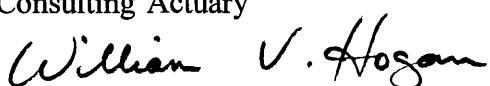
Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1994.

The results of our calculations are set forth in the following report, as are the actuarial assumptions upon which our calculations have been made. We have relied on the basic employee data and asset figures as submitted by the Teachers Retirement Association.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission on July 8, 1992.

Respectfully submitted,


Thomas K. Custis, F.S.A., M.A.A.A.
Consulting Actuary


William V. Hogan, F.S.A., M.A.A.A.
Consulting Actuary

TKC/WVH/bh

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Teachers Retirement Association Fund

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Teachers Retirement Association Fund

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Teachers Retirement Association Fund

Report Highlights

(dollars in thousands)

	07/01/93 Valuation	07/01/94 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 354 % of Payroll	12.68%	14.66%
2. Required Contributions - Chapter 356 % of Payroll	12.75%	14.73%
3. Sufficiency (Deficiency): (A.1. - A.2.)	-0.07%	-0.07%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$7,045,937	\$7,611,936
b. Current Benefit Obligations (Table 8)	\$7,607,562	\$8,463,676
c. Funding Ratio: (a/b)	92.62%	89.94%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$7,045,937	\$7,611,936
b. Actuarial Accrued Liability (Table 9)	\$8,266,059	\$9,115,266
c. Funding Ratio: (a/b)	85.24%	83.51%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$10,349,382	\$11,407,437
b. Current and Expected Future Benefit Obligations	\$10,380,086	\$11,434,495
c. Funding Ratio: (a/b)	99.70%	99.76%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	65,268	66,514
b. Projected Annual Earnings	\$2,156,739	\$2,235,636
c. Average Annual Earnings (Actual \$)	\$33,044	\$33,612
d. Average Age	42.9	42.8
e. Average Service	12.4	12.5
2. Others		
a. Service Retirements (Table 4)	19,343	20,563
b. Disability Retirements (Table 5)	354	345
c. Survivors (Table 6)	1,113	1,229
d. Deferred Retirements (Table 7)	4,030	4,499
e. Terminated Other Non-vested (Table 7)	15,994	16,147
f. Total	40,834	42,783

Teachers Retirement Association Fund

Commentary

Purpose

The purpose of this valuation is to determine the financial status of the Plan. In order to achieve this purpose, an actuarial valuation is made at the beginning of each fiscal year as required by Section 356.215 of Minnesota Statutes.

Report Highlights

The financial status of the Plan can be measured by three different funding ratios:

- ° The Accrued Benefit Funding Ratio is a measure of current funding status and, when viewed over a period of years, presents a view of the funding progress. It is based upon benefits which have been earned by service to the valuation date. This year's ratio is 89.94%. The corresponding ratio for the prior year was 92.62%.
- ° The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used by the State. For 1994 the ratio is 83.51%, which is a decrease from the 1993 value of 85.24%.
- ° The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 99.76% shows that the current statutory contributions are inadequate.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gain and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets.

The term "Actuarial Value of Assets" is used to indicate that the value was determined for use in this actuarial valuation. Since Minnesota Statutes refer to this value as "Current Assets", the latter phrase will be used in the remainder of this report.

This Plan participates in the Minnesota Post Retirement Investment Fund (i.e. MPRIF). After the MPRIF liability has been calculated for each participating Plan, the State Board of Investments, (i.e. SBI), will determine each Plan's portion of the excess earnings for the January benefit increase as well as the Plan's allocated market share of MPRIF.

Actuarial Balance Sheet (Table 8)

An actuarial balance sheet provides a method for evaluating current and future levels of funding.

The Current Benefit Obligation used to measure current funding levels is calculated in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- ° For Active Members - salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- ° For Non-active Members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The JULY 1, 1994 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$3,717,500,000
Current Employees	
Accumulated employee contributions including allocated investment income	\$2,172,694,000
Employer-financed vested	2,307,366,000
Employer-financed nonvested	<u>266,116,000</u>
Total Pension Benefit Obligation	\$8,463,676,000
Net Assets Available for Benefits at Cost	\$7,592,215,000
Total Benefit Obligation less Assets	\$871,461,000
Funded Ratio	89.70%

Actuarial Cost Method (Table 9)

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal Actuarial Cost Method. The primary characteristic of this method is that it allocates costs as a level percentage of payroll.

A comparison of this actuarial method (Table 9) to the actuarial balance sheet (Table 8) illustrates the two techniques for allocating liabilities of active Members to past and future. As noted in the prior section, the balance sheet allocates benefits and the corresponding liabilities, on the basis of service. The method used in Table 9 allocates liabilities so that the cost each year will be a constant percentage of payroll. Both approaches, however, calculate the value of all future benefits the same way (see line F of Table 8 and line A6, column 1, of Table 9).

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal Actuarial Cost Method by comparing the liabilities allocated to past service (Actuarial Accrued Liability) to the Current Assets. This amount, line B3, is funded over the remaining years to the amortization date by a series of payments that remain a constant percentage of payroll each year.

The payments will increase 5% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years, the annual payment will cover the interest and also repay a portion of the unfunded.

Sources of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectation. For a detailed analysis of the major components, refer to Table 10. It has come to our attention as we have worked with Minnesota Retirement Funds that a source of gain/loss exists with respect to the repayment of refunds by members. As a result of legislation passed, a larger than normal amount of this activity has occurred during the past year. While not specifically quantified due to our concern about complete data, we believe that this item has had an impact on the overall gain/loss of the fund. The impact is included in the amount shown in line D.6. of Table 10.

Contribution Sufficiency (Table 11)

This report determines the adequacy of Statutory Contributions by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

- Normal costs based on the Entry Age Normal Actuarial Cost Method.
- A Supplemental Contribution for amortizing any Unfunded Actuarial Accrued Liability.
- An Allowance for Expenses.

Table 11 shows the Plan has a contribution deficiency since the Statutory Contribution Rate is 14.66% compared to the Required Contribution Rate of 14.73%.

Changes in Actuarial Assumptions

Mortality rates were updated to the 1983 Group Annuity Mortality table, salary increases were changed to an age-related table and payroll growth was changed from 6.5% to 5%. These changes were made to reflect experience of the plan. The table below illustrates the impact of these assumption changes on key results:

	Without Assumption Changes	With Assumption Changes
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 354 % of Payroll	14.66%	14.66%
2. Required Contributions - Chapter 356 % of Payroll	14.84%	14.73%
3. Sufficiency (Deficiency): (A.1. - A.2.)	-0.18%	-0.07%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$7,611,936	7,611,936
b. Current Benefit Obligations (Table 8)	\$8,612,477	8,463,676
c. Funding Ratio: (a/b)	88.38%	89.94%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$7,611,936	7,611,936
b. Actuarial Accrued Liability (Table 9)	\$9,271,569	9,115,266
c. Funding Ratio: (a/b)	82.10%	83.51%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$11,632,546	11,407,437
b. Current and Expected Future Benefit Obligations	\$11,713,754	11,434,495
c. Funding Ratio: (a/b)	99.31%	99.76%

Changes in Plan Provisions

Benefit accrual rates were increased by .13% and member contribution rates were increased by 2% of payroll. The combined change in benefits and assumptions did not result in a change in the amortization date.

TABLE 1

Teachers Retirement Association Fund

Accounting Balance Sheet*(dollars in thousands)*

JULY 1, 1994

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS		
1. Cash, Equivalents, Short-term Securities	\$4,730	\$4,730
2. Investments		
a. Fixed Income	1,179,858	1,231,932
b. Equity	2,997,101	2,885,867
c. Real Estate	0	0
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	3,492,525	3,492,525
4. Other	36,130	36,130
B. TOTAL ASSETS	<u>\$7,710,344</u>	<u>\$7,651,184</u>
C. AMOUNTS CURRENTLY PAYABLE	\$58,969	\$58,969
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$970,813	\$970,813
2. Employer Reserves	3,188,037	3,128,877
3. MPRIF Reserves	3,492,525	3,492,525
4. Non-MPRIF Reserves	0	0
5. Total Assets Available for Benefits	<u>\$7,651,375</u>	<u>\$7,592,215</u>
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$7,710,344</u>	<u>\$7,651,184</u>
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$7,592,215
2. Market Value (D5)	\$7,651,375	
3. Cost Value (D5)	<u>7,592,215</u>	
4. Market Over Cost: (F2-F3)	\$59,160	
5. 1/3 of Market Over Cost: (F4)/3		19,720
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		<u>\$7,611,935</u>

TABLE 2

Teachers Retirement Association Fund

Change In Assets Available For Benefits*(dollars in thousands)*

YEAR ENDING JUNE 30, 1994

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$7,290,982	\$6,923,414
B. OPERATING REVENUES		
1. Member Contributions	\$100,803	\$100,803
2. Employer Contributions	171,855	171,855
3. Investment Income	394,383	394,383
4. MPRIF Income	315,803	315,803
5. Net Realized Gain (Loss)	0	0
6. Other	8,752	8,752
7. Net Change in Unrealized Gain (Loss)	<u>(308,408)</u>	<u>0</u>
8. Total Revenue	<u>\$683,188</u>	<u>\$991,596</u>
C. OPERATING EXPENSES		
1. Service Retirements	\$300,482	\$300,482
2. Disability Benefits	4,213	4,213
3. Survivor Benefits	4,341	4,341
4. Refunds	3,583	3,583
5. Investment Fees	6,224	6,224
6. Administrative Expenses	3,338	3,338
7. Other	<u>614</u>	<u>614</u>
8. Total Disbursements	<u>\$322,795</u>	<u>\$322,795</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$7,651,375</u></u>	<u><u>\$7,592,215</u></u>

Teachers Retirement Association Fund
ACTIVE MEMBERS AS OF JUNE 30, 1994

<u>AGE</u>	<u>YEARS OF SERVICE</u>								<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	1,664	144							1,808
25-29	2,446	4,066	571						7,083
30-34	1,285	2,020	3,196	268					6,769
35-39	1,160	1,737	1,839	2,402	576	1			7,715
40-44	1,408	1,799	2,001	1,597	3,761	902			11,468
45-49	935	1,435	1,684	1,414	2,139	4,750	1,232		13,589
50-54	407	740	852	896	1,023	2,172	3,453	513	10,056
55-59	257	314	364	347	575	964	1,520	1,490	5,831
60-64	147	145	110	127	217	339	434	332	1,851
65+	75	66	28	23	29	25	41	57	344
ALL	9,784	12,466	10,645	7,074	8,320	9,153	6,680	2,392	66,514

AVERAGE ANNUAL EARNINGS

<u>AGE</u>	<u>YEARS OF SERVICE</u>								<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	15,396	23,832							16,068
25-29	12,840	22,541	27,470						19,588
30-34	12,902	22,688	29,630	34,461					24,574
35-39	12,201	21,703	30,144	34,233	39,111	29,238			27,488
40-44	11,340	20,339	30,524	36,171	40,446	42,956			31,589
45-49	10,520	18,324	31,241	35,934	40,803	43,739	45,003		36,061
50-54	8,966	15,775	28,111	34,304	40,605	45,468	46,413	46,811	39,239
55-59	7,382	13,782	24,867	32,301	39,855	45,422	47,021	48,262	40,571
60-64	6,907	8,013	21,480	29,139	39,920	46,176	47,499	49,216	37,553
65+	5,502	5,176	20,969	36,156	41,686	40,733	49,124	50,626	27,035
ALL	12,320	20,777	29,634	34,848	40,415	44,330	46,379	48,140	31,699

<u>AGE</u>	<u>PRIOR FISCAL YEAR EARNINGS (IN MILLIONS) BY YEARS OF SERVICE</u>								<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
ALL	120	259	315	246	336	405	309	115	2,108

TABLE 4

Teachers Retirement Association Fund
SERVICE RETIREMENTS AS OF JUNE 30, 1994

<u>AGE</u>	<u>YEARS RETIRED</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	1			1				2
50-54	11	13						24
55-59	708	1,075	26					1,809
60-64	711	2,717	920	4				4,352
65-69	213	1,540	2,122	585	1			4,461
70-74	12	243	1,569	1,375	207	2	1	3,409
75-79	1	24	206	1,480	766	110	1	2,588
80-84			12	128	1,391	382	62	1,975
85+		1	1	5	181	1,300	455	1,943
ALL	1,657	5,613	4,856	3,578	2,546	1,794	519	20,563

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS RETIRED</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	11,066		2,571	18,984				15,026
50-54	17,068	14,810	3,192	1,080				15,846
55-59	21,644	19,141	15,285	4,736	3,437	282		20,066
60-64	19,395	20,520	17,170	19,293	628			19,628
65-69	13,932	15,129	16,855	12,970	1,424			15,607
70-74	13,218	15,013	14,354	14,662	7,853	12,214	13,326	14,125
75-79	1,079	8,932	14,027	14,146	12,379	5,684	12,614	13,201
80-84			4,300	11,087	12,120	8,868	4,772	11,147
85+		671	4,120	2,275	10,837	7,794	7,630	8,020
ALL	19,578	18,473	15,945	14,034	11,756	7,899	7,310	15,157

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

<u>AGE</u>	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>ALL</u>
ALL	32,441	103,689	77,429	50,214	29,931	14,171	3,794	311,673

Teachers Retirement Association Fund
SURVIVORS AS OF JUNE 30, 1994

<u>AGE</u>	<u>YEARS SINCE DEATH</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	17	13	9	1				40
50-54	7	23	5	2	1		1	39
55-59	10	47	16	5	3	1		82
60-64	9	79	60	21	7	4	2	182
65-69	21	96	75	27	8	4	3	234
70-74	26	112	86	49	14	5	6	298
75-79	13	76	62	39	12	9	5	216
80-84	5	29	18	19	14	4	6	95
85+		10	9	4	7	8	5	43
ALL	108	485	340	167	66	35	28	1,229

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS SINCE DEATH</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	9,961	5,910	3,240	2,170				6,938
50-54	4,888	11,312	4,624	7,116	4,805		3,277	8,714
55-59	21,691	11,011	10,009	6,526	7,217	8,251		11,673
60-64	16,341	14,198	12,939	13,005	11,729	4,624	2,658	13,319
65-69	14,828	14,655	13,027	11,159	13,450	9,860	3,275	13,477
70-74	13,326	12,638	12,628	13,735	10,305	14,040	4,690	12,630
75-79	11,784	13,229	15,426	16,208	14,585	9,146	4,275	14,009
80-84	7,115	10,786	13,605	9,686	10,430	7,229	4,619	10,316
85+		10,379	6,613	7,909	4,741	8,703	7,597	7,808
ALL	13,095	12,826	12,685	12,840	10,829	9,065	4,773	12,415

<u>AGE</u>	<u>TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
ALL	1,414	6,221	4,313	2,144	715	317	134	15,258

TABLE 6

Teachers Retirement Association Fund
DISABILITY RETIREMENTS AS OF JUNE 30, 1994

<u>AGE</u>	<u>YEARS DISABLED</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	10	35	12	2				59
50-54	9	29	16	6	1		1	62
55-59	10	41	32	7	3	1		94
60-64	4	59	39	11	6	1	1	121
65-69	1	3	3	2				9
70-74								
75-79								
80-84								
85+								
ALL	34	167	102	28	10	2	2	345

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS DISABLED</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50	10,271	6,656	5,361	24,482				7,610
50-54	9,484	11,233	7,981	12,352	4,156		5,118	10,036
55-59	13,953	15,981	10,477	4,822	8,397	2,166		12,672
60-64	9,685	16,211	13,733	15,175	8,189	6,288	9,365	14,567
65-69	7,472	11,454	14,799	25,793				15,314
70-74								
75-79								
80-84								
85+								
ALL	10,995	13,203	10,856	13,406	7,849	4,228	7,242	12,066

<u>TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED</u>								
<u>AGE</u>	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>ALL</u>
ALL	374	2,205	1,107	375	79	9	15	4,163

TABLE 7

Teachers Retirement Association Fund

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1993	65,268	4,030	15,994
B. ADDITIONS	7,111	761	3,701
C. DELETIONS			
1. Service Retirement	(1,404)	(252)	0
2. Disability	0	0	0
3. Death	(55)	(40)	0
4. Terminated - Deferred	(3,837)	0	0
5. Terminated - Refund	(548)	0	(897)
6. Terminated - Other Non-Vested	0	0	(1,246)
7. Returned as Active	0	0	(1,447)
8. Transferred to Other Fund	(10)	0	0
D. DATA ADJUSTMENTS	(11)	0	42
Vested	49,751		
Non-Vested	16,763		
E. TOTAL ON JUNE 30, 1994	66,514	4,499	16,147

	Recipients		
	Retirement Annuitants	Disabled	Survivors
A. ON JUNE 30, 1993	19,343	354	1,113
B. ADDITIONS	1,666	60	160
C. DELETIONS			
1. Service Retirement	0	(21)	0
2. Death	(444)	(18)	(17)
3. Annuity Expired	0	0	(45)
4. Returned as Active	(2)	(4)	0
D. DATA ADJUSTMENTS	0	(26)	18
E. TOTAL ON JUNE 30, 1994	20,563	345	1,229

Teachers Retirement Association Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 1994

A. CURRENT ASSETS (TABLE 1, F6)				\$7,611,935
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				\$1,476,273
2. Present Value of Future Normal Costs				2,319,229
3. Total Expected Future Assets				<u>\$3,795,502</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$11,407,437</u>
D. CURRENT BENEFIT OBLIGATIONS	Non-Vested	Vested	Total	
1. Benefit Recipients				
a. Retirement Annuities		\$3,385,484	\$3,385,484	
b. Disability Benefits		46,053	46,053	
c. Surviving Spouse and Child Benefits		128,076	128,076	
2. Deferred Retirements with Future Augmentation		143,417	143,417	
3. Former Members without Vested Rights		14,470	14,470	
4. Active Members				
a. Retirement Annuities	11,255	4,318,775	4,330,030	
b. Disability Benefits	211,977	0	211,977	
c. Survivor's Benefits	42,027	0	42,027	
d. Deferred Retirements	857	119,478	120,335	
e. Refund Liability Due to Death or Withdrawal	0	41,807	41,807	
5. Total Current Benefit Obligations	<u>\$266,116</u>	<u>\$8,197,560</u>	<u>\$8,463,676</u>	
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$2,970,819</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$11,434,495</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$851,741
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				\$27,058

Teachers Retirement Association Fund

**Determination Of Unfunded Actuarial Accrued Liability (UAAL)
And Supplemental Contribution Rate**
(dollars in thousands)

JULY 1, 1994

	Actuarial Present Value of Projected Benefits (1)	Actuarial Present Value of Future Normal Costs (2)	Actuarial Accrued Liability (3)=(1)-(2)
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$7,043,139	\$1,810,809	\$5,232,330
b. Disability Benefits	344,425	136,198	208,227
c. Survivor's Benefit	65,280	24,409	40,871
d. Deferred Retirements	182,166	102,529	79,637
e. Refunds Due to Death or Withdrawal	81,984	245,284	(163,300)
f. Total	<u>\$7,716,994</u>	<u>\$2,319,229</u>	<u>\$5,397,765</u>
2. Deferred Retirements With Future Augmentation	143,417		143,417
3. Former Members Without Vested Rights	14,470		14,470
4. Annuitants in MPRIF	3,492,525		3,492,525
5. Recipients Not in MPRIF	<u>67,089</u>		<u>67,089</u>
6. Total	<u>\$11,434,495</u>	<u>\$2,319,229</u>	<u>\$9,115,266</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$9,115,266
2. Current Assets (Table 1, F6)			<u>7,611,935</u>
3. UAAL (B1-B2)			<u>\$1,503,331</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$38,048,270
2. Supplemental Contribution Rate (B3/C1)			3.95%

Teachers Retirement Association Fund

Changes In Unfunded Actuarial Accrued Liability (UAAL)
(dollars in thousands)

YEAR ENDING JUNE 30, 1994

A. UAAL AT BEGINNING OF YEAR	\$1,220,122
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$215,477
2. Contribution	(272,658)
3. Interest on A, B1 and B2	101,280
4. Total (B1+B2+B3)	<u>\$44,099</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$1,264,221
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$168,255)
2. Investment Return	50,479
3. MPRIF Mortality	7,259
4. Mortality of Other Benefit Recipients	(3,843)
5. Repayment of Refunded Contributions	0
6. Other Items	133,763
7. Total	<u>\$19,403</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D7)	\$1,283,624
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	376,392
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>(156,685)</u>
H. UAAL AT END OF YEAR (E+F+G)	<u><u>\$1,503,331</u></u>

Teachers Retirement Association Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 1994

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	6.51%	\$145,617
2. Employer Contributions	8.15%	182,281
3. Total	14.66%	\$327,898
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	8.35%	\$186,689
b. Disability benefits	0.62%	13,757
c. Survivors	0.11%	2,567
d. Deferred Retirement Benefits	0.44%	9,828
e. Refunds Due to Death or Withdrawal	1.11%	24,892
f. Total	10.63%	\$237,733
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	3.95%	88,308
3. Allowance for Expenses	0.15%	3,353
4. Total	14.73%	\$329,394
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	-0.07%	(\$1,496)

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1994 is \$2,235,636.

Teachers Retirement Association Fund

Summary of Actuarial Assumptions and Methods

Interest:	Pre-Retirement: 8.5% per annum Post-Retirement: 5.0% per annum																
Salary Increases:	Reported salary for prior fiscal year, with new hires annualized, increased according to the table below to current fiscal year and annually for each future year.																
Mortality:	Pre-Retirement: Male - 1983 Group Annuity Mortality Table for males set back eight years. Female - 1983 Group Annuity Mortality Table for females set back four years. Post-Retirement: Male - Same as above except set back four years. Female - Same as above except set back two years. Post-Disability: Male - 1977 Railroad Retirement Board Mortality for Disabled Annuitants. Female - 1977 Railroad Retirement Board Mortality for Disabled Annuitants.																
Retirement Age:	Age 62 or if over age 62, one year from valuation date. In addition, 45% of Basic Members and 30% of Coordinated Members are assumed to retire each year that they are eligible for the Rule of 90.																
Separation:	Select and ultimate rates were based on plan experience as of June 30, 1989. Ultimate rates after the third year are shown in rate table. Select rates are as follows:																
	<table><tr><td></td><td><u>First Year</u></td><td><u>Second Year</u></td><td><u>Third Year</u></td></tr><tr><td>Less than 35</td><td>.3</td><td>.15</td><td>.1</td></tr><tr><td>35-44</td><td>.25</td><td>.125</td><td>.08</td></tr><tr><td>45-60</td><td>.3</td><td>.15</td><td>.1</td></tr></table>		<u>First Year</u>	<u>Second Year</u>	<u>Third Year</u>	Less than 35	.3	.15	.1	35-44	.25	.125	.08	45-60	.3	.15	.1
	<u>First Year</u>	<u>Second Year</u>	<u>Third Year</u>														
Less than 35	.3	.15	.1														
35-44	.25	.125	.08														
45-60	.3	.15	.1														
Disability:	Rates as shown in table.																

<i>Expenses:</i>	Prior year expenses expressed as percentage of prior year payroll.				
<i>Return of Contributions:</i>	All employees withdrawing after becoming eligible for a deferred benefit were assumed to take the larger of their contributions accumulated with interest or the value of their deferred benefit.				
<i>Family Composition:</i>	85% of male Members and 65% of female Members are assumed to be married. Female is three years younger than male. Assume Members have no children.				
<i>Social Security:</i>	N/A				
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 5% accounted for by 5% post-retirement assumptions.				
<i>Special Consideration:</i>	Married Members assumed to elect subsidized joint and survivor form of annuity as follows: <table> <tr> <td>Males -</td><td>15% elect 50% J&S option 50% elect 100% J&S option</td></tr> <tr> <td>Females -</td><td>10% elect 50% J&S option 10% elect 100% J&S option</td></tr> </table>	Males -	15% elect 50% J&S option 50% elect 100% J&S option	Females -	10% elect 50% J&S option 10% elect 100% J&S option
Males -	15% elect 50% J&S option 50% elect 100% J&S option				
Females -	10% elect 50% J&S option 10% elect 100% J&S option				
<i>Actuarial Cost Method:</i>	Entry Age Normal Actuarial Cost Method with normal costs expressed as a level percentage of earnings. Under this method, Actuarial Gains (Losses) reduce (increase) the Unfunded Actuarial Accrued Liability.				
<i>Asset Valuation Method:</i>	Cost Value plus one-third Unrealized Gains or Losses.				
<i>Payment on the Unfunded Actuarial Accrued Liability:</i>	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 5% per annum.				

TABLE 12
(Continued)

Teachers Retirement Association Fund

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Separations Expressed as the Number of Occurrences Per 10,000:

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>		<u>Salary Increases</u>
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	
20	3	1	600	600	4	4	0	0	7.25%
21	3	2	600	600	4	4	0	0	7.25
22	3	2	600	600	4	4	0	0	7.25
23	3	2	600	600	5	5	0	0	7.20
24	3	2	600	600	5	5	0	0	7.15
25	3	2	600	600	5	5	0	0	7.10
26	4	2	600	600	5	5	0	0	7.05
27	4	2	600	600	5	5	0	0	7.00
28	4	2	600	600	5	5	0	0	7.00
29	4	3	580	580	5	5	0	0	7.00
30	4	3	565	565	6	6	0	0	7.00
31	4	3	540	540	6	6	0	0	7.00
32	4	3	520	520	6	6	0	0	7.00
33	5	3	500	500	6	6	0	0	7.00
34	5	3	480	480	6	6	0	0	7.00
35	5	4	440	440	6	6	0	0	7.00
36	5	4	370	370	7	7	0	0	7.00
37	6	4	330	330	7	7	0	0	7.00
38	6	4	280	280	8	8	0	0	6.90
39	6	5	240	240	8	8	0	0	6.80
40	7	5	210	210	8	8	0	0	6.70
41	7	5	195	195	9	9	0	0	6.60
42	8	6	185	185	9	9	0	0	6.50
43	9	6	175	175	10	10	0	0	6.35
44	9	7	160	160	10	10	0	0	6.20
45	10	7	145	145	11	11	0	0	6.05
46	10	8	130	130	12	12	0	0	5.90
47	11	8	115	115	13	13	0	0	5.75
48	12	9	100	100	14	14	0	0	5.70
49	14	10	85	85	16	16	0	0	5.65

TABLE 12
(Continued)

Teachers Retirement Association Fund

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Separations Expressed as the Number of Occurrences Per 10,000:

Age	Preretirement Death		Withdrawal		Disability		Retirement		Salary Increases
	Male	Female	Male	Female	Male	Female	Male	Female	
50	15	11	70	70	17	17	0	0	5.60%
51	17	12	55	55	19	19	0	0	5.55
52	19	14	40	40	22	22	0	0	5.50
53	22	15	25	25	26	26	0	0	5.45
54	25	16	10	10	30	30	0	0	5.40
55	28	18	0	0	36	36	0	0	5.35
56	31	19	0	0	41	41	0	0	5.30
57	35	21	0	0	47	47	0	0	5.25
58	39	23	0	0	52	52	0	0	5.25
59	43	25	0	0	58	58	0	0	5.25
60	48	28	0	0	63	63	0	0	5.25
61	52	31	0	0	69	69	0	0	5.25
62	57	34	0	0	0	0	10,000	10,000	5.25
63	61	38	0	0	0	0	0	0	5.25
64	66	42	0	0	0	0	0	0	5.25
65	71	47	0	0	0	0	0	0	5.25
66	77	52	0	0	0	0	0	0	5.25
67	84	58	0	0	0	0	0	0	5.25
68	92	64	0	0	0	0	0	0	5.25
69	101	71	0	0	0	0	0	0	5.25

TABLE 3A
BASIC

Teachers Retirement Association Fund
ACTIVE MEMBERS AS OF JUNE 30, 1994

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									
25-29									
30-34									
35-39									
40-44									
45-49									
50-54						1	2	1	4
55-59						2	13	78	93
60-64						1	5	47	53
65+	1						2	10	13
ALL	1					4	22	136	163

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									
25-29									
30-34									
35-39									
40-44									
45-49									
50-54						50,329	49,937	31,846	45,512
55-59						20,214	42,002	45,141	44,166
60-64						46,588	48,921	45,789	46,100
65+	10,000						41,250	39,732	37,679
ALL	10,000					34,336	44,228	44,870	44,310

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE									
AGE	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
ALL	10					137	973	6,102	7,222

TABLE 4A
BASIC

Teachers Retirement Association Fund
SERVICE RETIREMENTS AS OF JUNE 30, 1994

<u>AGE</u>	<u>YEARS RETIRED</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								
50-54								
55-59	71	200	8					279
60-64	46	460	255	3				764
65-69	18	166	502	247				933
70-74		27	306	462	95	2	1	893
75-79		7	41	415	330	73	1	867
80-84			1	32	485	179	53	750
85+			1		42	334	270	647
ALL	135	860	1,114	1,159	952	588	325	5,133

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS RETIRED</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								
50-54								
55-59	30,869	30,357	19,336					30,171
60-64	28,014	29,272	29,682	20,008				29,297
65-69	18,774	24,927	30,811	20,736				26,865
70-74		23,913	23,602	22,041	10,894	12,214	13,326	21,416
75-79		13,387	23,993	21,080	16,327	6,962	12,614	18,149
80-84			2,058	17,479	15,433	11,375	5,178	13,810
85+			4,120		13,398	11,492	10,052	11,004
ALL	28,284	28,389	28,190	21,288	15,201	10,897	9,276	21,080

<u>TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED</u>								
<u>AGE</u>	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>ALL</u>
ALL	3,818	24,415	31,404	24,673	14,471	6,407	3,015	108,204

TABLE 5A
BASIC

Teachers Retirement Association Fund

SURVIVORS AS OF JUNE 30, 1994

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			1	1				2
50-54		1		1	1		1	4
55-59	1	5	1	2	2	1		12
60-64	3	16	15	15	6	4	2	61
65-69	3	23	18	9	4	3	3	63
70-74	5	27	22	14	4	4	6	82
75-79	3	20	15	16	5	4	5	68
80-84		11	6	7	4	2	5	35
85+		4	1		2	3	4	14
ALL	15	107	79	65	28	21	26	341

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			13,097	2,170				7,634
50-54		15,303		12,008	4,805		3,277	8,849
55-59	16,994	10,896	54,880	13,000	10,087	8,251		15,065
60-64	16,210	22,455	19,912	15,100	12,177	4,624	2,658	16,885
65-69	34,305	22,403	17,550	14,041	12,182	8,264	3,275	18,156
70-74	25,705	22,606	19,452	18,238	10,753	15,540	4,690	18,969
75-79	16,924	16,553	29,652	21,129	17,254	11,153	4,275	19,367
80-84		13,238	14,905	16,656	12,142	3,084	4,629	12,273
85+		11,567	10,566		4,389	9,451	8,234	9,065
ALL	23,189	19,418	20,953	16,970	11,907	9,183	4,770	17,109

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	348	2,078	1,655	1,103	333	193	124	5,834

TABLE 6A
BASIC

Teachers Retirement Association Fund
DISABILITY RETIREMENTS AS OF JUNE 30, 1994

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54								
55-59		3	1		1			5
60-64	1	5	8	4	2		1	21
65-69			1	1				2
70-74								
75-79								
80-84								
85+								
ALL	1	8	10	5	3		1	28

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54								
55-59		31,450	28,005		13,734			27,218
60-64	1,531	39,483	29,786	25,779	15,695		9,365	27,672
65-69			24,470	48,715				36,593
70-74								
75-79								
80-84								
85+								
ALL	1,532	36,472	29,077	30,366	15,042		9,366	28,228

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	2	292	291	152	45		9	790

Teachers Retirement Association Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 1994

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	10.50%	\$799
2. Employer Contributions	12.14%	923
3. Total	22.64%	\$1,722
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	13.75%	\$1,046
b. Disability benefits	0.95%	72
c. Survivors	0.28%	21
d. Deferred Retirement Benefits	0.43%	33
e. Refunds Due to Death or Withdrawal	2.52%	192
f. Total	17.93%	\$1,364

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1994 is \$7,607.

Teachers Retirement Association Fund

Summary of Plan Provisions

GENERAL

Eligibility: A public school or community college teacher who is not covered by the Social Security Act, except for teachers employed by Minneapolis, St. Paul or Duluth public schools or by the University of Minnesota.

No community college teacher is a Member if that person elects coverage under Sec. 354B.

Contributions:

Member: 10.5% of salary.

Employer: 12.14% of salary.

Allowable Service: A day of credit is earned if five hours are taught that day. A year is earned if 170 days of service are credited. Credit may also be provided for certain leaves if contributions are paid into the fund.

Salary: Compensation used for contribution purposes excluding lump-sum annual or sick leave payments, severance payments, and any payments made in lieu of employer paid fringe benefits or expenses.

Average Salary: Average of the five highest successive years of salary. Average Salary is based on all Allowable Service if less than five years.

RETIREMENT

Normal Retirement:

Eligibility: First hired before July 1, 1989:
Age 65 and three years of Allowable Service. Age 62 and 30 years of Allowable Service. Proportionate Retirement

Annuity is available at age 65 and one year of Allowable Service.

First hired after June 30, 1989:

The greater of age 65 or the age eligible for full Social Security retirement benefits and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.

Early Retirement Eligibility:

Eligibility:

First hired before July 1, 1989:

Age 55 and three years of Allowable Service.

Any age with 30 years of Allowable Service.

Rule of 90: Age plus Allowable Service totals 90.

First hired after June 30, 1989:

Age 55 with three years of Allowable Service.

Retirement Amount: First hired before July 1, 1989:

The greater of 2.13% of Average Salary for each of the first 10 years of Allowable Service and 2.63% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement or under age 62 if 30 years of Allowable Service. No reduction if age plus years of Allowable Service totals 90;

OR

2.63% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

First hired after June 30, 1989:

2.63% of Average Salary for each year of Allowable Service assuming augmentation to the age eligible for full Social Security retirement benefits at 3% per year and actuarial reduction for each month the Member is under the full Social Security benefit retirement age.

- Form of Payment:* Life annuity.
Actuarially equivalent options are:
50%, 75% or 100% joint and survivor with bounce back feature without additional reduction.
15 year certain and life.
Guaranteed refund.
- Benefit Increases:* Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A Member who has been receiving a benefit for at least 12 full months as of June 30 will receive a full increase. Members receiving benefits for at least one full month but less than 12 full months will receive a partial pro rata increase.

Members retired under laws in effect before July 1, 1973 receive an additional lump-sum payment from TRA each year. In 1989, this lump-sum payment was the greater of \$25 times each full year of Allowable Service or the difference between \$400 times each full year of Allowable Service and the sum of the benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump-sum payment increases by the same percentage increase that is applied to regular annuities paid from MPRIF.

DISABILITY

Disability Benefit:

- Eligibility:* Total and permanent disability before normal retirement age with three years of Allowable Service.
- Amount:* Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before normal retirement age unless an optional annuity plan is selected. Supplemental benefit of \$25 per month.

Payments stop at normal retirement age or the five year anniversary of the effective date of the disability benefit, whichever is later. Payments stop earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment. If death occurs before retirement status, the surviving spouse and dependent children are eligible for survivor benefits.

Form of Payment: Same as for retirement.

Benefit Increases: Adjusted by TRA to provide same increase as MPRIF.

Retirement After Disability:

Eligibility: Normal retirement age or the five year anniversary of the effective date of the disability benefit, whichever is later.

Amount: Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

Benefit Increases: Same as for retirement.

DEATH

Surviving Spouse Benefit:

Eligibility: Active Member with 18 months of Allowable Service or Member receiving a disability benefit.

Amount: 50% of salary for the last full fiscal year preceding death. Maximum family benefit is \$1,000 per month. Benefits paid until spouse's death.

Surviving spouse optional annuity or refund of contributions may be elected in lieu of this benefit.

Surviving Dependent Child Benefit:

<i>Eligibility:</i>	Active Member with 18 months of Allowable Service or Member receiving a disability benefit.
<i>Amount:</i>	10% of salary for the last full fiscal year preceding death. Family benefit minimum (including spouse's benefit) of 50% of salary and maximum \$1,000 per month. Benefits paid until child marries, dies, or attains age 18 (age 22 if full-time student.)

Surviving Spouse Optional Annuity:

<i>Eligibility:</i>	Member or former Member with three years of Allowance Service who dies before retirement or disability benefits commence.
<i>Amount:</i>	Survivor's payment of the 100% joint and survivor benefit or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.
<i>Benefit Increases:</i>	Adjusted by TRA to provide same increase as MPRIF except surviving spouse optional annuity benefit increases which are paid from MPRIF.

Refund of Contributions:

<i>Eligibility:</i>	Member dies before receiving any retirement benefits and survivor benefits are not elected.
<i>Amount:</i>	The excess of the Member's contributions over any disability benefits paid plus 5% interest compounded annually if death occurred before May 16, 1989 and 6% interest compounded annually if death occurred on or after May 16, 1989.

TERMINATION

Refund of Contributions:

<i>Eligibility:</i>	Thirty days following termination of teaching service.
<i>Amount:</i>	Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest compounded annually if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

<i>Eligibility:</i>	Three years of Allowable Service.
<i>Amount:</i>	Benefit computed under law in effect at termination and increased by the following percentage compounded annually: 0% before 7/1/71; 5% from 7/1/71 to 1/1/81; and 3% thereafter until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

SUMMARY OF SIGNIFICANT CHANGES

1. Member contribution rate increases from 8.5% of salary to 10.5% of salary.
2. Benefit rates were increased from 2.0% to 2.13% and 2.5% to 2.63%.

TABLE 3B
COORDINATED

Teachers Retirement Association Fund
ACTIVE MEMBERS AS OF JUNE 30, 1994

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,664	144							1,808
25-29	2,446	4,066	571						7,083
30-34	1,285	2,020	3,196	268					6,769
35-39	1,160	1,737	1,839	2,402	576	1			7,715
40-44	1,408	1,799	2,001	1,597	3,761	902			11,468
45-49	935	1,435	1,684	1,414	2,139	4,750	1,232		13,589
50-54	407	740	852	896	1,023	2,171	3,451	512	10,052
55-59	257	314	364	347	575	962	1,507	1,412	5,738
60-64	147	145	110	127	217	338	429	285	1,798
65+	74	66	28	23	29	25	39	47	331
ALL	9,783	12,466	10,645	7,074	8,320	9,149	6,658	2,256	66,351

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	15,396	23,832							16,068
25-29	12,840	22,541	27,470						19,588
30-34	12,902	22,688	29,630	34,461					24,574
35-39	12,201	21,703	30,144	34,233	39,111	29,238			27,488
40-44	11,340	20,339	30,524	36,171	40,446	42,956			31,589
45-49	10,520	18,324	31,241	35,934	40,803	43,739	45,003		36,061
50-54	8,966	15,775	28,111	34,304	40,605	45,467	46,411	46,841	39,236
55-59	7,382	13,782	24,867	32,301	39,855	45,477	47,068	48,447	40,517
60-64	6,907	8,013	21,480	29,139	39,920	46,174	47,483	49,790	37,303
65+	5,443	5,176	20,969	36,156	41,686	40,733	49,529	52,946	26,618
ALL	12,320	20,777	29,634	34,848	40,415	44,335	46,387	48,346	31,668

PRIOR FISCAL YEAR EARNINGS (IN MILLIONS) BY YEARS OF SERVICE									
AGE	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	ALL
ALL	120	259	315	246	336	405	308	109	2,101

TABLE 4B
COORDINATED

Teachers Retirement Association Fund
SERVICE RETIREMENTS AS OF JUNE 30, 1994

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1			1				2
50-54	11	13						24
55-59	637	875	18					1,530
60-64	665	2,257	665	1				3,588
65-69	195	1,374	1,620	338	1			3,528
70-74	12	216	1,263	913	112			2,516
75-79	1	17	165	1,065	436	37		1,721
80-84			11	96	906	203	9	1,225
85+		1		5	139	966	185	1,296
ALL	1,522	4,753	3,742	2,419	1,594	1,206	194	15,430

AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	11,066		2,571	18,984				15,026
50-54	17,068	14,810	3,192	1,080				15,846
55-59	20,616	16,578	13,485	4,736	3,437	282		18,223
60-64	18,799	18,736	12,372	17,146	628			17,569
65-69	13,485	13,946	12,531	7,295	1,424			12,630
70-74	13,218	13,901	12,113	10,927	5,275			11,538
75-79	1,079	7,097	11,551	11,445	9,391	3,161		10,708
80-84			4,504	8,956	10,347	6,658	2,383	9,516
85+		671		2,275	10,063	6,516	4,096	6,531
ALL	18,806	16,679	12,300	10,558	9,699	6,438	4,017	13,187

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED								
AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	28,623	79,275	46,027	25,540	15,460	7,764	779	203,475

TABLE 5B
COORDINATED

Teachers Retirement Association Fund
SURVIVORS AS OF JUNE 30, 1994

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	17	13	8					38
50-54	7	22	5	1				35
55-59	9	42	15	3	1			70
60-64	6	63	45	6	1			121
65-69	18	73	57	18	4	1		171
70-74	21	85	64	35	10	1		216
75-79	10	56	47	23	7	5		148
80-84	5	18	12	12	10	2	1	60
85+		6	8	4	5	5	1	29
ALL	93	378	261	102	38	14	2	888

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9,961	5,910	2,008					6,901
50-54	4,888	11,130	4,624	2,225				8,698
55-59	22,213	11,025	7,017	2,211	1,478			11,091
60-64	16,407	12,100	10,614	7,767	9,043			11,522
65-69	11,581	12,214	11,599	9,718	14,717	14,647		11,753
70-74	10,379	9,472	10,282	11,934	10,126	8,039		10,223
75-79	10,242	12,042	10,886	12,785	12,678	7,540		11,547
80-84	7,115	9,288	12,954	5,620	9,745	11,374	4,570	9,174
85+		9,586	6,119	7,909	4,882	8,255	5,051	7,202
ALL	11,466	10,961	10,182	10,208	10,034	8,887	4,811	10,612

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH								
AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	1,066	4,143	2,658	1,041	381	124	10	9,424

TABLE 6B
COORDINATED

Teachers Retirement Association Fund
DISABILITY RETIREMENTS AS OF JUNE 30, 1994

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	10	35	12	2				59
50-54	9	29	16	6	1		1	62
55-59	10	38	31	7	2	1		89
60-64	3	54	31	7	4	1		100
65-69	1	3	2	1				7
70-74								
75-79								
80-84								
85+								
ALL	33	159	92	23	7	2	1	317

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	10,271	6,656	5,361	24,482				7,610
50-54	9,484	11,233	7,981	12,352	4,156		5,118	10,036
55-59	13,953	14,759	9,912	4,822	5,728	2,166		11,855
60-64	12,403	14,056	9,590	9,116	4,436	6,288		11,814
65-69	7,472	11,454	9,964	2,872				9,234
70-74								
75-79								
80-84								
85+								
ALL	11,281	12,032	8,876	9,718	4,766	4,228	5,119	10,638

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED								
AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	372	1,913	817	224	33	9	5	3,372

Teachers Retirement Association Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 1994

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	6.50%	\$144,819
2. Employer Contributions	<u>8.14%</u>	<u>181,357</u>
3. Total	<u>14.64%</u>	<u>\$326,176</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	8.33%	\$185,643
b. Disability benefits	0.61%	13,685
c. Survivors	0.11%	2,546
d. Deferred Retirement Benefits	0.44%	9,795
e. Refunds Due to Death or Withdrawal	<u>1.11%</u>	<u>24,700</u>
f. Total	<u>10.60%</u>	<u>\$236,369</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1994 is \$2,227,979.

Teachers Retirement Association Fund Coordinated

Summary of Plan Provisions

GENERAL

Eligibility:

A public school, community college or state university teacher who is not covered by the Social Security Act, except for teachers employed by Minneapolis, St. Paul or Duluth public schools or by the University of Minnesota.

No community college or state university teacher is a Member except for purposes of Social Security coverage if that person elects coverage under Sec. 354B.

Contributions:

Member: 6.5% of salary.

Employer: 8.14% of salary.

Allowable Service: A day of credit is earned if five hours are taught that day. A year is earned if 170 days of service are credited. Credit may also be provided for certain leaves if contributions are paid into the fund.

Salary: Compensation used for contribution purposes excluding lump-sum annual or sick leave payments, severance payments, and any payments made in lieu of employer paid fringe benefits or expenses.

Average Salary: Average of the five highest successive years of salary. Average salary is based on all Allowable Service if less than five years.

RETIREMENT

Normal Retirement:

Eligibility:

First hired before July 1, 1989:

Age 65 and three years of Allowable Service. Age 62 and 30 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service.

First hired after June 30, 1989:

The greater of age 65 or the age eligible for full Social Security retirement benefits and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.

Early Retirement:

Eligibility:

First hired before July 1, 1989:

Age 55 and three years of Allowable Service.
Any age with 30 years of Allowable Service.
Rule of 90: Age plus Allowable Service totals 90.

First hired after June 30, 1989:

Age 55 with three years of Allowable Service.

Retirement Amount: First hired before July 1, 1989:

The greater of 1.13% of Average Salary for each of the first 10 years of Allowable Service and 1.63% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement (age 62 if 30 years of Allowable Service). No reduction if age plus years of Allowable Service totals 90;

OR

1.63% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

First hired after June 30, 1989:

1.63% of Average Salary for each year of Allowable Service assuming augmentation to age eligible for full Social Security retirement benefits at 3% per year and actuarial reduction for each month the Member is under the full Social Security benefit retirement age.

Form of Payment: Life annuity.

Actuarially equivalent options are:

50%, 75% or 100% joint and survivor with bounce back feature without additional reduction.

15 year certain and life.

Guaranteed refund.

Benefit Increases: Benefits may be increased each January 1 depending on the investment performance of the Minnesota Post Retirement Investment Fund (MPRIF). A Member who has been receiving a benefit for at least 12 full months as of the previous June 30 will receive a full increase. Members receiving benefits for at least one full month but less than 12 full months will receive a partial pro rata increase.

Members retired under laws in effect before July 1, 1973 receive an additional lump-sum payment from TRA each year. In 1989, this lump-sum payment was the greater of \$25 times each full year of Allowable Service. In each following year, the lump-sum payment increases by the same percentage increase that is applied to regular annuities paid from MPRIF.

DISABILITY

Disability Benefit:

Eligibility:

Total and permanent disability before normal retirement age with three years of Allowable Service.

Amount:

Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for com-

mencement before normal retirement age unless an optional annuity plan is selected.

Payments stop at normal retirement age or the five year anniversary of the effective date of the disability benefit, whichever is later. Payments stop earlier if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.

Form of Payment: Same as for retirement.

Benefit Increases: Adjusted by TRA to provide same increase as MPRIF.

Retirement After Disability:

Eligibility: Normal retirement age.

Amount: Any optional annuity continues. Otherwise, the larger of the disability benefit paid before normal retirement age or the normal retirement benefit available at normal retirement age, or an actuarially equivalent optional annuity.

Benefit Increases: Same as for retirement.

DEATH

Surviving Spouse Optional Annuity:

Eligibility: Member or former Member with three years of Allowable Service who dies before retirement benefits commence.

Amount: Survivor's payment of the 100% joint and survivor benefit or an actuarial equivalent term certain annuity. If commencement is prior to age 65 (age 62 if 30 years of service), the benefit is reduced same as early retirement with half the applicable reduction factor used from age 55 to the actual commencement age. If no surviving spouse, then an actuarial equivalent dependent child benefit is paid to age 20 or for five years if longer.

TABLE 13B
COORDINATED
(Continued)

Benefit Increases: Same as for retirement.

Refund of Contributions:

Eligibility: Member dies before receiving any retirement benefits and the surviving spouse optional annuity is not elected.

Amount: The excess of the Member's contributions over any disability benefits paid plus 5% interest compounded annually if death occurred before May 16, 1989 and 6% interest compounded annually if death occurred on or after May 16, 1989.

TERMINATION

Refund of Contributions:

Eligibility: Thirty days following termination of teaching service.

Amount: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest compounded annually if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

Eligibility: Three years of Allowable Service.

Amount: Benefit computed under law in effect at termination and increased by the following percentage compounded annually: 0% before 7/1/71; 5% from 7/1/71 to 1/1/81; and 3% thereafter until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.

SUMMARY OF SIGNIFICANT CHANGES

1. Member contribution rates increased from 4.5% of payroll to 6.5% of payroll.
2. Benefit accrual rates increased from 1% to 1.13% and 1.5% to 1.63%.