

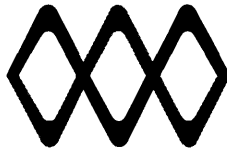
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**Teachers Retirement Association Fund**  
***ACTUARIAL VALUATION REPORT***

**July 1, 1999**



**MILLIMAN & ROBERTSON, INC.**

Actuaries & Consultants

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December 1, 1999

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, 1999.

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.

Respectfully submitted,

MILLIMAN & ROBERTSON, INC.

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

William V. Hogan, F.S.A., M.A.A.A.  
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TKC/WVH/bh

# 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)

	07/01/98 Valuation	07/01/99 Valuation
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 354 % of Payroll	10.00%	10.00%
2. Required Contributions - Chapter 356 % of Payroll	9.82%	9.86%
3. Sufficiency (Deficiency): (A.1. - A.2.)	0.18%	0.14%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$12,727,546	\$14,011,247
b. Current Benefit Obligations (Table 8)	\$11,332,467	\$12,533,786
c. Funding Ratio: (a/b)	112.31%	111.79%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$12,727,546	\$14,011,247
b. Actuarial Accrued Liability (Table 9)	\$12,046,312	\$13,259,569
c. Funding Ratio: (a/b)	105.66%	105.67%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$15,134,315	\$16,526,750
b. Current and Expected Future Benefit Obligations	\$14,382,569	\$15,719,403
c. Funding Ratio: (a/b)	105.23%	105.14%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	68,247	68,613
b. Projected Annual Earnings	\$2,569,368	\$2,692,960
c. Average Annual Earnings (Projected \$)	\$37,648	\$39,249
d. Average Age	43.1	42.9
e. Average Service	12.5	12.1
2. Others		
a. Service Retirements (Table 4)	25,088	27,457
b. Survivors (Table 5)	1,686	1,816
c. Disability Retirements (Table 6)	454	476
d. Deferred Retirements (Table 7)	6,924	7,020
e. Terminated Other Non-vested (Table 7)	16,827	18,317
f. Total	50,979	55,086

## **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 111.79%. The corresponding ratio for the prior year was 112.31%
- 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 1999 the ratio is 105.67%, which is an increase from the 1998 value of 105.66%.
- The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 105.14% verifies that the current statutory contributions are sufficient.

#### ***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 E1 to E6. 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 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.

### ***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 9.86%.

***Changes in Actuarial Assumptions***

There were no changes in actuarial assumptions since the last valuation.

***Changes in Plan Provisions***

There were no changes in the plan provisions which affected plan costs for the current valuation.

TABLE 1

## Teachers Retirement Association Fund

**Statement of Plan Net Assets***(dollars in thousands)*

JULY 1, 1999

	Market Value	Cost Value
<b>A. ASSETS IN TRUST</b>		
1. Cash, Equivalents, Short-term Securities	\$80,603	\$80,603
2. Fixed Income	1,683,901	1,740,571
3. Equity	6,125,418	4,984,738
4. Real Estate	303,322	242,205
5. Equity in MPRIF	6,751,682	6,751,682
6. Invested Securities Lending Collateral	1,605,958	1,605,958
7. Other	1,293	1,293
<b>Subtotal</b>	<b>\$16,552,177</b>	<b>\$15,407,050</b>
<b>B. ASSETS RECEIVABLE</b>	<b>23,155</b>	<b>23,155</b>
<b>C. LIABILITIES</b>		
1. Invested Securities Lending Collateral	(1,605,958)	(1,605,958)
2. Other	(194,709)	(194,709)
<b>Subtotal</b>	<b>(1,800,667)</b>	<b>(1,800,667)</b>
<b>D. NET ASSETS HELD IN TRUST FOR PENSION BENEFITS</b>		
1. MPRIF Reserves	6,751,682	6,751,682
2. Member Reserves	1,321,579	1,321,579
3. Other Non-MPRIF Reserves	6,701,404	5,556,277
4. Total Assets Available for Benefits	<u>\$14,774,665</u>	<u>\$13,629,538</u>
<b>E. DETERMINATION OF ACTUARIAL VALUE OF ASSETS</b>		
1. Cost Value of Assets Available for Benefits (D4)		\$13,629,538
2. Market Value (D4)	\$14,774,665	
3. Cost Value (D4)	<u>13,629,538</u>	
4. Market Over Cost: (E2-E3)	<u>\$1,145,127</u>	
5. One-third of Market Over Cost: (E4)/3		381,709
6. Actuarial Value of Assets (E1+E5) (Same as "Current Assets")		<u>\$14,011,247</u>

TABLE 2

## Teachers Retirement Association Fund

**Statement of Change In Plan Net Assets**  
*(dollars in thousands)*

YEAR ENDING JUNE 30, 1999

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$13,442,381	\$12,370,129
B. ADDITIONS		
1. Member Contributions	\$132,040	\$132,040
2. Employer Contributions	130,526	130,526
3. Contributions From Other Sources	0	0
4. MPRIF Income	832,479	832,479
5. Net Investment Income		
a. Interest and Dividends	653,349	653,349
b. Net Realized Gain (Loss)	156,898	156,898
c. Net Change in Unrealized Gain (Loss)	72,875	0
d. Investment Expenses	<u>(10,519)</u>	<u>(10,519)</u>
<b>Net Subtotal</b>	872,603	799,728
6. Other	1,587	1,587
7. Total Additions	<u>\$1,969,235</u>	<u>\$1,896,360</u>
C. OPERATING EXPENSES		
1. Service Retirements paid from MPRIF	\$599,972	\$599,972
2. Service Retirements paid from plan assets	2,204	2,204
2. Disability Benefits	8,870	8,870
3. Survivor Benefits	9,892	9,892
4. Refunds	6,271	6,271
6. Administrative Expenses	7,977	7,977
7. Other	<u>1,765</u>	<u>1,765</u>
8. Total Disbursements	<u>\$636,951</u>	<u>\$636,951</u>
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	<u><u>\$14,774,665</u></u>	<u><u>\$13,629,538</u></u>

TABLE 3

**Teachers Retirement Association Fund**  
**ACTIVE MEMBERS AS OF JUNE 30, 1999**

Age	Years of Service								ALL
	<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	1,750	204	1	0	0	0	0	0	1,955
25-29	1,875	5,390	954	1	0	0	0	0	8,220
30-34	953	2,623	4,144	429	0	0	0	0	8,149
35-39	916	1,523	1,971	2,806	238	0	0	0	7,454
40-44	805	1,582	1,686	1,649	2,237	549	1	0	8,509
45-49	830	1,630	1,645	1,921	1,488	3,584	862	0	11,960
50-54	551	1,125	1,084	1,516	1,337	1,968	4,662	852	13,095
55-59	311	503	502	593	679	801	1,797	1,809	6,995
60-64	167	197	160	210	163	270	383	293	1,843
65+	142	106	49	22	15	30	24	45	433
ALL	8,300	14,883	12,196	9,147	6,157	7,202	7,729	2,999	68,613

**AVERAGE ANNUAL EARNINGS**

Age	Years of Service								ALL
	<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	19,700	26,873	3,065	0	0	0	0	0	20,440
25-29	17,812	26,742	33,160	16,493	0	0	0	0	25,449
30-34	16,804	26,311	34,087	39,360	0	0	0	0	29,841
35-39	16,614	26,298	34,713	41,842	46,819	0	0	0	33,840
40-44	14,692	24,659	34,739	42,851	46,162	49,317	46,097	0	36,485
45-49	14,644	23,317	34,461	41,063	47,377	50,014	51,449	0	40,119
50-54	13,584	22,167	33,980	42,788	47,083	50,807	52,627	54,698	44,980
55-59	10,506	20,493	29,888	40,558	46,483	51,693	55,925	56,702	46,986
60-64	10,857	12,067	23,457	38,316	45,656	51,065	57,440	59,364	41,569
65+	16,493	8,614	20,123	34,132	50,771	47,615	59,175	58,340	25,930
ALL	16,626	25,146	33,876	41,715	46,714	50,394	53,520	56,417	37,024

**PRIOR FISCAL YEAR EARNINGS (IN MILLIONS) BY YEARS OF SERVICE**

Age	<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
All	138	374	413	382	288	363	414	169	2,540

## TEACHERS RETIREMENT ASSOCIATION FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1999

Age	Years Retired							ALL
	<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	225	10	0	0	0	0	0	235
55-59	1,673	1,397	24	0	0	0	0	3,094
60-64	837	3,335	1,745	23	0	0	0	5,940
65-69	190	1,600	3,323	887	4	0	0	6,004
70-74	14	208	1,671	1,996	549	0	0	4,438
75-79	3	24	237	1,429	1,240	180	3	3,116
80-84	0	1	21	175	1,256	631	94	2,178
85+	0	0	1	9	103	1,148	1,191	2,452
ALL	2,942	6,575	7,022	4,519	3,152	1,959	1,288	27,457

AVERAGE ANNUAL BENEFIT

Age	Years Retired							ALL
	<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	35,909	26,225	9,758	0	0	0	0	35,497
55-59	32,123	25,744	24,128	0	0	0	0	29,181
60-64	27,035	30,898	30,647	23,301	0	0	0	30,250
65-69	20,379	22,018	26,360	20,336	29,353	0	0	24,126
70-74	13,632	19,451	22,151	24,529	20,092	2,237	0	22,813
75-79	35,140	12,549	22,703	22,302	22,943	11,759	19,021	21,913
80-84	0	806	11,886	21,234	21,709	18,987	8,387	20,203
85+	0	0	1,020	7,053	16,085	18,083	11,858	14,928
ALL	30,122	27,201	26,246	22,833	21,739	17,793	11,622	24,522

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED

Age	<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
All	88,619	178,847	184,299	103,182	68,521	34,857	14,969	673,301

TABLE 5

## TEACHERS RETIREMENT ASSOCIATION FUND

SURVIVORS AS OF JUNE 30, 1999

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	12	47	11	6	1	0	0	77
50-54	11	37	20	3	0	0	0	71
55-59	16	85	32	4	2	1	1	141
60-64	18	104	72	15	4	4	1	218
65-69	21	123	103	58	19	7	5	336
70-74	23	119	108	64	25	7	6	352
75-79	20	108	111	62	36	9	12	358
80-84	11	46	41	27	18	8	13	164
85+	2	24	20	13	16	15	9	99
ALL	134	693	518	252	121	51	47	1,816

AVERAGE ANNUAL BENEFIT

Age	Years Since Death							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	13,286	19,424	13,484	7,172	3,626	0	0	16,459
50-54	13,266	19,105	9,577	1,638	0	0	0	14,778
55-59	19,224	21,116	16,215	9,308	11,438	7,761	5,114	19,108
60-64	19,042	20,906	20,019	15,235	10,000	13,724	12,011	19,696
65-69	24,379	22,363	19,397	17,261	21,094	18,486	6,330	20,308
70-74	18,657	19,225	22,172	19,458	18,857	20,841	11,279	20,005
75-79	24,465	20,790	19,794	18,721	24,283	15,583	12,261	20,263
80-84	24,035	19,162	17,567	16,340	27,245	24,724	9,977	19,056
85+	44,701	16,231	17,600	19,006	9,574	15,235	11,355	15,777
ALL	20,447	20,409	19,232	17,496	20,302	17,736	10,542	19,334

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	2,740	14,143	9,962	4,409	2,457	905	496	35,111

## TEACHERS RETIREMENT ASSOCIATION FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1999

Age	Years Disabled							ALL
	<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	2	37	20	1	0	0	0	60
50-54	5	59	22	8	2	0	0	96
55-59	8	82	39	13	6	1	0	149
60-64	1	56	48	28	7	3	1	144
65-69	0	12	8	4	1	1	1	27
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	16	246	137	54	16	5	2	476

AVERAGE ANNUAL BENEFIT

Age	Years Disabled							ALL
	<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	15,142	9,351	8,595	3,320	0	0	0	9,191
50-54	15,603	16,541	15,265	10,430	38,342	0	0	16,144
55-59	28,030	21,660	16,725	13,220	19,534	6,463	0	19,786
60-64	18,381	22,143	24,323	16,995	8,565	14,807	3,819	20,902
65-69	0	23,004	22,676	16,913	34,484	10,615	9,630	21,475
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	21,932	18,756	18,313	14,854	18,020	12,300	6,725	18,149

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED

Age	<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
All	351	4,614	2,509	802	288	62	14	8,639

TABLE 7

## Teachers Retirement Association Fund

*Reconciliation Of Members*

	Actives	Terminated	
		Deferred Retirement	Other Non-Vested
A. ON JUNE 30, 1998	68,247	6,924	16,827
B. ADDITIONS	7,466	1,479	3,668
C. DELETIONS			
1. Service Retirement	(2,535)	(890)	0
2. Disability	(10)	0	0
3. Death	(42)	(51)	0
4. Terminated - Deferred	(4,250)	0	0
5. Terminated - Refund	(450)	0	(768)
6. Terminated - Other Non-Vested	0	0	0
7. Returned as Active	0	0	(1,514)
8. Transferred (to)/from Other Fund	0	0	0
D. DATA ADJUSTMENTS	187	(442)	104
Vested	51,839		
Non-Vested	16,774		
E. TOTAL ON JUNE 30, 1999	68,613	7,020	18,317

	Retirement Annuitants	Recipients	
		Disabled	Survivors
A. ON JUNE 30, 1998	25,088	454	1,686
B. ADDITIONS	2,947	71	212
C. DELETIONS			
1. Service Retirement	0	(28)	0
2. Death	(574)	(19)	(38)
3. Annuity Expired	0	0	(48)
4. Returned as Active	0	(6)	0
D. DATA ADJUSTMENTS	(4)	4	4
E. TOTAL ON JUNE 30, 1999	27,457	476	1,816



TABLE 8

## Teachers Retirement Association Fund

**Actuarial Balance Sheet***(dollars in thousands)*

JULY 1, 1999

A. CURRENT ASSETS (TABLE 1, E6)				\$14,011,247
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions (See Table 11)				\$55,669
2. Present Value of Future Normal Costs				2,459,834
3. Total Expected Future Assets				<u>\$2,515,503</u>
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				<u>\$16,526,750</u>
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$6,503,453		\$6,503,453
b. Disability Benefits		101,817		101,817
c. Surviving Spouse and Child Benefits		268,740		268,740
2. Deferred Retirements with Future Augmentation		326,385		326,385
3. Former Members without Vested Rights		56,797		56,797
4. Active Members				
a. Retirement Annuities	14,755	4,835,919		4,850,674
b. Disability Benefits	184,317	0		184,317
c. Survivor's Benefits	61,135	0		61,135
d. Deferred Retirements	1,672	80,748		82,420
e. Refund Liability Due to Death or Withdrawal	0	98,048		98,048
5. Total Current Benefit Obligations	<u>\$261,879</u>	<u>\$12,271,907</u>		<u>\$12,533,786</u>
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$3,185,617</u>
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				<u>\$15,719,403</u>
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				(\$1,477,461)
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				(\$807,347)

## Teachers Retirement Association Fund

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

JULY 1, 1999

	Actuarial Present Value of Projected Benefits (1)	Actuarial Present Value of Future Normal Costs (2)	Actuarial Accrued Liability (3)=(1)-(2)
<b>A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)</b>			
1. Active Members			
a. Retirement Annuities	\$7,748,766	\$1,973,102	\$5,775,664
b. Disability Benefits	310,144	127,318	182,826
c. Survivor's Benefit	97,719	37,324	60,395
d. Deferred Retirements	155,910	80,504	75,406
e. Refunds Due to Death or Withdrawal	149,672	241,586	(91,914)
f. Total	<u>\$8,462,211</u>	<u>\$2,459,834</u>	<u>\$6,002,377</u>
2. Deferred Retirements With Future Augmentation	326,385		326,385
3. Former Members Without Vested Rights	56,797		56,797
4. Annuitants in MPRIF	6,751,682		6,751,682
5. Recipients Not in MPRIF	<u>122,328</u>		<u>122,328</u>
6. Total	<u>\$15,719,403</u>	<u>\$2,459,834</u>	<u>\$13,259,569</u>
<b>B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)</b>			
1. AAL (A6)			\$13,259,569
2. Current Assets (Table 1, E6)			14,011,247
3. UAAL (B1-B2)			<u>(\$751,678)</u>
<b>C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE</b>			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$39,763,417
2. Supplemental Contribution Rate (B3/C1)			0.00%

## Teachers Retirement Association Fund

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

YEAR ENDING JUNE 30, 1999

A. UAAL AT BEGINNING OF YEAR	(\$681,234)
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$252,167
2. Contribution	(262,566)
3. Interest on A, B1 and B2	<u>(58,347)</u>
4. Total (B1+B2+B3)	<u>(\$68,746)</u>
C. EXPECTED UAAL AT END OF YEAR (A+B4)	(\$749,980)
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	\$8,630
2. Investment Return	(232,479)
3. MPRIF Mortality	16,319
4. Mortality of Other Benefit Recipients	(1,652)
5. Other Items	<u>207,484</u>
6. Total	<u>(\$1,698)</u>
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	(\$751,678)
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	<u>0</u>
H. UAAL AT END OF YEAR (E+F+G)	<u><u>(\$751,678)</u></u>

## Teachers Retirement Association Fund

**Determination Of Contribution Sufficiency***(dollars in thousands)*

JULY 1, 1999

	Percent of Payroll	Dollar Amount
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	5.00%	\$134,698
2. Employer Contributions	5.00%	134,698
3. Total	<u>10.00%</u>	<u>\$269,396</u>
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	7.75%	\$208,662
b. Disability benefits	0.47%	12,763
c. Survivors	0.14%	3,894
d. Deferred Retirement Benefits	0.24%	6,370
e. Refunds Due to Death or Withdrawal	0.95%	25,697
f. Total	<u>9.55%</u>	<u>\$257,386</u>
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	0.00%	0
3. Allowance for Expenses	<u>0.31%</u>	<u>8,348</u>
4. Total	<u>9.86%</u>	<u>\$265,734</u>
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) [A3-B4]	0.14%	\$3,662

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1999 is \$2,692,960.

## Teachers Retirement Association Fund

*Summary of Actuarial Assumptions and Methods*

<b><i>Interest:</i></b>	<b>Pre-Retirement:</b> 8.5% per annum <b>Post-Retirement:</b> 8.5% per annum
<b><i>Benefit Increases After Retirement:</i></b>	Payment of earnings on retired reserves in excess of 6% accounted for by 6% post-retirement assumptions.
<b><i>Salary Increases:</i></b>	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.
<b><i>Mortality:</i></b>	<b>Pre-Retirement:</b> Male - 1983 Group Annuity Mortality Table for males set back eight years. Female - 1983 Group Annuity Mortality Table for females set back four years.  <b>Post-Retirement:</b> Male - Same as above except set back four years. Female - Same as above except set back two years.  <b>Post-Disability:</b> Male - 1977 Railroad Retirement Board Mortality for Disabled Annuitants up to retirement age. Female - 1977 Railroad Retirement Board Mortality for Disabled Annuitants up to retirement age.  Revert to post-retirement assumption at retirement.
<b><i>Retirement Age:</i></b>	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:

	<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.

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

**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 0% elect 75% J&S option 50% elect 100% J&S option
Females -	10% elect 50% J&S option 0% elect 75% J&S option 10% elect 100% J&S option

**Actuarial Cost Method:** 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.

**Asset Valuation Method:** Cost Value plus one-third Unrealized Gains or Losses.

***Payment on the  
Unfunded Actuarial  
Accrued Liability:***

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:**

<u>Age</u>	<u>Preretirement 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>	
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 14

**Teachers Retirement Association Fund**

**SCHEDULE OF FUNDING PROGRESS**  
(dollars in thousands)

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (A)</b>	<b>Actuarial Accrued Liability (AAL) (B)</b>	<b>Unfunded AAL (UAAL) (B - A)</b>	<b>Funded Ratio (A)/(B)</b>	<b>Actual Covered Payroll (Previous FY) (C)</b>	<b>UAAL as % of Covered Payroll (B - A) / (C)</b>
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%

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*	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% **	2,422,957	124,096	107,296	151,323	141.03%
1999	8.39% **	2,625,254	132,040	88,219	130,526	147.96%

\* Includes contributions from other sources (if applicable).

\*\* Actuarially Required Contribution Rate calculated according to parameters of GASB 25 using a 30-year amortization of the negative unfunded accrued liability

**TABLE 3A**  
**BASIC**

**Teachers Retirement Association Fund**  
**ACTIVE MEMBERS AS OF JUNE 30, 1999**

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<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	1	2	3
60-64	0	0	0	0	0	0	0	11	11
65+	0	0	0	0	0	0	0	9	9
ALL	0	0	0	0	0	0	1	22	23

**AVERAGE ANNUAL EARNINGS**

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<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	58,008	68,854	65,239
60-64	0	0	0	0	0	0	0	50,333	50,333
65+	0	0	0	0	0	0	0	49,727	49,727
ALL	0	0	0	0	0	0	58,008	51,769	52,040

**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	0	0	0	0	0	0	58	1,139	1,197

**TABLE 4A**  
**BASIC**

**TEACHERS RETIREMENT ASSOCIATION FUND**

**SERVICE RETIREMENTS AS OF JUNE 30, 1999**

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	0	0	0	0	0	0	0	0
55-59	0	1	0	0	0	0	0	1
60-64	9	90	263	9	0	0	0	371
65-69	10	79	488	313	3	0	0	893
70-74	0	17	175	566	247	0	0	1,005
75-79	1	1	26	286	432	82	3	831
80-84	0	0	6	32	358	283	65	744
85+	0	0	0	1	23	384	465	873
ALL	20	188	958	1,207	1,063	749	533	4,718

**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	0	0	0	0	0	0	0	0
55-59	0	37,971	0	0	0	0	0	37,971
60-64	31,522	42,691	48,625	24,247	0	0	0	46,179
65-69	40,741	39,196	46,486	36,760	31,678	0	0	42,318
70-74	0	31,375	38,626	41,123	31,220	0	0	38,090
75-79	3,643	7,035	37,036	35,720	33,623	16,046	19,021	32,596
80-84	0	0	17,297	35,954	32,328	24,687	9,861	27,494
85+	0	0	0	3,134	23,166	24,003	15,593	19,478
ALL	34,738	39,985	45,198	38,417	32,397	23,391	14,913	33,444

**TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED**

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	695	7,517	43,300	46,369	34,438	17,520	7,949	157,789

**TABLE 5A**  
**BASIC**

**TEACHERS RETIREMENT ASSOCIATION FUND**

**SURVIVORS AS OF JUNE 30, 1999**

Age	Years Since Death							ALL
	<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	0	1	1	0	0	4
50-54	0	0	0	0	0	0	0	0
55-59	0	3	1	0	1	1	1	7
60-64	2	11	8	3	2	3	1	30
65-69	3	31	22	16	13	6	5	96
70-74	4	19	25	13	9	4	5	79
75-79	6	30	29	14	11	3	10	103
80-84	2	11	10	4	8	4	9	48
85+	1	6	8	3	3	4	5	30
ALL	19	112	103	54	48	25	36	397

**AVERAGE ANNUAL BENEFIT**

Age	Years Since Death							ALL
	<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	22,427	26,243	0	21,801	3,626	0	0	18,524
50-54	0	0	0	0	0	0	0	0
55-59	0	51,316	24,668	0	19,282	7,761	5,114	30,111
60-64	61,449	24,641	22,385	29,209	18,288	17,510	12,011	25,392
65-69	39,619	36,992	32,160	28,444	25,722	19,197	6,330	30,307
70-74	26,457	34,151	33,759	24,961	22,586	18,732	8,948	28,432
75-79	35,652	26,444	32,540	31,535	31,880	15,596	13,483	28,395
80-84	22,985	26,945	19,305	30,455	37,968	29,657	8,785	24,139
85+	84,558	18,091	22,755	28,158	16,061	18,221	9,786	20,987
ALL	37,603	30,760	29,845	28,459	27,078	19,548	9,899	27,494

**TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH**

Age	<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
All	715	3,445	3,074	1,537	1,300	489	356	10,915

**TABLE 6A**  
**BASIC**

**TEACHERS RETIREMENT ASSOCIATION FUND**

**DISABILITY RETIREMENTS AS OF JUNE 30, 1999**

Age	Years Disabled							ALL
	<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	0	0	0	0	0	0	0
60-64	0	2	2	1	0	0	0	5
65-69	0	1	0	0	0	0	0	1
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	3	2	1	0	0	0	6

**AVERAGE ANNUAL BENEFIT**

Age	Years Disabled							ALL
	<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	0	0	0	0	0	0	0
60-64	0	31,307	49,524	43,238	0	21,204	0	40,980
65-69	0	19,419	0	34,525	29,608	0	0	19,419
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	27,345	49,524	43,238	0	0	0	37,387

**TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED**

Age	<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
All	0	82	99	43	0	0	0	224

**TABLE 11A**  
**Basic**

**Teachers Retirement Association Fund**

***Determination Of Contribution Sufficiency***  
*(dollars in thousands)*

JULY 1, 1999

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354		
1. Employee Contributions	9.00%	\$107
2. Employer Contributions	9.00%	107
3. Total	<u>18.00%</u>	<u>\$214</u>
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	12.81%	\$153
b. Disability benefits	0.75%	9
c. Survivors	0.34%	4
d. Deferred Retirement Benefits	0.00%	0
e. Refunds Due to Death or Withdrawal	<u>2.43%</u>	<u>29</u>
f. Total	<u>16.33%</u>	<u>\$195</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1999 is \$1,194.



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.

*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.

**TABLE 13A**  
**BASIC**  
(Continued)

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.

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, 2000	30%
July 2, 2000 - 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.

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.

**TABLE 13A**  
**BASIC**  
(Continued)

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, 2000	30%
July 2, 2000 - 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, 2000	30%
July 2, 2000 - 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.

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, 2000	30%
July 2, 2000 - 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, 1999**

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,750	204	1	0	0	0	0	0	1,955
25-29	1,875	5,390	954	1	0	0	0	0	8,220
30-34	953	2,623	4,144	429	0	0	0	0	8,149
35-39	916	1,523	1,971	2,806	238	0	0	0	7,454
40-44	805	1,582	1,686	1,649	2,237	549	1	0	8,509
45-49	830	1,630	1,645	1,921	1,488	3,584	862	0	11,960
50-54	551	1,125	1,084	1,516	1,337	1,968	4,662	852	13,095
55-59	311	503	502	593	679	801	1,796	1,807	6,992
60-64	167	197	160	210	163	270	383	282	1,832
65+	142	106	49	22	15	30	24	36	424
ALL	8,300	14,883	12,196	9,147	6,157	7,202	7,728	2,977	68,590

**AVERAGE ANNUAL EARNINGS**

Age	Years of Service								ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	19,700	26,873	3,065	0	0	0	0	0	20,440
25-29	17,812	26,742	33,160	16,493	0	0	0	0	25,449
30-34	16,804	26,311	34,087	39,360	0	0	0	0	29,841
35-39	16,614	26,298	34,713	41,842	46,819	0	0	0	33,840
40-44	14,692	24,659	34,739	42,851	46,162	49,317	46,097	0	36,485
45-49	14,644	23,317	34,461	41,063	47,377	50,014	51,449	0	40,119
50-54	13,584	22,167	33,980	42,788	47,083	50,807	52,627	54,698	44,980
55-59	10,506	20,493	29,888	40,558	46,483	51,693	55,921	56,687	46,977
60-64	10,857	12,067	23,457	38,316	45,656	51,065	57,440	59,719	41,517
65+	16,493	8,614	20,123	34,132	50,771	47,615	59,175	60,498	25,425
ALL	16,626	25,146	33,876	41,715	46,714	50,394	53,519	56,451	37,019

**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	138	374	413	382	288	363	414	168	2,539

**TABLE 4B  
COORDINATED**

**TEACHERS RETIREMENT ASSOCIATION FUND**

**SERVICE RETIREMENTS AS OF JUNE 30, 1999**

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	225	10	0	0	0	0	0	235
55-59	1,673	1,396	24	0	0	0	0	3,093
60-64	828	3,245	1,482	14	0	0	0	5,569
65-69	180	1,521	2,835	574	1	0	0	5,111
70-74	14	191	1,496	1,430	302	0	0	3,433
75-79	2	23	211	1,143	808	98	0	2,285
80-84	0	1	15	143	898	348	29	1,434
85+	0	0	1	8	80	764	726	1,579
ALL	2,922	6,387	6,064	3,312	2,089	1,210	755	22,739

**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	35,909	26,225	9,758	0	0	0	0	35,497
55-59	32,123	25,735	24,128	0	0	0	0	29,178
60-64	26,987	30,570	27,457	22,693	0	0	0	29,189
65-69	19,248	21,126	22,895	11,381	22,378	0	0	20,947
70-74	13,632	18,390	20,224	17,961	10,990	2,237	0	18,340
75-79	50,889	12,789	20,937	18,945	17,233	8,172	0	18,027
80-84	0	806	9,721	17,940	17,475	14,352	5,083	16,420
85+	0	0	1,020	7,542	14,050	15,107	9,466	12,413
ALL	30,090	26,825	23,252	17,154	16,315	14,329	9,298	22,670

**TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED**

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	87,923	171,331	141,000	56,814	34,082	17,338	7,020	515,493

**TABLE 5B  
COORDINATED**

**TEACHERS RETIREMENT ASSOCIATION FUND**

**SURVIVORS AS OF JUNE 30, 1999**

Age	Years Since Death							ALL
	<u>&lt;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	46	11	5	0	0	0	73
50-54	11	37	20	3	0	0	0	71
55-59	16	82	31	4	1	0	0	134
60-64	16	93	64	12	2	1	0	188
65-69	18	92	81	42	6	1	0	240
70-74	19	100	83	51	16	3	1	273
75-79	14	78	82	48	25	6	2	255
80-84	9	35	31	23	10	4	4	116
85+	1	18	12	10	13	11	4	69
ALL	115	581	415	198	73	26	11	1,419

**AVERAGE ANNUAL BENEFIT**

Age	Years Since Death							ALL
	<u>&lt;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	12,455	19,276	13,484	4,246	0	0	0	16,346
50-54	13,266	19,105	9,577	1,638	0	0	0	14,778
55-59	19,224	20,011	15,942	9,308	3,594	0	0	18,534
60-64	13,741	20,464	19,723	11,741	1,712	2,363	0	18,787
65-69	21,840	17,434	15,931	13,000	11,067	14,219	0	16,308
70-74	17,015	16,389	18,683	18,055	16,759	23,653	22,931	17,567
75-79	19,670	18,615	15,286	14,984	20,940	15,577	6,147	16,978
80-84	24,268	16,716	17,006	13,885	18,666	19,790	12,657	16,952
85+	4,843	15,611	14,164	16,261	8,078	14,150	13,316	13,512
ALL	17,612	18,414	16,598	14,507	15,846	15,993	12,647	17,051

**TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH**

Age	<u>&lt;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
All	2,025	10,699	6,888	2,872	1,157	416	139	24,195

**TABLE 6B**  
**COORDINATED**

**TEACHERS RETIREMENT ASSOCIATION FUND**

**DISABILITY RETIREMENTS AS OF JUNE 30, 1999**

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	2	37	20	1	0	0	0	60
50-54	5	59	22	8	2	0	0	96
55-59	8	82	39	13	6	1	0	149
60-64	1	54	46	27	7	3	1	139
65-69	0	11	8	4	1	1	1	26
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	16	243	135	53	16	5	2	470

**AVERAGE ANNUAL BENEFIT**

Age	Years Disabled							ALL
	≤1	1-4	5-9	10-14	15-19	20-24	25+	
<50	15,142	9,351	8,595	3,320	0	0	0	9,191
50-54	15,603	16,541	15,265	10,430	38,342	0	0	16,144
55-59	28,030	21,660	16,725	13,220	19,534	6,463	0	19,786
60-64	18,381	21,803	23,227	16,023	8,565	7,739	3,819	20,027
65-69	0	23,330	22,676	8,282	4,875	10,615	9,630	19,088
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	21,932	18,650	17,851	13,667	16,170	8,059	6,725	17,722

**TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS DISABLED**

Age	≤1	1-4	5-9	10-14	15-19	20-24	25+	ALL
All	351	4,532	2,410	724	259	40	14	8,329

**Teachers Retirement Association Fund**

***Determination Of Contribution Sufficiency***  
*(dollars in thousands)*

JULY 1, 1999

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 354</b>		
1. Employee Contributions	5.00%	\$134,376
2. Employer Contributions	5.00%	134,376
3. Total	<u>10.00%</u>	<u>\$268,752</u>
 <b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost		
a. Retirement Benefits	7.75%	\$208,150
b. Disability benefits	0.47%	12,734
c. Survivors	0.14%	3,883
d. Deferred Retirement Benefits	0.24%	6,366
e. Refunds Due to Death or Withdrawal	<u>0.95%</u>	<u>25,623</u>
f. Total	<u>9.55%</u>	<u>\$256,756</u>

Note: Projected Annual Payroll for Fiscal Year Beginning on JULY 1, 1999 is \$2,687,512.

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.

**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, 2000	30%
July 2, 2000 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%



## DISABILITY

### *Disability Benefit:*

<i>Eligibility:</i>	Total and permanent disability before normal retirement age with three years of Allowable Service.										
<i>Amount:</i>	<p>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.</p> <p>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.</p> <p>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.</p>										
<i>Form of Payment:</i>	Same as for retirement.										
<i>Benefit Increases:</i>	<p>Adjusted by TRA to provide same increase as MPRIF.</p> <p>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:</p> <table> <tr> <td>July 2, 1997 - July 1, 1999</td><td>50%</td></tr> <tr> <td>July 2, 1999 - July 1, 1999</td><td>40%</td></tr> <tr> <td>July 2, 1999 - July 1, 2000</td><td>30%</td></tr> <tr> <td>July 2, 2000 - July 1, 2001</td><td>20%</td></tr> <tr> <td>July 2, 2001 - July 1, 2002</td><td>10%</td></tr> </table>	July 2, 1997 - July 1, 1999	50%	July 2, 1999 - July 1, 1999	40%	July 2, 1999 - July 1, 2000	30%	July 2, 2000 - July 1, 2001	20%	July 2, 2001 - July 1, 2002	10%
July 2, 1997 - July 1, 1999	50%										
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July 2, 1999 - July 1, 2000	30%										
July 2, 2000 - July 1, 2001	20%										
July 2, 2001 - July 1, 2002	10%										

**TABLE 13B**  
**COORDINATED**  
(Continued)

***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, 2000	30%
July 2, 2000 - 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:* 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.

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, 2000	30%
July 2, 2000 - July 1, 2001	20%
July 2, 2001 - July 1, 2002	10%

**SUMMARY OF SIGNIFICANT CHANGES**

No significant changes were recognized for this valuation.