

RECEIVED

DEC 12 2001

LEGISLATIVE REFERENCE LIBRARY
STATE OFFICE BUILDING
ST. PAUL MN 55155

Teachers Retirement Association Fund
ACTUARIAL VALUATION REPORT

July 1, 2001



Milliman USA

Consultants and Actuaries

15800 Bluemound Road, Suite 400

Brookfield, WI 53005-6069

Tel +1 262 784.2250

Fax +1 262 784.7287

www.milliman.com

December 7, 2001

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, 2001.

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.

We, Thomas K. Custis and William V. Hogan, are actuaries for Milliman USA. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Milliman USA

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

Teachers Retirement Association Fund

Table of Contents

	<u>Page</u>
REPORT HIGHLIGHTS	1
COMMENTARY	
Purpose	2
Report Highlights	2
Asset Information	2
Actuarial Balance Sheet	3
GASB Disclosure	4
Actuarial Cost Method	4
Sources of Actuarial Gains and Losses	4
Contribution Sufficiency	5
Changes in Actuarial Assumptions	5
Changes in Plan Provisions	5
ASSET INFORMATION	
Table 1 - Statement of Plan Net Assets	6
Table 2 - Statement of Change in Plan Net Assets	7
MEMBERSHIP DATA	
Table 3 - Active Members	8
Table 4 - Service Retirements	9
Table 5 - Survivors	10
Table 6 - Disability Retirements	11
Table 7 - Reconciliation of Members	12
Table 8 - Actuarial Balance Sheet	13
Table 9 - Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	14
Table 10 - Changes in Unfunded Actuarial Accrued Liability (UAAL)	15
Table 11 - Determination of Contribution Sufficiency	16

Teachers Retirement Association Fund

Table of Contents

(Continued)

	<u>Page</u>
ACTUARIAL ASSUMPTIONS	
Table 12 - Summary of Actuarial Assumptions and Methods	17
GASB 25 DISCLOSURES	
Table 14 - Schedule of Funding Progress	22
Table 15 - Schedule of Employer Contributions	23
BASIC	
<i><u>Membership Data</u></i>	
Table 3A - Active Members as of June 30, 2001	24
Table 4A - Service Retirements as of June 30, 2001	25
Table 5A - Survivors as of June 30, 2001	26
Table 6A - Disability Retirements as of June 30, 2001	27
<i><u>Funding Status</u></i>	
Table 11A - Determination of Contribution Sufficiency	28
<i><u>Plan Provisions</u></i>	
Table 13A - Summary of Plan Provisions	29
COORDINATED	
<i><u>Membership Data</u></i>	
Table 3B - Active Members as of June 30, 2001	37
Table 4B - Service Retirements as of June 30, 2001	38
Table 5B - Survivors as of June 30, 2001	39
Table 6B - Disability Retirements as of June 30, 2001	40
<i><u>Funding Status</u></i>	
Table 11B - Determination of Contribution Sufficiency	41
<i><u>Plan Provisions</u></i>	
Table 13B - Summary of Plan Provisions	42

Teachers Retirement Association Fund

Report Highlights

(dollars in thousands)

	<u>07/01/2000 Valuation</u>	<u>07/01/2001 Valuation</u>
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 354 % of Payroll	10.00%	10.00%
2. Required Contributions - Chapter 356 % of Payroll	7.92%	7.85%
3. Sufficiency (Deficiency): (A.1. - A.2.)	<u>2.08%</u>	<u>2.15%</u>
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$15,573,151	\$16,834,024
b. Current Benefit Obligations (Table 8)	<u>\$14,009,611</u>	<u>\$15,099,099</u>
c. Funding Ratio: (a/b)	111.16%	111.49%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$15,573,151	\$16,834,024
b. Actuarial Accrued Liability (Table 9)	<u>\$14,802,441</u>	<u>\$15,903,984</u>
c. Funding Ratio: (a/b)	105.21%	105.85%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$18,324,588	\$19,625,868
b. Current and Expected Future Benefit Obligations	<u>\$17,235,087</u>	<u>\$18,450,268</u>
c. Funding Ratio: (a/b)	106.32%	106.37%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	70,508	71,097
b. Projected Annual Earnings	\$2,813,696	\$2,937,962
c. Average Annual Earnings (Projected \$)	\$39,906	\$41,323
d. Average Age	42.6	42.6
e. Average Service	11.7	11.5
2. Others		
a. Service Retirements (Table 4)	29,525	31,169
b. Survivors (Table 5)	1,912	2,070
c. Disability Retirements (Table 6)	509	518
d. Deferred Retirements (Table 7)	7,375	7,959
e. Terminated Other Non-vested (Table 7)	<u>17,833</u>	<u>19,344</u>
f. Total	57,154	61,060

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 111.49%. The corresponding ratio for the prior year was 111.16%.
- 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 2001 the ratio is 105.85%, which is an increase from the 2000 value of 105.21%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 106.37% verifies that the current statutory contributions are sufficient.

Asset Information (Tables 1 and 2)

Effective with the July 1, 2000 valuation of the fund, Minnesota Statutes require that the asset value used for actuarial purposes spread differences between actual return (measured on a market-value basis) and expected return on non-MPRIF assets over five years, in a manner similar to that already being used within the MPRIF. The previous method required under Minnesota Statutes recognized one third of the unrealized gains and losses. An Asset Valuation Method requirement exists because market values (which include all unrealized gains and losses) are typically volatile and can produce erratic changes in the contribution requirements from year

to year. The intent of the change to the current method is to employ a more effective asset smoothing technique which is market-value based and which eliminates artificial bias related to manager style. The effective date of this requirement is July 1, 2000 with full transition to be accomplished as of July 1, 2003.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines E.1 to E.4. Actuarial Value of Assets is determined as:

Market Value of Assets at June 30, 2000, *less*

80% of the current year Unrecognized Asset Return at July 1, 2001 (the difference between actual net return on Market Value of Assets between 06/30/2000 and 06/30/2001 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 2000 Actuarial Valuation); *less*

60% of the current year Unrecognized Asset Return at July 1, 2000 (the difference between actual net return on Market Value of Assets between 06/30/99 and 06/30/2000 and the asset return expected during that period based on the assumed interest rate employed in the July 1, 1999 Actuarial Valuation); *less*

30% of the Unrecognized Asset Return at July 1, 1999 (the difference between Market Value of Assets on 06/30/99 and the Actuarial Value of Assets used in the July 1, 1999 Actuarial Valuation).

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 as follows:

- 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

Disclosure of the Current Benefit Obligation amounts used to be required by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 has been superseded by Statement No. 25. Tables 14 and 15 of this report are included to fulfill the requirements of Statement No. 25.

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 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.

Source 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 expectations. For a detailed analysis of the major components, refer to 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 sufficiency since the Statutory Contribution Rate is 10.00% compared to the Required Contribution Rate of 7.85%.

Changes in Actuarial Assumptions

All actuarial assumptions and methods listed in Table 12 are the same as those used in the prior valuation.

Changes in Plan Provisions

Effective with this July 1, 2001 valuation, the following plan provision has been amended:

- Effective January 1, 2002, the additional lump sum benefits that are paid to pre-1974 retirees will be paid as monthly installments to the retirees.

All other plan provisions are the same as those used in the prior actuarial valuation of the Fund.

TABLE 1

Teachers Retirement Association Fund

Statement of Plan Net Assets
(dollars in thousands)

JULY 1, 2001

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS IN TRUST		
1. Cash, Equivalents, Short-term Securities	\$73,387	\$73,387
2. Fixed Income	1,700,388	1,736,448
3. Equity	5,005,409	5,464,965
4. Real Estate	281,897	231,805
5. Equity in MPRIF	9,106,198	9,106,198
6. Invested Securities Lending Collateral	1,382,346	1,382,346
7. Other	12,154	12,154
Subtotal	<u>\$17,561,779</u>	<u>\$18,007,303</u>
 B. ASSETS RECEIVABLE	 16,044	 16,044
 C. LIABILITIES		
1. Invested Securities Lending Collateral	(1,382,346)	(1,382,346)
2. Other	(31,106)	(31,106)
Subtotal	<u>(1,413,452)</u>	<u>(1,413,452)</u>
 D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS		
1. MPRIF Reserves	9,106,198	9,106,198
2. Member Reserves	1,403,755	1,403,755
3. Other Non-MPRIF Reserves	5,654,418	6,099,942
4. Total Assets Available for Benefits	<u>\$16,164,371</u>	<u>\$16,609,895</u>
<hr/>		
E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Market Value of Assets Available for Benefits (D4)		\$16,164,371
2. Unrecognized Asset Returns (UAR)		
a. June 30, 2001	(\$1,241,462)	
b. June 30, 2000	157,486	
c. June 30, 1999	763,418	
3. UAR Adjustment: $.80 * (E2.a) + .60 * (E2.b) + .30 * (E2.c)$		<u>(669,653)</u>
4. Actuarial Value of Assets (E1 - E3) (Same as "Current Assets")		<u><u>16,834,024</u></u>

TABLE 2

Teachers Retirement Association Fund

Statement of Change In Plan Net Assets

(dollars in thousands)

YEAR ENDING JUNE 30, 2001

	Non-MPRIF Assets	MPRIF Reserve	Market Value
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$8,101,569	\$8,055,622	\$16,157,191
B. ADDITIONS			
1. Member Contributions	\$145,075	\$0	\$145,075
2. Employer Contributions	139,799	0	139,799
3. Contributions From Other Sources	389	0	389
4. MPRIF Income	0	1,185,972	1,185,972
5. Net Investment Income			
a. Interest and Dividends	378,674	0	378,674
b. Net Realized Gain (Loss)	138,796	0	138,796
c. Net Change in Unrealized Gain (Loss)	(1,082,304)	0	(1,082,304)
d. Investment Expenses	(11,053)	0	(11,053)
e. Net Subtotal	(575,887)	0	(575,887)
6. Other	2,768	0	2,768
7. Total Additions	(\$287,856)	\$1,185,972	\$898,116
C. OPERATING EXPENSES			
1. Service Retirements	\$1,964	\$837,071	\$839,035
2. Disability Benefits	10,530	0	10,530
3. Survivor Benefits	1,028	11,195	12,223
4. Refunds	7,609	0	7,609
5. Administrative Expenses	13,078	0	13,078
6. Other	8,461	0	8,461
7. Total Disbursements	\$42,670	\$848,266	\$890,936
D. OTHER CHANGES IN RESERVES			
1. Annuities Awarded	(720,005)	720,005	0
2. Mortality Gain/Loss	7,135	(7,135)	0
3. Change in MPRIF Assumptions	0	0	0
4. Total Other Changes	(712,870)	712,870	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u>\$7,058,173</u>	<u>\$9,106,198</u>	<u>\$16,164,371</u>
F. DETERMINATION OF CURRENT YEAR UNRECOGNIZED ASSET RETURN			
1. Average Balance			
(a) Non-MPRIF Assets Available at Beginning of Period			8,101,569
(b) Non-MPRIF Assets Available at End of Period*			7,051,038
(c) Average Balance { [F1.a + F1.b - B5.e - B6] / 2 }			7,862,863
2. Expected Return: .085 * F1.c			668,343
3. Actual Return			(573,119)
4. Current Year Unrecognized Asset Return: F3 - F2			(1,241,462)

* Before adjustment for MPRIF mortality gain/loss and new MPRIF assumptions

TABLE 3

Teachers Retirement Association Fund

Active Members as of June 30, 2001

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,267	1,101	1	0	0	0	0	0	2,369
25-29	1,381	6,422	877	2	0	0	0	0	8,682
30-34	728	3,450	4,573	572	0	0	0	0	9,323
35-39	693	1,875	2,290	2,567	496	1	0	0	7,922
40-44	863	1,801	1,602	1,797	1,920	604	0	0	8,587
45-49	758	1,644	1,681	1,558	1,383	2,675	999	0	10,698
50-54	558	1,265	1,357	1,605	1,348	1,938	4,077	1,774	13,922
55-59	394	607	605	726	716	862	1,231	2,094	7,235
60-64	215	251	187	186	236	239	293	285	1,892
65+	160	120	55	27	19	26	16	44	467
ALL	7,017	18,536	13,228	9,040	6,118	6,345	6,616	4,197	71,097

Average Annual Earnings

Age	Years of Service								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	17,535	27,103	33,086	0	0	0	0	0	21,988
25-29	14,781	27,547	35,726	36,219	0	0	0	0	26,345
30-34	15,353	28,041	35,830	42,993	0	0	0	0	31,788
35-39	14,191	27,570	36,930	44,107	49,750	37,256	0	0	35,854
40-44	13,778	26,115	36,786	44,411	49,720	51,192	0	0	37,737
45-49	12,495	25,675	37,068	45,232	50,222	52,636	54,424	0	41,979
50-54	14,573	24,804	35,296	44,980	50,072	53,556	54,723	56,441	46,985
55-59	10,772	22,920	33,313	42,953	50,540	54,942	58,056	59,912	48,371
60-64	10,959	15,904	29,833	41,339	50,915	55,467	61,146	65,281	43,028
65+	7,657	8,913	19,992	40,710	47,181	61,003	60,932	63,696	23,027
ALL	14,388	26,693	35,966	44,284	50,048	53,231	55,598	58,849	38,406

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	101	495	476	400	306	338	368	247	2,731

Teachers Retirement Association Fund

Service Retirements as of June 30, 2001

<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	0	0	0	0	0	0	0	0
50-54	72	19	1	0	0	0	0	92
55-59	2,499	1,643	27	0	0	0	0	4,169
60-64	1,676	3,415	1,754	15	0	0	0	6,860
65-69	409	1,573	3,643	981	9	2	1	6,618
70-74	39	192	1,892	2,054	936	5	0	5,118
75-79	8	17	223	1,259	1,589	257	3	3,356
80-84	0	2	13	194	1,250	756	102	2,317
85+	0	0	3	8	173	1,044	1,411	2,639
ALL	4,703	6,861	7,556	4,511	3,957	2,064	1,517	31,169

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	0	0	0	0	0	0	0	0
50-54	25,608	27,365	11,880	0	0	0	0	25,822
55-59	30,548	33,675	28,239	0	0	0	0	31,765
60-64	25,865	35,206	33,192	25,880	0	0	0	32,389
65-69	19,815	25,823	31,552	24,683	20,255	5,090	1,217	28,419
70-74	18,576	22,659	26,539	27,283	29,157	13,912	0	27,098
75-79	11,535	17,648	27,222	26,467	30,661	17,179	28,832	27,714
80-84	0	4,307	11,680	26,069	27,713	24,694	11,733	25,777
85+	0	0	1,352	16,929	24,581	23,704	16,643	19,940
ALL	27,738	32,263	30,489	26,415	29,084	23,212	16,327	28,526

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	130,452	221,356	230,375	119,158	115,085	47,910	24,768	889,127

Teachers Retirement Association Fund

Survivors as of June 30, 2001

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	22	34	16	5	0	1	0	78
50-54	30	27	24	4	0	0	0	85
55-59	36	55	43	3	0	1	1	139
60-64	58	84	77	19	5	3	1	247
65-69	63	92	109	46	16	7	4	337
70-74	80	103	121	77	34	16	8	439
75-79	61	81	98	70	41	17	10	378
80-84	26	53	57	35	25	7	14	217
85+	13	24	37	20	15	24	17	150
ALL	389	553	582	279	136	76	55	2,070

Average Annual Benefit

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	17,586	21,388	16,049	10,237	0	4,414	0	18,288
50-54	13,014	23,451	17,827	1,939	0	0	0	17,167
55-59	19,073	27,710	20,106	16,907	0	4,376	9,448	22,588
60-64	20,077	28,782	22,391	14,578	13,907	23,938	6,229	23,202
65-69	23,410	26,496	26,547	18,672	24,673	20,609	11,960	24,486
70-74	24,358	26,052	23,280	23,047	23,188	27,563	14,032	24,067
75-79	24,108	26,551	23,889	26,288	24,664	26,369	11,293	24,802
80-84	29,149	27,122	22,900	23,882	23,984	36,616	17,056	25,029
85+	23,396	23,621	17,884	19,406	24,560	19,978	13,039	19,936
ALL	22,068	26,362	22,838	21,808	23,764	24,341	13,621	23,367

Total Annual Benefit (in thousands) by Years Since Death

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	8,585	14,578	13,292	6,084	3,232	1,850	749	48,370

Teachers Retirement Association Fund

Disability Retirements as of June 30, 2001

<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	14	21	19	2	0	0	0	56
50-54	20	49	31	9	1	1	0	111
55-59	32	58	47	12	2	2	0	153
60-64	31	39	74	25	10	4	1	184
65-69	1	8	1	3	0	1	0	14
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	98	175	172	51	13	8	1	518

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	9,906	9,589	8,989	6,023	0	0	0	9,337
50-54	14,312	17,881	18,550	12,111	8,497	5,670	0	16,762
55-59	22,338	25,062	21,767	16,361	50,928	8,191	0	22,915
60-64	21,991	25,627	25,377	20,856	13,768	16,200	4,650	23,302
65-69	26,714	21,046	32,941	24,905	0	9,338	0	22,291
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	18,859	21,137	21,394	17,911	19,080	12,023	4,650	20,249

Total Annual Benefit (in thousands) by Years Disabled

<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	1,848	3,699	3,680	914	248	96	5	10,489

Teachers Retirement Association Fund

TABLE 7

Reconciliation Of Members

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 2000	70,508	7,375	17,833
B. ADDITIONS	7,980	4,928	1,064
C. DELETIONS			
1. Service Retirement	(1,836)	(1,003)	0
2. Disability	0	0	0
3. Death	(49)	(45)	0
4. Terminated - Deferred	(4,928)	0	0
5. Terminated - Refund	(434)	0	(1,260)
6. Terminated - Other Non-Vested	0	0	0
7. Returned as Active	0	(1,433)	0
8. Transferred to Other Fund	(9)	0	0
D. DATA ADJUSTMENTS	(135)	(1,863)	1,707
Vested	53,331		
Non-Vested	17,766		
E. TOTAL ON JUNE 30, 2001	71,097	7,959	19,344

	Recipients		
	Retirement Annuitants	Disabled	Survivors
A. ON JUNE 30, 2000	29,525	509	1,912
B. ADDITIONS	2,336	80	246
C. DELETIONS			
1. Service Retirement	0	(27)	0
2. Death	(666)	(22)	(45)
3. Annuity Expired	(4)	(1)	(63)
4. Returned as Active	0	(8)	0
D. DATA ADJUSTMENTS	(22)	(13)	20
E. TOTAL ON JUNE 30, 2001	31,169	518	2,070

Teachers Retirement Association Fund

Actuarial Balance Sheet*(dollars in thousands)*

JULY 1, 2001

A.	CURRENT ASSETS (TABLE 1, E6)			\$16,834,024
B.	EXPECTED FUTURE ASSETS			
	1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)			\$245,560
	2. Present Value of Future Normal Costs			2,546,284
	3. Total Expected Future Assets			<u>\$2,791,844</u>
C.	TOTAL CURRENT AND EXPECTED FUTURE ASSETS			<u>\$19,625,868</u>
D.	CURRENT BENEFIT OBLIGATIONS	Non-Vested	Vested	Total
	1. Benefit Recipients			
	a. Retirement Annuities		\$8,748,747	\$8,748,747
	b. Disability Benefits		132,121	132,121
	c. Surviving Spouse and Child Benefits		379,640	379,640
	2. Deferred Retirements with Future Augmentation		323,648	323,648
	3. Former Members without Vested Rights		64,189	64,189
	4. Active Members			
	a. Retirement Annuities	25,909	5,056,629	5,082,538
	b. Disability Benefits	40,439	0	40,439
	c. Survivor's Benefits	44,757	0	44,757
	d. Deferred Retirements	5,065	146,513	151,578
	e. Refund Liability Due to Death or Withdrawal	0	131,442	131,442
	5. Total Current Benefit Obligations	<u>\$116,170</u>	<u>\$14,982,929</u>	<u>\$15,099,099</u>
E.	EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$3,351,169</u>
F.	TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$18,450,268</u>
G.	CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			(\$1,734,925)
H.	CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			(\$1,175,600)

TABLE 9

Teachers Retirement Association Fund

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

(dollars in thousands)

JULY 1, 2001

	Actuarial Present Value of Projected Benefits <i>(1)</i>	Actuarial Present Value of Future Normal Costs <i>(2)</i>	Actuarial Accrued Liability <i>(3)=(1)-(2)</i>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$8,158,430	\$2,144,286	\$6,014,144
b. Disability Benefits	70,334	29,882	40,452
c. Survivor's Benefit	76,657	31,087	45,570
d. Deferred Retirements	306,996	177,107	129,889
e. Refunds Due to Death or Withdrawal	189,506	163,922	25,584
f. Total	<u>\$8,801,923</u>	<u>\$2,546,284</u>	<u>\$6,255,639</u>
2. Deferred Retirements With Future Augmentation	323,648		323,648
3. Former Members Without Vested Rights	64,189		64,189
4. Annuitants in MPRIF	9,106,198		9,106,198
5. Recipients Not in MPRIF	154,310		154,310
6. Total	<u>\$18,450,268</u>	<u>\$2,546,284</u>	<u>\$15,903,984</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$15,903,984
2. Current Assets (Table 1, E6)			<u>16,834,024</u>
3. UAAL (B1-B2)			<u>(\$930,040)</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2031			\$54,568,855
2. Supplemental Contribution Rate (B3/C1)			-1.70%

Teachers Retirement Association Fund

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

YEAR ENDING JUNE 30, 2001

A. UAAL AT BEGINNING OF YEAR	(\$770,710)
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$264,187
2. Contribution	(284,875)
3. Interest on A, B1 and B2	<u>(66,390)</u>
4. Total (B1+B2+B3)	<u>(\$87,078)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	(\$857,788)
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	\$7,300
2. Investment Return	(63,301)
3. MPRIF Mortality	(7,135)
4. Mortality of Other Benefit Recipients	(14,008)
5. Other Items	<u>4,892</u>
6. Total	<u>(\$72,252)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	(\$930,040)
F. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGE IN ACTUARIAL METHODS	0
G. CHANGE IN UNFUNDED ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>0</u>
H. UAAL AT END OF YEAR (E+F+G)	<u><u>(\$930,040)</u></u>

TABLE 11

Teachers Retirement Association Fund

Determination Of Contribution Sufficiency*(dollars in thousands)*

JULY 1, 2001

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	5.00%	\$146,914
2. Employer Contributions	5.00%	146,914
3. Total	<u>10.00%</u>	<u>\$293,828</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	7.78%	\$228,668
b. Disability Benefits	0.10%	2,992
c. Survivors	0.10%	2,966
d. Deferred Retirement Benefits	0.48%	14,143
e. Refunds Due to Death or Withdrawal	0.63%	18,397
f. Total	<u>9.09%</u>	<u>\$267,166</u>
2. Supplemental Contribution Amortization by July 1, 2031 of UAAL	-1.70%	(49,945)
3. Allowance for Expenses	<u>0.46%</u>	<u>13,515</u>
4. Total	<u>7.85%</u>	<u>\$230,736</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	2.15%	\$63,092

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 2001 is \$2,937,962.

Teachers Retirement Association Fund

Summary of Actuarial Assumptions and Methods

<i>Interest:</i>	Pre-Retirement: 8.5% per annum Post-Retirement: 8.5% per annum
<i>Benefit Increases After Retirement:</i>	Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions.
<i>Interest on Member Contributions:</i>	Members and former Members who are eligible for the money purchase annuity are assumed to receive interest credits equal to the Pre-Retirement Interest rate. All other Members and former Members receive the interest crediting rate as specified in statutes.
<i>Salary Increases:</i>	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.
<i>Mortality:</i>	<p>Pre-Retirement:</p> <p>Male - 1983 Group Annuity Mortality Table for males set back ten years.</p> <p>Female - 1983 Group Annuity Mortality Table for females set back eight years.</p> <p>Post-Retirement:</p> <p>Male - Same as above except set back five years.</p> <p>Female - Same as above except set back four years.</p> <p>Post-Disability:</p> <p>Male - 1965 RRB rates through age 54. For ages 55 to 64, graded rates between 1965 RRB rates and the Post-Retirement mortality table. For ages 65 and later, the Post-Retirement mortality table.</p> <p>Female - 1965 RRB rates through age 54. For ages 55 to 64, graded rates between 1965 RRB rates and the Post-Retirement mortality table. For ages 65 and later, the Post-Retirement mortality table.</p>

TABLE 12
(Continued)

Retirement Age: Graded rates beginning at age 55 as shown in rate table. Members who have attained the highest assumed retirement age will retire in one year.

Separation: Select and ultimate rates were based on plan experience as of June 30, 1996. Ultimate rates after the third year are shown in rate table. Select rates are as follows:

<u>Gender</u>	<u>First Year</u>	<u>Second Year</u>	<u>Third Year</u>
Male	.40	.14	.08
Female	.35	.12	.08

Disability: Rates as shown in table.

Expenses: Prior year expenses expressed as percentage of prior year payroll.

Allowance for Combined Service Annuity: Liabilities for active and deferred vested participants are increased by 1.0% to account for the effect of some Participants having eligibility for a Combined Service Annuity.

Return of Contributions: 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.

Family Composition: 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.

Social Security: N/A

Special Consideration: Married Members assumed to elect subsidized joint and survivor form of annuity as follows:

Males -	15% elect 50% J&S option 15% elect 75% J&S option 50% elect 100% J&S option
Females -	20% elect 50% J&S option 10% elect 75% J&S option 30% 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>	Market Value, adjusted for amortization obligations receivable at the end of each fiscal year, less a percentage of the Unrecognized Asset Return determined at the close of each of the four preceding fiscal years. Unrecognized Asset Return is the difference between actual net return on Market Value of Assets and the asset return expected during the fiscal year (based on the assumed interest rate employed in the July 1 Actuarial Valuation of the fiscal year). Transition rules apply between July 1, 2001 and July 1, 2003, when the method is fully in effect.
<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. If there is a negative Unfunded Actuarial Liability, the surplus amount shall be amortized over 30 years as a level percentage of payroll.

Teachers Retirement Association Fund

Table 12

(Continued)

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

Age	Pre-Retirement Death		Withdrawal		Disability		Retirement Rule of 90		Salary Increases
	Male	Female	Male	Female	Male	Female	Eligible	Other	
20	3	1	300	400	0	0	0	0	8.00%
21	3	1	300	400	0	0	0	0	7.95%
22	3	1	300	400	0	0	0	0	7.90%
23	3	1	300	400	0	0	0	0	7.85%
24	3	1	300	400	0	0	0	0	7.80%
25	3	2	300	400	0	0	0	0	7.75%
26	3	2	300	400	0	0	0	0	7.70%
27	3	2	300	400	0	0	0	0	7.65%
28	4	2	290	400	0	0	0	0	7.60%
29	4	2	280	400	0	0	0	0	7.55%
30	4	2	270	400	0	0	0	0	7.50%
31	4	2	260	400	0	0	0	0	7.40%
32	4	2	250	400	0	1	0	0	7.30%
33	4	3	250	380	0	1	0	0	7.20%
34	4	3	250	360	0	1	0	0	7.10%
35	5	3	250	340	1	1	0	0	7.00%
36	5	3	250	320	1	1	0	0	6.85%
37	5	3	250	300	1	1	0	0	6.70%
38	5	3	240	280	1	1	0	0	6.55%
39	6	4	230	260	2	1	0	0	6.40%
40	6	4	220	240	2	2	0	0	6.25%
41	6	4	210	220	3	2	0	0	6.10%
42	7	4	200	200	3	2	0	0	5.95%
43	7	5	190	190	4	2	0	0	5.80%
44	8	5	180	180	4	2	0	0	5.65%

Teachers Retirement Association Fund

Table 12

(Continued)

Summary of Actuarial Assumptions and Methods

Separation Expressed as Number of Occurrences Per 10,000:

Age	Pre-Retirement Death		Withdrawal		Disability		Retirement Rule of 90		Salary	
	Male	Female	Male	Female	Male	Female	Eligible	Other	Increases	
45	9	5	170	170	5	2	0	0	5.50%	
46	9	6	160	160	5	2	0	0	5.45%	
47	10	6	150	150	6	2	0	0	5.40%	
48	10	7	140	140	6	2	0	0	5.35%	
49	11	7	130	130	7	2	0	0	5.30%	
50	12	8	120	120	7	3	0	0	5.25%	
51	14	8	110	110	8	3	0	0	5.20%	
52	15	9	100	100	9	3	0	0	5.15%	
53	17	10	90	90	9	4	0	0	5.10%	
54	19	11	80	80	10	4	0	0	5.05%	
55	22	12	70	70	10	5	4,500	500	5.00%	
56	25	14	60	60	11	5	4,500	500	5.00%	
57	28	15	50	50	12	6	4,500	600	5.00%	
58	31	16	33	33	13	7	4,500	700	5.00%	
59	35	18	17	17	14	9	4,500	1,000	5.00%	
60	39	19	0	0	15	11	4,500	1,200	5.00%	
61	43	21	0	0	16	12	4,500	2,300	5.00%	
62	48	23	0	0	17	13	4,500	3,300	5.00%	
63	52	25	0	0	19	15	4,500	3,000	5.00%	
64	57	28	0	0	21	19	4,500	4,500	5.00%	
65	61	31	0	0	0	0	6,000	6,000	5.00%	
66	66	34	0	0	0	0	4,000	4,000	5.00%	
67	71	38	0	0	0	0	4,000	4,000	5.00%	
68	77	42	0	0	0	0	4,000	4,000	5.00%	
69	84	47	0	0	0	0	4,000	4,000	5.00%	
70	92	52	0	0	0	0	4,000	4,000	5.00%	
71	101	58	0	0	0	0	10,000	10,000	5.00%	

TABLE 14

Teachers Retirement Association Fund
SCHEDULE OF FUNDING PROGRESS
(dollars in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (A)	Actuarial Accrued Liability (AAL) (B)	Unfunded AAL (UAAL) (B-A)	Funded Ratio (A)/(B)	Actual Covered Payroll (Previous FY) (C)	UAAL as % of Covered Payroll (B-A)/(C)
07/01/91	\$ 5,614,924	\$ 7,213,720	\$1,598,796	77.84%	\$1,943,375	82.27%
07/01/92	6,324,733	7,662,522	1,337,789	82.54	1,989,624	67.24
07/01/93	7,045,937	8,266,059	1,220,122	85.24	2,065,881	59.06
07/01/94	7,611,936	9,115,266	1,503,330	83.51	2,150,300	69.91
07/01/95	8,348,124	9,717,623	1,369,499	85.91	2,204,693	62.12
07/01/96	9,541,221	10,366,168	824,947	92.04	2,268,390	36.37
07/01/97	11,103,759	10,963,637	(140,122)	101.28	2,359,011	-5.94
07/01/98	12,727,546	12,046,312	(681,234)	105.66	2,422,957	-28.12
07/01/99	14,011,247	13,259,569	(751,678)	105.67	2,625,254	-28.63
07/01/00	15,573,151	14,802,441	(770,710)	105.21	2,704,575	-28.50
07/01/01	16,834,024	15,903,984	(930,040)	105.85	2,812,000	-33.07

TABLE 15

Teachers Retirement Association Fund

SCHEDULE OF EMPLOYER CONTRIBUTIONS

(dollars in thousands)

Year Ended June 30	Actuarially Required Contribution Rate (A)	Actual Covered Payroll (B)	Actual Member Contributions (C)	Annual Required Contribution [(A)x(B)]-(C)	Actual Employer Contribution ⁽¹⁾	Percentage Contributed
1991	13.11%	\$1,943,375	\$ 89,313	\$165,463	\$159,439	96.36%
1992	13.04	1,989,624	91,506	167,941	162,370	96.68
1993	13.13	2,065,881	94,709	176,541	168,071	95.20
1994	12.75	2,150,300	100,803	173,360	171,855	99.13
1995	14.73	2,204,693	143,536	181,215	179,672	99.15
1996	14.30	2,268,390	148,051	176,329	184,495	104.63
1997	12.78	2,359,011	154,161	147,321	191,670	130.10
1998	9.55 ⁽²⁾	2,422,957	124,096	107,296	151,323	141.03
1999	8.39 ⁽²⁾	2,625,254	132,040	88,219	130,526	147.96
2000	8.36 ⁽²⁾	2,704,575	138,696	87,406	134,419	153.79
2001	7.92 ^{(2),(3)}	2,812,000	145,075	77,635	139,799	180.07
2002	7.85 ⁽²⁾					

(1) Includes contributions from other sources (if applicable).

(2) Actuarially Required Contribution Rate calculated according to parameters of GASB 25 using a 30-year amortization of the negative unfunded accrued liability.

(3) Actuarially Required Contribution Rate prior to change in Actuarial Assumptions and Asset Valuation Method is 7.31%.

TABLE 3A
Basic

Teachers Retirement Association Fund

Active Members as of June 30, 2001

<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	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	2	2
65+	0	0	0	0	0	0	0	5	5
ALL	0	0	0	0	0	0	0	7	7

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	0	0	0	0	0	0	0	0	0
25-29	0	0	0	0	0	0	0	0	0
30-34	0	0	0	0	0	0	0	0	0
35-39	0	0	0	0	0	0	0	0	0
40-44	0	0	0	0	0	0	0	0	0
45-49	0	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	49,220	49,220
65+	0	0	0	0	0	0	0	57,351	57,351
ALL	0	0	0	0	0	0	0	55,028	55,027

Prior Fiscal Year Earnings (in thousands) by Years of Service

<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>25-29</u>	<u>30+</u>	<u>ALL</u>
All	0	0	0	0	0	0	0	385	385

Table 4A
Basic

Teachers Retirement Association Fund

Service Retirements as of June 30, 2001

<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	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	1	0	0	0	0	0	1
60-64	7	20	83	3	0	0	0	113
65-69	15	58	415	265	5	0	0	758
70-74	4	16	149	436	387	3	0	995
75-79	1	0	26	184	514	121	3	849
80-84	0	1	0	32	326	303	58	720
85+	0	0	1	1	43	355	567	967
ALL	27	96	674	921	1,275	782	628	4,403

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	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	60,026	0	0	0	0	0	60,026
60-64	55,082	40,873	61,188	22,863	0	0	0	56,197
65-69	57,785	49,187	58,954	49,475	30,317	0	0	54,681
70-74	23,410	43,856	43,713	49,313	47,444	15,560	0	47,454
75-79	46,272	0	40,707	44,577	47,287	25,007	28,832	43,256
80-84	0	4,175	0	41,149	43,205	33,124	16,367	36,655
85+	0	0	865	3,815	37,310	32,643	21,417	26,205
ALL	51,565	46,210	55,070	47,994	45,888	31,582	20,986	41,683

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	1,392	4,436	37,117	44,203	58,507	24,697	13,179	183,530

Teachers Retirement Association Fund

Survivors as of June 30, 2001

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	2	0	1	0	1	0	5
50-54	1	0	0	0	0	0	0	1
55-59	0	0	1	1	0	0	1	3
60-64	2	8	3	1	2	3	1	20
65-69	12	13	23	6	10	6	4	74
70-74	15	23	25	20	12	11	7	113
75-79	10	16	17	20	10	6	8	87
80-84	8	14	13	8	7	5	11	66
85+	4	6	9	6	3	6	10	44
ALL	53	82	91	63	44	38	42	413

Average Annual Benefit

Age	Years Since Death							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2,351	29,625	0	26,541	0	4,414	0	18,512
50-54	34,602	0	0	0	0	0	0	34,602
55-59	0	0	62,050	30,031	0	0	9,448	33,843
60-64	31,478	41,563	30,022	33,954	28,832	23,938	6,229	32,759
65-69	41,063	46,027	39,481	42,371	32,376	23,565	11,960	37,384
70-74	43,873	43,405	37,142	31,772	31,475	29,222	12,048	35,432
75-79	28,472	35,298	40,505	41,597	28,897	27,688	12,781	33,648
80-84	34,817	33,712	31,893	41,163	51,935	40,188	17,937	34,185
85+	37,320	36,883	24,779	12,378	52,996	23,780	10,670	24,460
ALL	37,043	39,591	36,428	35,170	35,696	27,600	13,193	33,690

Total Annual Benefit (in thousands) by Years Since Death

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	1,963	3,247	3,315	2,216	1,571	1,049	554	13,914

Teachers Retirement Association Fund

Disability Retirements as of June 30, 2001

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	0	0	0	0	0

Average Annual Benefit

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	0	0	0	0	0	0	0	0
55-59	0	0	0	0	0	0	0	0
60-64	0	0	0	0	0	0	0	0
65-69	0	0	0	0	0	0	0	0
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	0	0	0	0	0	0	0	0

Total Annual Benefit (in thousands) by Years Disabled

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	0	0	0	0	0	0	0	0

TABLE 11A
Basic

Teachers Retirement Association Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 2001

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	9.00%	\$36
2. Employer Contributions	9.00%	36
3. Total	<u>18.00%</u>	<u>\$72</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	12.36%	\$50
b. Disability Benefits	0.25%	1
c. Survivors	0.25%	1
d. Deferred Retirement Benefits	0.00%	0
e. Refunds Due to Death or Withdrawal	<u>2.23%</u>	<u>9</u>
f. Total	<u>15.09%</u>	<u>\$61</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 2001 is \$404.

Teachers Retirement Association Fund

Summary of Plan Provisions

GENERAL

Eligibility:

A public school or MNSCU 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 MNSCU teacher is a Member if that person elected coverage under Chapter 354B.

Contributions:

Member: 9.0% of salary.

Employer: 9.0% 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, any payments made in lieu of employer paid fringe benefits or expenses, and employer contributions to a Section 457 deferred compensation plan.

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: 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.

Early Retirement Eligibility:

Eligibility: 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.

Retirement Amount: The greater of 2.2% of Average Salary for each of the first 10 years of Allowable Service and 2.7% 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

2.7% 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;

OR

for eligible Members, money purchase annuity equal to the actuarial equivalent of 220% of the Member's accumulated deductions plus interest thereon.

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

TABLE 13A
BASIC
(Continued)

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. Effective January 1, 2002, annual lump sum payment is divided by 12 and paid as a monthly life annuity in the annuity form elected.

Members who terminate service after June 30, 1997 and whose benefits commence during the period July 2, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

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.

TABLE 13A
BASIC
(Continued)

A Member who became disabled before July 1, 1997 whose benefit does not commence until after June 30, 1997 shall receive an actuarially equivalent increase to reflect the change from 5% to 6% in the post-retirement interest assumption.

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.

Members who become disabled after June 30, 1997 and whose benefits commence during the period July 1, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

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:

<i>Eligibility:</i>	Active Member with 18 months of Allowable Service or Member receiving a disability benefit.
<i>Amount:</i>	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 Allowable 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.

TABLE 13A
BASIC
(Continued)

A survivor of a Member who terminated service before July 1, 1997 whose benefit does not commence until after June 30, 1997 shall receive an actuarially equivalent increase to reflect the change from 5% to 6% in the post-retirement interest assumption.

Benefit Increases: Adjusted by TRA to provide same increase as MPRIF except surviving spouse optional annuity benefit increases which are paid from MPRIF.

Survivors of Members who terminate service and die after June 30, 1997 and whose benefits commence during the period July 2, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

Refund of Contributions:

Eligibility: Member dies before receiving any retirement benefits and survivor benefits are 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

TABLE 13A
BASIC
(Continued)

after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Benefit:

Eligibility:

Vested at date of termination. Current requirement is 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.

A Member who terminated service before July 1, 1997 whose benefit does not commence until after June 30, 1997 shall receive an actuarially equivalent increase to reflect the change from 5% to 6% in the post-retirement interest assumption;

OR

for eligible former Members, money purchase annuity equal to the actuarial equivalent of 220% of the former Member's accumulated deductions plus interest thereon.

Members who terminate service after June 30, 1997 and whose benefits commence during the period July 2, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

SUMMARY OF SIGNIFICANT CHANGES

No significant changes recognized for this valuation.

TABLE 3B
Coordinated

Teachers Retirement Association Fund

Active Members as of June 30, 2001

<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	1,267	1,101	1	0	0	0	0	0	2,369
25-29	1,381	6,422	877	2	0	0	0	0	8,682
30-34	728	3,450	4,573	572	0	0	0	0	9,323
35-39	693	1,875	2,290	2,567	496	1	0	0	7,922
40-44	863	1,801	1,602	1,797	1,920	604	0	0	8,587
45-49	758	1,644	1,681	1,558	1,383	2,675	999	0	10,698
50-54	558	1,265	1,357	1,605	1,348	1,938	4,077	1,774	13,922
55-59	394	607	605	726	716	862	1,231	2,094	7,235
60-64	215	251	187	186	236	239	293	283	1,890
65+	160	120	55	27	19	26	16	39	462
ALL	7,017	18,536	13,228	9,040	6,118	6,345	6,616	4,190	71,090

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	17,535	27,103	33,086	0	0	0	0	0	21,988
25-29	14,781	27,547	35,726	36,219	0	0	0	0	26,345
30-34	15,353	28,041	35,830	42,993	0	0	0	0	31,788
35-39	14,191	27,570	36,930	44,107	49,750	37,256	0	0	35,854
40-44	13,778	26,115	36,786	44,411	49,720	51,192	0	0	37,737
45-49	12,495	25,675	37,068	45,232	50,222	52,636	54,424	0	41,979
50-54	14,573	24,804	35,296	44,980	50,072	53,556	54,723	56,441	46,985
55-59	10,772	22,920	33,313	42,953	50,540	54,942	58,056	59,912	48,371
60-64	10,959	15,904	29,833	41,339	50,915	55,467	61,146	65,398	43,022
65+	7,657	8,913	19,992	40,710	47,181	61,003	60,932	64,513	22,656
ALL	14,388	26,693	35,966	44,284	50,048	53,231	55,598	58,856	38,405

Prior Fiscal Year Earnings (in millions) by Years of Service

<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>25-29</u>	<u>30+</u>	<u>ALL</u>
All	101	495	476	400	306	338	368	247	2,730

Teachers Retirement Association Fund

Service Retirements as of June 30, 2001

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	72	19	1	0	0	0	0	92
55-59	2,499	1,642	27	0	0	0	0	4,168
60-64	1,669	3,395	1,671	12	0	0	0	6,747
65-69	394	1,515	3,228	716	4	2	1	5,860
70-74	35	176	1,743	1,618	549	2	0	4,123
75-79	7	17	197	1,075	1,075	136	0	2,507
80-84	0	1	13	162	924	453	44	1,597
85+	0	0	2	7	130	689	844	1,672
ALL	4,676	6,765	6,882	3,590	2,682	1,282	889	26,766

Average Annual Benefit

Age	Years Retired							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	0	0	0	0	0	0	0	0
50-54	25,608	27,365	11,880	0	0	0	0	25,822
55-59	30,548	33,659	28,239	0	0	0	0	31,759
60-64	25,742	35,173	31,801	26,634	0	0	0	31,990
65-69	18,370	24,929	28,029	15,507	7,679	5,090	1,217	25,022
70-74	18,024	20,732	25,071	21,347	16,265	11,442	0	22,186
75-79	6,573	17,648	25,442	23,368	22,711	10,215	0	22,450
80-84	0	4,439	11,680	23,091	22,247	19,055	5,624	20,872
85+	0	0	1,595	18,803	20,370	19,099	13,436	16,317
ALL	27,601	32,065	28,082	20,879	21,096	18,107	13,036	26,361

Total Annual Benefit (in thousands) by Years Retired

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	129,062	216,920	193,260	74,956	56,580	23,213	11,589	705,579

Teachers Retirement Association Fund

Survivors as of June 30, 2001

<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	21	32	16	4	0	0	0	73
50-54	29	27	24	4	0	0	0	84
55-59	36	55	42	2	0	1	0	136
60-64	56	76	74	18	3	0	0	227
65-69	51	79	86	40	6	1	0	263
70-74	65	80	96	57	22	5	1	326
75-79	51	65	81	50	31	11	2	291
80-84	18	39	44	27	18	2	3	151
85+	9	18	28	14	12	18	7	106
ALL	336	471	491	216	92	38	13	1,657

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	18,311	20,873	16,049	6,160	0	0	0	18,273
50-54	12,270	23,451	17,827	1,939	0	0	0	16,960
55-59	19,073	27,710	19,107	10,345	0	4,376	0	22,340
60-64	19,670	27,436	22,082	13,502	3,957	0	0	22,360
65-69	19,256	23,282	23,088	15,117	11,834	2,876	0	20,857
70-74	19,855	21,063	19,671	19,986	18,668	23,914	27,917	20,127
75-79	23,252	24,398	20,402	20,164	23,299	25,649	5,343	22,157
80-84	26,630	24,756	20,242	18,762	13,114	27,687	13,823	21,026
85+	17,207	19,201	15,668	22,418	17,451	18,710	16,424	18,059
ALL	19,706	24,059	20,320	17,911	18,058	21,082	15,003	20,794

Total Annual Benefit (in thousands) by Years Since Death

<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	6,621	11,332	9,977	3,869	1,661	801	195	34,456

Teachers Retirement Association Fund

Disability Retirements as of June 30, 2001

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	14	21	19	2	0	0	0	56
50-54	20	49	31	9	1	1	0	111
55-59	32	58	47	12	2	2	0	153
60-64	31	39	74	25	10	4	1	184
65-69	1	8	1	3	0	1	0	14
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	98	175	172	51	13	8	1	518

Average Annual Benefit

Age	Years Disabled							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	9,906	9,589	8,989	6,023	0	0	0	9,337
50-54	14,312	17,881	18,550	12,111	8,497	5,670	0	16,762
55-59	22,338	25,062	21,767	16,361	50,928	8,191	0	22,915
60-64	21,991	25,627	25,377	20,856	13,768	16,200	4,650	23,302
65-69	26,714	21,046	32,941	24,905	0	9,338	0	22,291
70-74	0	0	0	0	0	0	0	0
75-79	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0
85+	0	0	0	0	0	0	0	0
ALL	18,859	21,137	21,394	17,911	19,080	12,023	4,650	20,249

Total Annual Benefit (in thousands) by Years Disabled

Age	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	1,848	3,699	3,680	914	248	96	5	10,489

Teachers Retirement Association Fund

Determination Of Contribution Sufficiency
(dollars in thousands)

JULY 1, 2001

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	5.00%	\$146,878
2. Employer Contributions	5.00%	146,878
3. Total	<u>10.00%</u>	<u>\$293,756</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	7.78%	\$228,618
b. Disability Benefits	0.10%	2,992
c. Survivors	0.10%	2,965
d. Deferred Retirement Benefits	0.48%	14,142
e. Refunds Due to Death or Withdrawal	<u>0.63%</u>	<u>18,388</u>
f. Total	<u>9.09%</u>	<u>\$267,105</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 2001 is \$2,937,558.

Teachers Retirement Association Fund Coordinated

Summary of Plan Provisions

GENERAL

Eligibility:

A public school or MNSCU teacher who is 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 MNSCU teacher will become a new Member unless that person elects coverage under Chapter 354.

Contributions:

Member: 5.0% of salary.

Employer: 5.0% 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, any payments made in lieu of employer paid fringe benefits or expenses, and employer contributions to a Section 457 deferred compensation plan.

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 (but not to exceed age 66) 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 1.2% of Average Salary for each of the first 10 years of Allowable Service and 1.7% 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

1.7% 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;

OR

for eligible Members, money purchase annuity equal to the actuarial equivalent of 220% of the Member's accumulated deductions plus interest thereon.

TABLE 13B
COORDINATED
(Continued)

First hired after June 30, 1989:

1.7% 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 but not to exceed age 66.

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 \$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.

Members who terminate service after June 30, 1997 and whose benefits commence during the period July 2, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

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.

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.

A Member who became disabled before July 1, 1997 whose benefit does not commence until after June 30, 1997 shall receive an actuarially equivalent increase to reflect the change from 5% to 6% in the post-retirement interest assumption.

Form of Payment: Same as for retirement.

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

Members who become disabled after June 30, 1997 and whose benefits commence during the period July 1, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

Retirement After Disability:

<i>Eligibility:</i>	Normal retirement age or the five year anniversary of the effective date of the disability benefit, whichever is later.
<i>Amount:</i>	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.
<i>Benefit Increases:</i>	Same as for retirement.

DEATH

Surviving Spouse Optional Annuity:

<i>Eligibility:</i>	Member or former Member with three years of Allowable Service who dies before retirement benefits commence.
<i>Amount:</i>	<p>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.</p> <p>A survivor of a Member who terminated service before July 1, 1997 whose benefit does not commence until after June 30, 1997 shall receive an actuarially equivalent increase to reflect the change from 5% to 6% in the post-retirement interest assumption.</p>

TABLE 13B
COORDINATED
(Continued)

Benefit Increases: Same as for retirement.

Survivors of Members who terminate service and die after June 30, 1997 and whose benefits commence during the period July 2, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

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.

TABLE 13B
COORDINATED
(Continued)

Deferred Benefit:

Eligibility: Vested at date of termination. Current requirement is three years of Allowable Service.

Amount: The greater of 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. A Member who terminated service before July 1, 1997 whose benefit does not commence until after June 30, 1997 shall receive an actuarially equivalent increase to reflect the change from 5% to 6% in the post-retirement interest assumption;

OR

for eligible former Members, money purchase annuity equal to the actuarial equivalent of 220% of the former Member's accumulated deductions plus interest thereon.

Members who terminate service after June 30, 1997 and whose benefits commence during the period July 2, 1997 through July 1, 2002 shall receive a percentage of the July 1, 1997 permanent increase as follows:

July 2, 1997 - July 1, 1999	50%
July 2, 1999 - July 1, 1999	40%
July 2, 1999 - July 1, 2001	30%
July 2, 2001 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

SUMMARY OF SIGNIFICANT CHANGES

No significant changes were recognized for this valuation.