

DULUTH TEACHERS' RETIREMENT FUND  
ACTUARIAL VALUATION REPORT  
JULY 1, 1993



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Actuaries and Consultants

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November 16, 1993

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

RE: Duluth Teachers' Retirement Fund

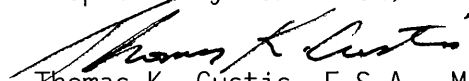
Commission Members:

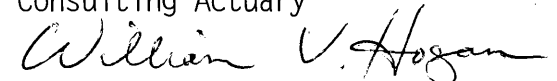
Pursuant to the terms of our Actuarial Services Contract, we have performed an actuarial valuation of the Fund as of July 1, 1993.

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 Duluth Teachers' Retirement Fund Association.

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

Respectfully submitted,

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

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

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OLD

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# DULUTH TEACHERS' RETIREMENT FUND

## REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/92</u> <u>Valuation</u>	<u>07/01/93</u> <u>Valuation</u>
A. CONTRIBUTIONS (Table 11)		
1. Statutory Contributions - Chapter 353 % of Payroll	10.29%	10.29%
2. Required Contributions - Chapter 356 % of Payroll	11.42%	10.21%
3. Sufficiency (Deficiency): (A.1. - A.2.)	-1.13%	0.08%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$116,492	\$130,857
b. Current Benefit Obligations (Table 8)	\$115,672	\$124,581
c. Funding Ratio: (a/b)	100.71%	105.04%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$116,492	\$130,857
b. Actuarial Accrued Liability (Table 9)	\$124,140	\$132,700
c. Funding Ratio: (a/b)	93.84%	98.61%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$155,553	\$172,538
b. Current and Expected Future Benefit Obligations	\$163,201	\$171,875
c. Funding Ratio: (a/b)	95.31%	100.39%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	1,558	1,453
b. Projected Annual Earnings	\$44,429	\$42,160
c. Average Annual Earnings (Actual \$)	\$28,517	\$29,016
d. Average Age	43.7	43.5
e. Average Service	10.5	10.1
2. Others		
a. Service Retirements (Table 4)	675	770
b. Disability Retirements (Table 5)	12	8
c. Survivors (Table 6)	41	44
d. Deferred Retirements (Table 7)	85	94
e. Terminated Other Non-vested (Table 7)	515	554
f. Total	1,328	1,470

## DULUTH TEACHERS' RETIREMENT 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:

- o 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 105.04%. The corresponding ratio for the prior year was 100.71%.
- o 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 1993 the ratio is 98.61%, which is an increase from the 1992 value of 93.84%.
- o The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This year's ratio of 100.39% 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 F1 to F6. It combines the cost value of the Assets Available for Benefits and one-third of the difference between the market value and cost value of those assets.

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

Reference to the Minnesota Post Retirement Investment Fund (MPRIF) is for purposes of consistency. This fund does not participate in the MPRIF and therefore, where the term MPRIF appears, there will be a value of zero.

### Actuarial Balance Sheet (Table 8)

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

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

- o 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.



- o For Non-active Members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

#### GASB Disclosure

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

The July 1, 1993 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table:

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$58,935,000
Current Employees	
Accumulated employee contributions including allocated investment income	\$24,829,000
Employer-financed vested	33,624,000
Employer-financed nonvested	7,193,000
	-----
Total Pension Benefit Obligation	124,581,000
Net Assets Available for Benefits at Cost	\$128,198,000
Total Benefit Obligation less Assets	(\$3,617,000)
Funded Ratio	102.90%

### Actuarial Cost Method (Table 9)

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

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

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

The payments will increase 6.5% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years, the annual payment will cover the interest and also repay a portion of the unfunded.

### Sources of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectation. For a detailed analysis of the major components, refer to Table 10.

### 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:

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

Table 11 shows the Plan has a contribution sufficiency since the Statutory Contribution Rate is 10.29% compared to the Required Contribution Rate of 10.21%.

### Changes in Actuarial Assumptions

The actuarial assumptions listed in Table 12 are the same as those used in the prior valuation, however the allowance for expenses as part of the required contributions of Chapter 356 in Table 11 only reflect administrative expenses and not investment expenses. This reduced the required contribution by approximately .86% of payroll.

### Changes in Plan Provisions

Death Benefit coverage was extended to active members less than age 50. It is our understanding that this does not cover former members with deferred vested benefits.

A temporary early retirement window providing enhanced benefits was enacted to be effective for those retiring between May 1993 and August 1993. Members who have at least 25 years of service and are age 55 or who have at least 1 year of service and are age 65 may elect to retire and receive an increase of .10% to the service credit accrual rate. The increased accrual rate will be applied to each year of service up to a maximum of 30 years.

Old and New

Additional tables at the end of this report show membership data, statutory contributions and normal costs for the Old and New Plans.

TABLE 1

## DULUTH TEACHERS' RETIREMENT FUND

ACCOUNTING BALANCE SHEET  
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS		
1. Cash, Equivalents, Short-term Securities	\$15,450	\$15,450
2. Investments		
a. Fixed Income	65,038	62,423
b. Equity	57,944	52,585
c. Real Estate	38	38
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	0	0
4. Other	14,027	14,027
	-----	-----
B. TOTAL ASSETS	\$152,497	\$144,523
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$16,325	\$16,325
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$16,664	\$16,664
2. Employer Reserves	119,508	111,534
3. MPRIF Reserves	0	0
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	\$136,172	\$128,198
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$152,497	\$144,523
	=====	=====
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$128,198
2. Market Value (D5)	\$136,172	
3. Cost Value (D5)	128,198	
	-----	
4. Market Over Cost: (F2-F3)	\$7,974	
5. 1/3 of Market Over Cost: (F4)/3		2,658
		-----
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$130,856
		=====

TABLE 2

**DULUTH TEACHERS' RETIREMENT FUND**  
**CHANGE IN ASSETS AVAILABLE FOR BENEFITS**  
**(DOLLARS IN THOUSANDS)**

**YEAR ENDING JUNE 30, 1993**

	<u>Market Value</u>	<u>Cost Value</u>
A. ASSETS AVAILABLE AT BEGINNING OF PERIOD	\$122,132	\$113,672
B. OPERATING REVENUES		
1. Member Contributions	\$2,126	\$2,126
2. Employer Contributions	2,506	2,506
3. Investment Income	5,016	5,016
4. MPRIF Income	0	0
5. Net Realized Gain (Loss)	11,649	11,649
6. Other	23	23
7. Net Change in Unrealized Gain (Loss)	(486)	0
	-----	-----
8. Total Revenue	\$20,834	\$21,320
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$5,561	\$5,561
2. Disability Benefits	55	55
3. Survivor Benefits	275	275
4. Refunds	152	152
5. Investment Expenses	381	381
6. Administrative Expenses	370	370
7. Other	0	0
	-----	-----
8. Total Disbursements	6,794	6,794
	-----	-----
D. OTHER CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF PERIOD	\$136,172	\$128,198
	=====	=====

TABLE 3

## DULUTH TEACHERS' RETIREMENT FUND

## ACTIVE MEMBERS AS OF JUNE 30, 1993

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	33								33
25-29	64	28	7						99
30-34	45	22	58	1					126
35-39	36	36	77	24	3				176
40-44	59	36	104	36	47	34			316
45-49	60	43	53	29	38	77	26		326
50-54	12	12	23	16	30	55	62	12	222
55-59	9	5	7	18	24	20	11	14	108
60-64	3	3	5		9	9	1	2	32
65+	8	1	2				3	1	15
ALL	329	186	336	124	151	195	103	29	1,453

## AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,922								1,922
25-29	1,521	13,775	25,689						6,696
30-34	1,685	15,830	25,055	35,478					15,181
35-39	1,742	17,225	26,872	34,022	43,271				21,013
40-44	2,164	17,822	33,298	37,583	39,768	44,183			28,344
45-49	6,009	26,850	31,824	37,086	40,270	44,779	44,004		31,901
50-54	2,085	20,289	27,277	35,927	39,890	44,615	44,742	46,904	38,099
55-59	1,530	28,200	32,079	41,752	40,812	45,002	44,864	46,942	38,529
60-64	1,604	3,013	19,854		39,993	43,914	45,112	44,363	31,316
65+	2,422	4,159	32,922				44,455	32,599	17,023
ALL	2,585	19,075	29,372	37,152	40,168	44,612	44,564	46,254	27,233

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	850	3,547	9,868	4,606	6,065	8,699	4,590	1,341	39,569

TABLE 4

## DULUTH TEACHERS' RETIREMENT FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	2							2
55-59	65	23					1	89
60-64	41	82	60					183
65-69	5	32	94	29				160
70-74		4	34	52	10			100
75-79		1	1	39	37	3		81
80-84				1	45	25		71
85+		1			3	45	35	84
ALL	113	143	189	121	95	73	36	770

## AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	7,898							7,898
55-59	18,314	12,941					13,053	16,866
60-64	18,864	10,446	7,655					11,417
65-69	11,416	9,290	7,349	2,256				6,941
70-74		6,293	5,174	4,945	1,694			4,752
75-79		4,551	112	4,628	3,544	1,181		3,949
80-84				4,499	4,051	4,063		4,062
85+		866			4,807	4,699	3,913	4,330
ALL	18,024	10,364	7,017	4,195	3,629	4,337	4,167	8,005

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED								
AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	2,036	1,482	1,326	507	344	316	150	6,163



TABLE 5

## DULUTH TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1993

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	1	1					3
50-54		1						1
55-59	1	2						3
60-64		3	1					4
65-69	1	2	4					7
70-74		2	1	2	1	1	1	8
75-79		1	1		3	1		6
80-84		1		2	1			4
85+	1	4	1	1		1		8
ALL	4	17	9	5	5	3	1	44

## AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1,805	10,787	533					4,375
50-54		9,354						9,354
55-59	579	15,736						10,684
60-64		3,714	6,450					4,398
65-69	8,379	3,327	7,505					6,436
70-74		5,807	5,041	4,171	2,346	4,139	808	4,036
75-79		4,728	1,403		2,838	1,322		2,661
80-84		2,167		3,819	1,856			2,915
85+	3,158	3,616	2,520	3,312		3,024		3,310
ALL	3,480	6,023	5,107	3,858	2,543	2,828	808	4,627

## TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH

AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	13,920	102,391	45,963	19,290	12,715	8,484	808	203,588

TABLE 6

## DULUTH TEACHERS' RETIREMENT FUND

## DISABILITY RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS DISABLED							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	1	1	1					3
50-54	1							1
55-59					1			1
60-64	1	2						3
65-69								
70-74								
75-79								
80-84								
85+								
ALL	3	3	1		1			8

## AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							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	13,639	1,252	6,372					7,088
50-54	9,474							9,474
55-59					2,724			2,724
60-64	12,917	15,322						14,520
65-69								
70-74								
75-79								
80-84								
85+								
ALL	12,010	10,632	6,372		2,724			9,628

AGE	TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED							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>	
ALL	36,030	31,896	6,372		2,724			77,024

TABLE 7

## DULUTH TEACHERS' RETIREMENT FUND

## RECONCILIATION OF MEMBERS

		<u>Terminated</u>	
		<u>Deferred Retirement</u>	<u>Other Non-Vested</u>
	<u>Actives</u>		
A. ON JUNE 30, 1992	1,558	85	515
B. ADDITIONS	200	41	149
C. DELETIONS			
1. Service Retirement	(96)	(10)	0
2. Disability	(3)	0	0
3. Death	(1)	0	0
4. Terminated - Deferred	(27)	0	0
5. Terminated - Refund	(27)	0	(110)
6. Terminated - Other Non-Vested	(149)	0	0
7. Returned as Active	0	(23)	0
8. Transferred	0	0	0
D. DATA ADJUSTMENTS	(2)	1	0
Vested	996		
Non-Vested	457		
E. TOTAL ON JUNE 30, 1993	1,453	94	554

		<u>Recipients</u>	
		<u>Retirement Annuitants</u>	<u>Disabled</u>
			<u>Survivors</u>
A. ON JUNE 30, 1992	675	12	41
B. ADDITIONS	117	3	6
C. DELETIONS			
1. Service Retirement	0	(6)	0
2. Death	(19)	(1)	(3)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	0
D. DATA ADJUSTMENTS	(3)	0	0
E. TOTAL ON JUNE 30, 1993	770	8	44

TABLE 8

## DULUTH TEACHERS' RETIREMENT FUND

ACTUARIAL BALANCE SHEET  
(DOLLARS IN THOUSANDS)

JULY 1, 1993

A.	CURRENT ASSETS (TABLE 1, F6)			\$130,856
B.	EXPECTED FUTURE ASSETS			
1.	Present Value of Expected Future Statutory Supplemental Contributions			\$2,507
2.	Present Value of Future Normal Costs			39,175
3.	Total Expected Future Assets			<u>\$41,682</u>
C.	TOTAL CURRENT AND EXPECTED FUTURE ASSETS			<u>\$172,538</u>
D.	CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>
1.	Benefit Recipients			
a.	Retirement Annuities		\$54,506	\$54,506
b.	Disability Benefits		897	897
c.	Surviving Spouse and Child Benefits		1,801	1,801
2.	Deferred Retirements With Future Augmentation		1,543	1,543
3.	Former Members Without Vested Rights		189	189
4.	Active Members			
a.	Retirement Annuities	173	54,591	54,764
b.	Disability Benefits	5,651	0	5,651
c.	Survivor's Benefits	1,344	0	1,344
d.	Deferred Retirements	25	3,517	3,542
e.	Refund Liability Due to Death or Withdrawal	0	344	344
5.	Total Current Benefit Obligations	<u>\$7,193</u>	<u>117,388</u>	<u>\$124,581</u>
E.	EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$47,294</u>
F.	TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			<u>\$171,875</u>
G.	CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			<u>(\$6,275)</u>
H.	CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			<u>(\$663)</u>

TABLE 9

## DULUTH TEACHERS' RETIREMENT FUND

DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)  
AND SUPPLEMENTAL CONTRIBUTION RATE  
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	Actuarial Present Value of Projected Benefits (1)	Actuarial Present Value of Future Normal Costs (2)	Actuarial Accrued Liability (3)=(1)-(2)
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$95,269	\$28,820	\$66,449
b. Disability Benefits	9,596	3,901	5,695
c. Survivor's Benefit	2,279	976	1,303
d. Deferred Retirements	5,193	4,141	1,052
e. Refunds Due to Death or Withdrawal	603	1,337	(734)
	-----	-----	-----
f. Total	\$112,940	\$39,175	\$73,765
	-----	-----	-----
2. Deferred Retirements With Future Augmentation	1,543		1,543
3. Former Members Without Vested Rights	189		189
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	57,203		57,203
	-----	-----	-----
6. Total	\$171,875	\$39,175	\$132,700
	=====	=====	=====
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$132,700
2. Current Assets (Table 1, F6)			130,856
			-----
3. UAAL (B1-B2)			\$1,844
			=====
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls Through the Amortization Date of July 1, 2020			\$864,344
2. Supplemental Contribution Rate (B3/C1)			0.21%

TABLE 10

## DULUTH TEACHERS' RETIREMENT FUND

CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)  
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1993

A.	UAAL AT BEGINNING OF YEAR	\$7,648
B.	CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1.	Normal Cost and Expenses	\$4,710
2.	Contribution	(4,632)
3.	Interest on A, B1 and B2	653
		-----
4.	Total (B1+B2+B3)	\$731
		-----
C.	EXPECTED UAAL AT END OF YEAR (A+B4)	\$8,379
D.	INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1.	Salary Increases	(\$1,237)
2.	Investment Return	(6,693)
3.	MPRIF Mortality	0
4.	Mortality of Other Benefit Recipients	(209)
5.	Other Items	502
		-----
6.	Total	(\$7,637)
		-----
E.	UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTION (C+D6)	\$742
F.	CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	1,102
G.	CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	0
		-----
H.	UAAL AT END OF YEAR (E+F+G)	\$1,844
		=====

TABLE 11

**DULUTH TEACHERS' RETIREMENT FUND**  
**DETERMINATION OF CONTRIBUTION SUFFICIENCY**  
**(DOLLARS IN THOUSANDS)**

JULY 1, 1993

	<u>Percent of</u> <u>Payroll</u>	<u>Dollar</u> <u>Amount</u>
<b>A. STATUTORY CONTRIBUTIONS - CHAPTER 353</b>		
1. Employee Contributions	4.50%	\$1,897
2. Employer Contributions	5.79%	2,441
3. Total	----- 10.29% =====	----- \$4,338 =====
<b>B. REQUIRED CONTRIBUTIONS - CHAPTER 356</b>		
1. Normal Cost		
a. Retirement Benefits	6.78%	\$2,860
b. Disability benefits	0.88%	372
c. Survivors	0.22%	94
d. Deferred Retirement Benefits	0.94%	395
e. Refunds Due to Death or Withdrawal	0.35%	147
f. Total	----- 9.17% -----	----- \$3,868 -----
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL	0.21%	89
3. Allowance for Expenses	0.83%	350
4. Total	----- 10.21% -----	----- \$4,307 -----
<b>C. CONTRIBUTION SUFFICIENCY (DEFICIENCY)</b> (A3-B4)	0.08%	\$31

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1993  
is \$42,160.

**DULUTH TEACHERS' RETIREMENT FUND**  
**SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS**

<b>Interest:</b>	<b>Pre-Retirement:</b> 8.5% per annum <b>Post-Retirement:</b> 8.5% per annum
<b>Salary Increases:</b>	Reported salary increased 6.5% to current fiscal year and 6.5% annually for each future year.
<b>Mortality:</b>	<b>Pre-Retirement:</b> Male - 1971 Group Annuity Mortality Table male rates set back 8 years Female - 1971 Group Annuity Mortality Table male rates set back 8 years  <b>Post-Retirement:</b> Male - Same as above Female - Same as above  <b>Post-Disability:</b> Male - Same as above Female - Same as above
<b>Retirement Age:</b>	Age 61 for the Old Plan and age 63 for the New Plan. In addition, 30% of the Members are assumed to retire each year that they are eligible for Rule of 90.
<b>Separation:</b>	Graded rates shown in rate table.
<b>Disability:</b>	Rates as shown in rate table.
<b>Expenses:</b>	Prior year administrative expenses expressed as percentage of prior year payroll.
<b>Return of Contributions:</b>	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.



DULUTH TEACHERS' RETIREMENT FUND  
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Family Composition:	80% of Members are assumed to be married. Female is three years younger than male.
Social Security:	N/A
Benefit Increases After Retirement:	N/A
Special Consideration:	<p>Annual bonus payment totaling 1% of the year end assets is accounted for by using a 7.5% post- and pre-retirement interest rate. Members in the Old Plan are assumed to receive their retirement benefits from the New Plan. Members who terminated under the Old Plan are assumed to take refund under the New Plan.</p> <p>Married Members assumed to elect subsidized joint and survivor form of annuity as follows:</p> <p>Males - 40% elect 50% J&amp;S option 40% elect 100% J&amp;S option</p> <p>Females - 10% elect 50% J&amp;S option 10% elect 100% J&amp;S option</p>
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 6.5% per annum.

TABLE 12  
(Continued)

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Separation Expressed as Number of Occurrences Per 10,000:

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	4	4	2,000	2,000	28	28	0	0
21	4	4	1,931	1,931	28	28	0	0
22	4	4	1,731	1,731	28	28	0	0
23	4	4	1,532	1,532	28	28	0	0
24	4	4	1,332	1,332	28	28	0	0
25	5	5	1,132	1,132	28	28	0	0
26	5	5	932	932	28	28	0	0
27	5	5	732	732	28	28	0	0
28	5	5	703	703	28	28	0	0
29	5	5	673	673	28	28	0	0
30	5	5	643	643	28	28	0	0
31	6	6	612	612	28	28	0	0
32	6	6	582	582	28	28	0	0
33	6	6	552	552	28	28	0	0
34	7	7	522	522	28	28	0	0
35	7	7	491	491	29	29	0	0
36	7	7	461	461	29	29	0	0
37	8	8	430	430	30	30	0	0
38	8	8	409	409	31	31	0	0
39	9	9	389	389	31	31	0	0
40	9	9	368	368	32	32	0	0
41	10	10	347	347	33	33	0	0
42	10	10	325	325	35	35	0	0
43	11	11	304	304	37	37	0	0
44	12	12	282	282	38	38	0	0
45	13	13	260	260	41	41	0	0
46	14	14	237	237	43	43	0	0
47	15	15	214	214	46	46	0	0
48	16	16	191	191	49	49	0	0
49	18	18	167	167	53	53	0	0

TABLE 12  
(Continued)

DULUTH TEACHERS' RETIREMENT FUND  
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Separation Expressed as Number of Occurrences Per 10,000:

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
50	20	20	143	143	57	57	0	0
51	23	23	118	118	62	62	0	0
52	26	26	92	92	68	68	0	0
53	29	29	67	67	74	74	0	0
54	33	33	40	40	80	80	0	0
55	38	38	13	13	87	87	0	0
56	42	42	0	0	95	95	0	0
57	47	47	0	0	104	104	0	0
58	53	53	0	0	114	114	0	0
59	59	59	0	0	125	125	0	0
60	65	65	0	0	136	136	0	0
61	71	71	0	0	149	149	0	0
62	78	78	0	0	163	163	0	0
63	85	85	0	0	0	0	10,000	10,000
64	93	93	0	0	0	0	0	0
65	100	100	0	0	0	0	0	0
66	109	109	0	0	0	0	0	0
67	119	119	0	0	0	0	0	0
68	131	131	0	0	0	0	0	0
69	144	144	0	0	0	0	0	0
70	159	159	0	0	0	0	0	0

## DULUTH TEACHERS' RETIREMENT FUND

## ACTIVE MEMBERS AS OF JUNE 30, 1993

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									
25-29									
30-34									
35-39				14	3				17
40-44				17	47	34			98
45-49				21	38	77	26		162
50-54				9	30	55	62	12	168
55-59				10	24	20	11	14	79
60-64					9	9	1	2	21
65+							3	1	4
ALL				71	151	195	103	29	549

## AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									
25-29									
30-34									
35-39				34,355	43,271				35,928
40-44				40,998	39,768	44,183			41,513
45-49				37,921	40,270	44,779	44,004		42,708
50-54				36,560	39,890	44,615	44,742	46,904	43,550
55-59				44,068	40,812	45,002	44,864	46,942	43,935
60-64					39,993	43,914	45,112	44,363	42,333
65+							44,455	32,599	41,491
ALL				38,648	40,168	44,612	44,564	46,254	42,695

## 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				2,744	6,065	8,699	4,590	1,341	23,439

TABLE 4A  
OLD

## DULUTH TEACHERS' RETIREMENT FUND

## SERVICE RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	1							1
55-59	24	16						40
60-64	11	19	24					54
65-69		3	45	29				77
70-74		1	16	46	10			73
75-79			1	37	37	3		78
80-84				1	45	25		71
85+		1			3	45	35	84
ALL	36	40	86	113	95	73	35	478

## AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	6,649							6,649
55-59	18,535	10,833						15,454
60-64	17,497	10,177	5,866					9,752
65-69		3,098	6,040	2,256				4,500
70-74		8,606	5,092	4,611	1,694			4,372
75-79			112	4,291	3,544	1,181		3,764
80-84				4,499	4,051	4,063		4,062
85+		866			4,807	4,699	3,913	4,330
ALL	17,888	9,636	5,746	3,901	3,629	4,337	3,913	5,780

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED								
AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	643	385	494	440	344	316	136	2,762

TABLE 5A  
OLD

DULUTH TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1993

<u>AGE</u>	<u>YEARS SINCE DEATH</u>							<u>ALL</u>
	<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	1	1	1					3
50-54		1						1
55-59								
60-64		1						1
65-69	1	2	1					4
70-74		1	1	2	1	1	1	7
75-79		1	1		3	1		6
80-84		1		2	1			4
85+	1	1	1	1		1		5
ALL	3	9	5	5	5	3	1	31

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS SINCE DEATH</u>							<u>ALL</u>
	<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	1,805	10,787	533					4,375
50-54		9,354						9,354
55-59								
60-64		2,033						2,033
65-69	8,379	3,327	5,920					5,238
70-74		2,343	5,041	4,171	2,346	4,139	808	3,288
75-79		4,728	1,403		2,838	1,322		2,661
80-84		2,167		3,819	1,856			2,915
85+	3,158	2,274	2,520	3,312		3,024		2,858
ALL	4,447	4,482	3,083	3,858	2,543	2,828	808	3,561

<u>TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS SINCE DEATH</u>								
<u>AGE</u>	<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>	<u>ALL</u>
ALL	13,341	40,338	15,415	19,290	12,715	8,484	808	110,391

TABLE 6A  
OLD

DULUTH TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS DISABLED							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			1					1
50-54								
55-59					1			1
60-64								
65-69								
70-74								
75-79								
80-84								
85+								
ALL			1		1			2

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							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			6,372					6,372
50-54								
55-59					2,724			2,724
60-64								
65-69								
70-74								
75-79								
80-84								
85+								
ALL			6,372		2,724			4,548

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED								
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			6,372		2,724			9,096

TABLE 11A  
OLD

DULUTH TEACHERS' RETIREMENT FUND  
DETERMINATION OF CONTRIBUTION SUFFICIENCY  
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	<u>Percent of Payroll</u>	<u>Dollar Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.50%	\$1,138
2. Employer Contributions	5.79%	1,464
3. Total	10.29%	\$2,602
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	6.37%	\$1,610
b. Disability benefits	0.76%	191
c. Survivors	0.20%	50
d. Deferred Retirement Benefits	1.08%	272
e. Refunds Due to Death or Withdrawal	0.44%	112
f. Total	8.85%	\$2,235
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1993  
is \$25,284.



DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility:	A teacher who is employed by the Board of Education of the City of Duluth. Also includes any employees of the Retirement Fund and certain part-time employees licensed by the State Department of Education. Employees in the Old Plan are those first hired before July 1, 1981.
Contributions	
Member:	4.5% of salary.
Employer:	5.79% of salary.
Credited Service:	Earned while employed by the school district in a position with respect to which regular contributions are made. Credit is granted for service less than a legal school year on a pro rata basis.
Salary:	Annual contract salary.
Average Salary:	Average of the five highest years of annual salary.

RETIREMENT

Normal Retirement Benefit

Eligibility:	Age 60 and one year of Credited Service.
Amount:	<p>The greater of</p> <p>1.25% of Average Salary for each year of Credited Service</p> <p>or</p> <p>1% of Average Salary for each of the first 10 years of Allowable Service and 1.5% 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 service totals 90.</p> <p>or</p> <p>1.5% of Average Salary for each year of Credited Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month Member is under age 65.</p>

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Minimum benefit for employees who were Members on June 30, 1971 is equal to the actuarial equivalent of 2.4 times the accumulated regular contributions.

Early Retirement Benefit

Eligibility: Age 55 and five years of Credited Service.  
Rule of 90: Age plus Credited Service totals 90.

Amount: The greater of  
1.25% of Average Salary for each year of Credited Service with reduction of 0.25% for each month the Member is under age 60. No reduction if age plus years of Credited Service totals 90.  
or  
1% of Average Salary for each of the first 10 years of Allowable Service and 1.5% 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  
1.5% of Average Salary for each year of Credited 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:

5, 10, 15 or 20 year certain and life.  
50% or 100% joint and survivor with bounce back feature without additional reduction.  
Other equivalent options approved by the Board.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Benefit Increases:

The Board of Trustees may declare a bonus of up to 1% of the asset value of the fund at the end of the previous fiscal year. This bonus is allocated to those eligible on a prorated basis according to the combined number of years of service and years receiving a benefit. A retired Member is eligible if receiving an annuity for at least one year. Members have the option of receiving the increase in the form of a lump sum or may annuitize the increase at 7.5%.

Members retired under laws in effect before June 30, 1971 receive an additional lump-sum payment each year. In 1989 this lump-sum payment is the greater of \$25 times each full year of Credited Service or the difference between \$400 times each full year of Credited Service and the sum of the benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the fiscal year July 1, 1988 through June 30, 1989. In each following year, the lump sum will increase by the same increase that is applied to regular annuities.

DISABILITY

Disability Benefit

Eligibility:

Totally and permanently disabled as a teacher before the age of 60 with five years of Credited Service.

Amount:

Normal Retirement Benefit based on Credited Service and Average Salary at disability date without reduction for early commencement. Amount is reduced for Workers' Compensation.

Payment stops at age 60 or earlier if disability ceases or death occurs.

DULUTH TEACHERS' RETIREMENT FUND  
SUMMARY OF PLAN PROVISIONS

Form of Payment: Same as for retirement.  
Benefit Increases: Same as for retirement.

DEATH

Return of Contributions I

Eligibility: Death while active.  
Amount: Two times regular contributions accumulated with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989.

Return of Contributions II

Eligibility: Death of Member who terminated employment after 10 years of service.  
Amount: Regular contributions accumulated with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989.

Return of Contributions III

Eligibility: Death of a retired or disabled Member whose benefits have commenced in the form of a life annuity or the death of a survivor of a retired or disabled Member under a joint and survivor option.  
Amount: Excess of regular contributions accumulated with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989 over total benefits paid.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Surviving Spouse Benefit

Optional Annuity I

Eligibility: Death of active Member with 10 years of Credited Service.

Amount: In lieu of Return of Contributions I, an annuity to surviving spouse equivalent to 120% of the value of what would have been refunded.

Optional Annuity II

Eligibility: Death of active Member who is age 50 with 10 years of Credited Service. If the Member dies before age 55, benefits commence when Member would have been age 55.

Amount: In lieu of Return of Contributions I or Surviving Spouse Optional Annuity I, spouse receives survivor portion of the joint and 100% contingent annuity the Member could have elected if terminated.

TERMINATION

Refund of Employee Contributions

Eligibility: Termination from teaching service.

Amount: Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989 and 6% interest if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund if the Member has 10 years of Credited Service.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Deferred Annuity

Eligibility: Ten years of Credited Service.

Amount: Benefit computed under law in effect at termination and increased by the following annual percentage: 3% 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.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF SIGNIFICANT CHANGES

An early retirement incentive has been offered to Duluth teachers who meet the following criteria:

1. Have 25 years of combined service credit or are age 65 with one year of combined service credit.
2. Are immediately eligible to retire.
3. Are at least age 55.
4. Retire after May 16, 1993 and before August 1, 1993 (with some exceptions to January 31, 1994).

A Member who chooses to retire under this incentive may choose to receive an additional pension of .10% times years of Allowable Service (maximum 30 years) and will receive employer-paid hospital, medical and dental insurance under conditions and limitations as specified by law.

TABLE 3B  
NEW

## DULUTH TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1993

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	33								33
25-29	64	28	7						99
30-34	45	22	58	1					126
35-39	36	36	77	10					159
40-44	59	36	104	19					218
45-49	60	43	53	8					164
50-54	12	12	23	7					54
55-59	9	5	7	8					29
60-64	3	3	5						11
65+	8	1	2						11
ALL	329	186	336	53					904

## AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	1,922								1,922
25-29	1,521	13,775	25,689						6,696
30-34	1,685	15,830	25,055	35,478					15,181
35-39	1,742	17,225	26,872	33,562					19,419
40-44	2,164	17,822	33,298	34,532					22,424
45-49	6,009	26,850	31,824	34,905					21,226
50-54	2,085	20,289	27,277	35,119					21,142
55-59	1,530	28,200	32,079	38,864					23,801
60-64	1,604	3,013	19,854						10,284
65+	2,422	4,159	32,922						8,125
ALL	2,585	19,075	29,372	35,155					17,843

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	850	3,547	9,868	1,863					16,130



TABLE 4B  
NEW

DULUTH TEACHERS' RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	1							1
55-59	41	7					1	49
60-64	30	63	36					129
65-69	5	29	49					83
70-74		3	18	6				27
75-79		1		2				3
80-84								
85+								
ALL	77	103	103	8			1	292

AVERAGE ANNUAL BENEFIT

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								
50-54	9,148							9,148
55-59	18,198	17,770					13,053	18,032
60-64	19,370	10,535	8,861					12,123
65-69	11,416	9,934	8,575					9,221
70-74		5,522	5,252	7,517				5,785
75-79		4,551		10,879				8,770
80-84								
85+								
ALL	18,097	10,653	8,094	8,358			13,053	11,659

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS RETIRED								
AGE	<1	1-4	5-9	10-14	15-19	20-24	25+	ALL
ALL	1,393	1,097	833	66			13	3,404

TABLE 5B  
NEW

DULUTH TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1993

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								
50-54								
55-59	1	2						3
60-64		2	1					3
65-69			3					3
70-74		1						1
75-79								
80-84								
85+		3						3
ALL	1	8	4					13

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								
50-54								
55-59	579	15,736						10,684
60-64		4,555	6,450					5,187
65-69			8,034					8,034
70-74		9,271						9,271
75-79								
80-84								
85+		4,065						4,065
ALL	579	7,756	7,638					7,168

TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) 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	579	62,048	30,552					93,184

TABLE 6B  
NEW

DULUTH TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1993

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	1						2
50-54	1							1
55-59								
60-64	1	2						3
65-69								
70-74								
75-79								
80-84								
85+								
ALL	3	3						6

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	13,639	1,252						7,446
50-54	9,474							9,474
55-59								
60-64	12,917	15,322						14,520
65-69								
70-74								
75-79								
80-84								
85+								
ALL	12,010	10,632						11,321

AGE	TOTAL ANNUAL BENEFIT (ACTUAL DOLLARS) BY YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
ALL	36,030	31,896						67,926

TABLE 11B  
NEW

DULUTH TEACHERS' RETIREMENT FUND  
DETERMINATION OF CONTRIBUTION SUFFICIENCY  
(DOLLARS IN THOUSANDS)

JULY 1, 1993

	Percent of <u>Payroll</u>	Dollar <u>Amount</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 353		
1. Employee Contributions	4.50%	\$759
2. Employer Contributions	5.79%	977
3. Total	10.29%	\$1,736
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	7.40%	\$1,249
b. Disability benefits	1.08%	182
c. Survivors	0.26%	44
d. Deferred Retirement Benefits	0.72%	122
e. Refunds Due to Death or Withdrawal	0.21%	35
f. Total	9.67%	\$1,632
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning on July 1, 1993  
is \$16,876.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility:	A teacher who is employed by the Board of Education of the City of Duluth. Also includes any employees of the Retirement Fund and certain part-time employees licensed by the State Department of Education. Employees in the New Plan are those first hired on or after July 1, 1981 including any Old Plan Members who may elect to join any time prior to retirement.
Contributions	
Member:	4.5% of salary.
Employer:	5.79% of salary.
Allowable Service:	Earned if the Member is employed in a covered position and employee contributions are deducted. May also include certain part-time service, extended leaves of absence, sabbatical leaves, and military service.
Salary:	Total compensation. Excludes any lump-sum annual leave or sick leave payments and lump-sum payment at separation.
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 Benefit

Eligibility:	First hired before July 1, 1989: Age 65 and three years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and one year of Allowable Service. First hired after June 30, 1989: The greater of age 65 or the age eligible for full Social Security retirement benefits and three years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and one year of Allowable Service.
--------------	---

**Amount:**

The greater of 1% of average salary for each of the first 10 years of Allowable Service and 1.5% of average salary for each subsequent year.

1.5% of average salary for each year of Allowable Service.

1.5% of Average Salary for each year of Allowable Service.

Eligibility:

Rule of 90: Age plus Allowable Service totals 90.

Age 55 and three years of Allowable Service.

**Amount:**

1% of Average Salary for the first 10 years of Allowable Service and 1.5% 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.

1.5% 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.

1.5% of Average Salary for each year of Allowable Service with augmentation to the age eligible for full Social Security retirement benefits at 3% per year and actuarial reduction for each month the Member is under the Social Security retirement age.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Form of Payment: Life annuity. Actuarially equivalent options are:

5, 10, 15 or 20 year certain and life.  
50% or 100% joint and survivor with bounce back feature without additional reduction.  
A larger life annuity before age 62 and reduced thereafter.

Benefit Increases: The Board of Trustees may declare a bonus of up to 1% of the asset value of the fund at the end of the previous fiscal year. This bonus is allocated to those eligible on a prorated basis according to the combined number of years of service and years receiving a benefit. A retired Member is eligible if receiving an annuity for at least one year. Members have the option of a lump sum or may annuitize the increase at 7.5%.

Members retired under laws in effect before June 30, 1971 receive an additional lump-sum payment each year. In 1989 this lump-sum payment is \$25 times each full year of Credited Service. In each following year, the lump-sum payment will increase by the same percentage increase that is applied to regular annuities.

DISABILITY

Disability Benefit

Eligibility: Totally and permanently disabled under normal retirement age and is age 50 or older with three years of Allowable Service. Also, at least two of the years of Allowable Service must have been uninterrupted.

Amount: Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction commencement before retirement age. Benefit is reduced by Workers' Compensation.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Payments may begin 90 days after disability and stops at normal retirement age, or earlier if disability ceases or death occurs. Benefits paid while partially employed may be reduced.

Form of Payment: Same as for retirement.

Benefit Increases: Same as for retirement.

Retirement After Disability

Eligibility: Normal retirement age if still totally and permanently disabled.

Amount: 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 actuarial equivalent optional annuity.

Benefit Increase: Same as for retirement.

DEATH

Surviving Spouse  
Optional Annuity

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

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

Benefit Increases: Same as for retirement.



DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Refund of Member's  
Contributions

**Eligibility:** Member or former Member dies before receiving any disability or retirement benefits and survivor benefits are not payable.

**Amount:** Member's contributions with 5% interest if death occurred before May 16, 1989 or 6% interest if death occurred on or after May 16, 1989.

TERMINATION

Refund of Member's  
Contributions

**Eligibility:** Termination from teaching service.

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

Deferred Annuity

**Eligibility:** Three years of Allowable Service.

**Amount:** Benefit computed under law in effect at termination and increased by the following annual percentage: 3% 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.

DULUTH TEACHERS' RETIREMENT FUND

SUMMARY OF SIGNIFICANT CHANGES

1. Upon Active Member's death, immediate commencement of the survivor annuity or the actuarial equivalent term certain annuity with half of the applicable early retirement reduction factor applied to ages prior to 55. If no surviving spouse, then dependent child benefit paid to later of age 20 or five years.
2. An early retirement incentive has been offered to Duluth teachers who meet the following criteria:
  - a. Have 25 years of combined service credit or are age 65 with one year of combined service credit.
  - b. Are immediately eligible to retire.
  - c. Are at least age 55.
  - d. Retire after May 16, 1993 and before August 1, 1993 (with some exceptions to January 31, 1994).

A Member who chooses to retire under this incentive will receive an additional pension of .10% times years of Allowable Service (maximum 30 years) and will receive employer-paid hospital, medical and dental insurance under conditions and limitations as specified by law.



## MILLIMAN & ROBERTSON, INC.

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Chairman Emeritus

November 16, 1993

Mr. Lawrence A. Martin  
Executive Director  
Minnesota Legislative Commission  
on Pensions and Retirement  
55 State Office Building  
St. Paul, Minnesota 55155-1201

Dear Larry:

Enclosed are two bound copies and one loose copy of the Duluth Teachers Retirement Fund final actuarial valuation reports for July 1, 1993.

We have made only a few small changes in wording to Tables 12, 13A and 13B from the draft reports originally issued November 2, 1993.

If you have any questions regarding our report, please do not hesitate to call.

Sincerely,

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

TKC/bh

cc: Jay Stoffel, Duluth Teachers' Retirement Fund Association  
John Gunyou, Commissioner of Finance (2)  
Jim Nobles, Legislative Auditor  
Legislative Reference Library (2)

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