

DULUTH TEACHERS' RETIREMENT FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1989

THE *Wyatt* COMPANY

ACTUARIAL SERVICES
COMPENSATION PROGRAMS
ADMINISTRATIVE SYSTEMS
INTERNATIONAL SERVICES
ORGANIZATION SURVEYS

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EMPLOYEE COMMUNICATIONS
RISK MANAGEMENT
INSURANCE CONSULTING
HEALTH CARE CONSULTING

December 12, 1989

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

RE: DULUTH TEACHERS' RETIREMENT FUND


Commission Members:

We have prepared an actuarial valuation of the Fund as of July 1, 1989 based on membership and financial data supplied by the Fund.

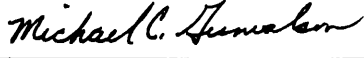
We certify that to the best of our knowledge and belief this actuarial valuation was performed in accordance with the requirements of Section 356.215, Minnesota Statutes, and the requirements of the Standards for Actuarial Work, adopted by the Commission on September 20, 1989.

Respectfully submitted,

THE WYATT COMPANY



Robert E. Perkins, FSA
Consulting Actuary



Michael C. Gunvalson, FSA
Actuary

DULUTH TEACHERS' RETIREMENT FUND

TABLE OF CONTENTS

	<u>PAGE</u>
<u>REPORT HIGHLIGHTS</u>	1
<u>COMMENTARY</u>	
Purpose	2
Report Highlights	2
Asset Information	3
Membership Data	4
Actuarial Balance Sheet	4
GASB Disclosure	5
Actuarial Cost Method	6
Sources of Actuarial Gains and Losses	7
Contribution Sufficiency	7
Projected Cash Flow	8
Changes in Plan Provisions	9
Changes in Actuarial Assumptions	11
Old and New	11
<u>ASSET INFORMATION</u>	
Table 1 Accounting Balance Sheet	12
Table 2 Changes in Assets Available for Benefits and Asset Allocation	13
<u>MEMBERSHIP DATA</u>	
Table 3 Active Members	14
Table 4 Service Retirements	15
Table 5 Disability Retirements	16
Table 6 Survivors	17
Table 7 Reconciliation of Members	18
<u>FUNDING STATUS</u>	
Table 8 Actuarial Balance Sheet	19

Table 9	Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	20
Table 10	Changes in Unfunded Actuarial Accrued Liability(UAAL)	21
Table 11	Determination of Contribution Sufficiency	22
Table 12	Projected Cash Flow	23

ACTUARIAL ASSUMPTIONS

Table 13	Summary of Actuarial Assumptions and Methods	24
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OLD

MEMBERSHIP DATA

Table 3A	Active Members	28
Table 4A	Service Retirements	29
Table 5A	Disability Retirements	30
Table 6A	Survivors	31

FUNDING STATUS

Table 11A	Determination of Contribution Sufficiency	32
-----------	---	----

PLAN PROVISIONS

Table 14A	Summary of Plan Provisions	33
-----------	----------------------------	----

NEW

MEMBERSHIP DATA

Table 3B	Active Members	37
Table 4B	Service Retirements	38
Table 5B	Disability Retirements	39
Table 6B	Survivors	40

FUNDING STATUS

Table 11B	Determination of Contribution Sufficiency	41
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PLAN PROVISIONS

Table 14B	Summary of Plan Provisions	42
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DULUTH TEACHERS' RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/88</u> <u>VALUATION</u>	<u>07/01/89</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	10.29%	10.29%
2. Required Contributions - Chapter 356 % of Payroll	11.18%	11.16%
3. Sufficiency (Deficiency) (A1-A2)	-0.89%	-0.87%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$76,279	\$86,539
b. Current Benefit Obligations (Table 8)	\$82,694	\$93,345
c. Funding Ratio (a/b)	92.24%	92.71%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$76,279	\$86,539
b. Actuarial Accrued Liability (Table 9)	\$90,759	\$99,899
c. Funding Ratio (a/b)	84.05%	86.63%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$124,717	\$133,157
b. Current and Expected Future Benefit Obligations	\$130,751	\$141,348
c. Funding Ratio (a/b)	95.39%	94.21%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	1,578	1,620
b. Projected Annual Earnings	\$38,751	\$41,314
c. Average Annual Earnings (Actual \$)	\$24,557	\$25,503
d. Average Age	42.5	42.8
e. Average Service	9.4	9.4
2. Others		
a. Service Retirements (Table 4)	625	627
b. Disability Retirements (Table 5)	10	13
c. Survivors (Table 6)	30	28
d. Deferred Retirements (Table 7)	51	43
e. Terminated Other Non-vested (Table 7)	159	304
f. Total	875	1,015

DULUTH TEACHERS' RETIREMENT FUND

COMMENTARY

Purpose

The purpose of this valuation is to determine the financial status of the Fund. 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 statutory contributions for the Duluth Teachers' Retirement Fund are deficient for 1989 by an amount of .87% of payroll. According to this valuation a contribution rate of 11.16% is required to comply with Minnesota Law.

The financial status of the Fund 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. This ratio is based on Statement No. 5 of the Governmental Accounting Standards Board. This year's ratio is 92.71%. The corresponding ratio for the prior year was 92.24%.
- 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. For 1989 the ratio is 86.63%, which is an

increase from the 1988 value of 84.05%.

- o The Projected Benefit Funding Ratio is a measure of the adequacy or deficiency in the contribution level. This ratio which is less than 100%, verifies that the current statutory contributions are inadequate.

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gains 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.

The term MPRIF appears on some of the tables with a corresponding value of zero. MPRIF stands for Minnesota Post Retirement Investment Fund, which is used by many of the public funds. For purposes of consistency all of the actuarial reports follow the same format.

Membership Data (Tables 3, 4, 5, 6 and 7)

Tables 3 through 6 summarize statistical information on members by category. Active members are grouped by age and completed years of service in Table 3. The earnings shown for these members are for the prior fiscal year except in the case of fulltime new hires where earnings have been annualized.

The service retirements are shown in Table 4 and disabled members are shown in Table 5. The annuities that are shown in Table 4 do not include the temporary higher benefit that is payable prior to the commencement of Social Security benefits under the level income option. The survivors category (Table 6) includes spouses and children of deceased members.

The reconciliation of active members in Table 7 provides a method for tracking what happened to members during the past year.

Actuarial Balance Sheet (Table 8)

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

Current funding levels are evaluated by comparing Current Assets on line A to Current Benefit Obligations on line D5. Current and future funding levels are evaluated by comparing the Total Current and Expected Future Assets on line C to the Total Current and Expected Future Benefit Obligations on line F.

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, 1989 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table. This table shows the impact of the changes in plan provisions on the liabilities under the old actuarial assumptions. See page 9 for an explanation of the changes in plan provisions.

	<u>Old Benefits</u>	<u>New Benefits</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$31,889,000	\$32,457,000
Current Employees -		
Accumulated employee contributions including allocated investment income	19,913,000 *	21,653,000 *
Employer-financed vested	29,907,000	35,251,000
Employer-financed nonvested	5,989,000	5,875,000
	-----	-----
Total Pension Benefit Obligation	\$87,698,000	\$95,236,000

* Estimated

The following table shows the impact of the change in actuarial assumptions using the new plan provisions. See page 11 for an explanation of the change in actuarial assumptions.

	<u>Old Assumptions</u>	<u>New Assumptions</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$32,457,000	\$33,293,000
Current Employees -		
Accumulated employee contributions including allocated investment income	21,653,000 *	21,653,000 *
Employer-financed vested	35,251,000	31,212,000
Employer-financed nonvested	5,875,000	7,187,000
	-----	-----
Total Pension Benefit Obligation	\$95,236,000	\$93,345,000

* Estimated

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. The major sources of gain and loss, which have been identified, are:

- o A gain from salaries where the average increase was 4.5% compared to the expected 6.5%.
- o A gain from Current Assets because the return was 13.7% instead of the assumed 8%.

Contribution Sufficiency (Table 11)

This report answers the question of "How adequate are the 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 Fund has a contribution deficiency since the Statutory Contribution Rate is 10.29% compared to the Required Contribution Rate of 11.16%.

Projected Cash Flow (Table 12)

Table 12 illustrates the anticipated cash flow over the amortization period. The cash flow begins with the Current Assets. Contributions are then added based on the present statutory rates for employers and employees. As members become eligible for payments, disbursements and expenses are made from the Fund.

This projected cash flow assumes that future payrolls increase by 6.5%. This is the only table in the report where new members are assumed to be hired in order to replace those who terminate from the active group. This open group method provides a more realistic picture of future cash flow. The statutory interest rate of 8.5% is used to project future investment return. The assumed bonus

payment of 1% has been taken out of year-end assets and added to the disbursements in the following year.

Changes in Plan Provisions

There were numerous changes in benefits in 1989 that are recognized in the July 1, 1989 actuarial valuation. The significant changes in benefits are summarized below:

- o The service requirement for the normal retirement benefit, early retirement benefit, disability benefit, surviving spouse annuity and deferred benefit for Coordinated members was reduced to 3 years. The uninterrupted service requirement for the disability benefit for Coordinated members was reduced from 5 years to 2 years.
- o The retirement benefit for Old Plan members was changed to be equal to the greater of:
 - 1.25% of average salary for each year of service. The early retirement reduction is .25% for each month that retirement precedes age 60. If a member meets the Rule of 90 requirement, there is no early retirement reduction; or
 - 1.5% of average salary for each year of service. The early retirement reduction is an actuarial equivalent reduction with augmentation at 3% per year to age 65.
- o Special rules apply to those New Plan members who were hired before

July 1, 1989. The retirement benefit was changed to be equal to the greater of:

- 1% of average salary for the first 10 years of service and 1.5% of average salary for each additional year. The early retirement reduction is .25% for each month that retirement precedes age 65 or age 62 if 30 years of service. If a member meets the Rule of 90 requirement, there is no early retirement reduction; or
 - 1.5% of average salary for each year of service. The early retirement reduction is an actuarial equivalent reduction with augmentation at 3% per year to age 65.
- o The deferred annuity is now augmented at 3% a year to age 55 and 5% a year for each year that the benefit is deferred beyond age 55.
 - o The interest rate credited on refund of member contributions was increased from 5% to 6%.
 - o The joint and survivor annuity option now provides a bounce back feature without additional reduction.

	<u>Impact Due To Changes In Plan Provisions</u>
Actuarial Accrued Liability	\$5,085,000
Projected Benefit Obligation for GASB No. 5	7,538,000
Normal Cost	1.11%
Supplemental Contribution	<u>.50%</u>
Required Contribution	1.61%

Changes in Actuarial Assumptions

The pre-retirement and post-retirement interest rate assumptions have been increased from 8.0% to 8.5% and the amortization target date has been changed to July 1, 2020. In addition, the mortality table has been changed from the 1983 Group Annuity Mortality Table for males and the 1983 Group Annuity Mortality Table set forward one year for females to the 1971 Group Annuity Mortality Table male rates set back 8 years for both males and females. This is the same table that is used by the Teachers Retirement Association. The advantage of changing to this table is that the option factors and early retirement factors for Duluth Teachers will be identical to those factors applied to the statewide teachers plan.

	Impact Due To Changes In Actuarial Assumptions		
	Interest Rate Change	Amortization Date Change	Mortality Table Change
Actuarial Accrued Liability	(\$6,097,000)	\$0,000,000	\$4,841,000
Pension Benefit Obligation			
for GASB No. 5	(6,746,000)	0,000,000	4,855,000
Normal Cost	(1.02%)	.00%	.42%
Supplemental Contribution	(.78%)	(.18%)	.52%
Required Contribution	(1.80%)	(.18%)	.94%

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, 1989

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$26,121	\$26,121
2. Investments		
a. Fixed Income	37,420	32,665
b. Equity	29,739	23,391
c. Real Estate	55	55
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	0	0
4. Other	1,896	1,896
	-----	-----
B. TOTAL ASSETS	\$95,231	\$84,128
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$1,290	\$1,290
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$14,090	\$14,090
2. Employer Reserves	79,851	68,748
3. MPRIF Reserves	0	0
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	\$93,941	\$82,838
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$95,231	\$84,128
	=====	=====
<hr/>		
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$82,838
2. Market Value (D5)	\$93,941	
3. Cost Value (D5)	82,838	

4. Market Over Cost (F2-F3)	\$11,103	
5. 1/3 of Market Over Cost(F4)/3		3,701

6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$86,539
		=====

TABLE 2

DULUTH TEACHERS' RETIREMENT FUND

CHANGES IN ASSETS AVAILABLE FOR BENEFITS AND ASSET ALLOCATION
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1989

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$83,584	\$72,626
B. OPERATING REVENUES		
1. Member Contributions	\$1,827	\$1,827
2. Employer Contributions	2,220	2,220
3. Investment Income	5,474	5,474
4. MPRIF Income	0	0
5. Net Realized Gain (Loss)	4,891	4,891
6. Other	8	8
7. Net Change in Unrealized Gain (Loss)	145	0
	-----	-----
8. Total Revenue	\$14,565	\$14,420
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$3,526	\$3,526
2. Disability Benefits	45	45
3. Survivor Benefits	97	97
4. Refunds	113	113
5. Expenses	427	427
6. Other	0	0
	-----	-----
7. Total Disbursements	\$4,208	\$4,208
	-----	-----
D. CHANGES IN ACCOUNTING METHOD	0	0
E. ASSETS AVAILABLE AT END OF YEAR	\$93,941	\$82,838
	=====	=====

TABLE 3

DULUTH TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1989

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	40	7							47
25-29	68	56	5						129
30-34	55	94	28	4					181
35-39	61	106	50	48	27				292
40-44	75	74	34	33	81	29			326
45-49	22	32	22	33	48	69	18		244
50-54	14	11	19	25	30	48	29	10	186
55-59	14	10	2	9	29	24	36	14	138
60-64	21	7		7	7	6	6	5	59
65+	13			1		3	1		18
TOTAL	383	397	160	160	222	179	90	29	1,620

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	2,765	14,415							4,500
25-29	4,226	18,258	22,304						11,018
30-34	2,870	18,005	23,741	26,739					14,486
35-39	4,038	19,638	25,023	31,982	37,189				20,953
40-44	3,477	22,085	29,023	35,707	37,770	37,239			25,152
45-49	4,269	24,716	29,705	36,043	38,317	38,139	38,682		32,356
50-54	1,819	16,452	29,235	34,224	39,910	37,560	40,836	39,860	33,336
55-59	2,526	12,880	25,821	32,897	38,074	38,683	39,181	44,424	33,165
60-64	2,115	19,558		33,970	38,078	39,987	36,658	39,444	22,758
65+	1,291			29,184		40,864	37,411		11,443
ALL	3,339	19,570	26,718	33,928	38,156	38,018	39,426	41,991	23,947

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
1,279	7,769	4,275	5,429	8,471	6,805	3,548	1,218	38,794

TABLE 4

DULUTH TEACHERS' RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	10	45						55
60-64	10	90	30					130
65-69	7	35	61	13				116
70-74		1	45	41	4			91
75-79			1	51	28	2		82
80-84					65	12		77
85+					11	35	30	76
TOTAL	27	171	137	105	108	49	30	627

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	6,018	5,723						5,777
60-64	9,282	7,954	3,086					6,933
65-69	7,786	5,707	5,364	1,747				5,208
70-74		112	4,435	3,724	1,321			3,930
75-79			4,499	3,726	3,734	1,308		3,679
80-84					4,258	3,150		4,085
85+					5,001	3,530	2,935	3,508
ALL	7,685	6,861	4,553	3,480	4,089	3,346	2,935	4,886

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
208	1,173	624	365	442	164	88	3,064

TABLE 5

DULUTH TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<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						2
50-54	1			1				2
55-59	1	2						3
60-64	1		3					4
65-69			2					2
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	3	4	5	1	0	0	0	13

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		4,089						4,089
50-54	12,743			2,724				7,734
55-59	12,164	5,902						7,989
60-64	7,874		4,283					5,181
65-69			4,639					4,639
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	10,927	4,996	4,425	2,724	0	0	0	5,970

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>TOTAL</u>
33	20	22	3	0	0	0	78

TABLE 6

DULUTH TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59		1						1
60-64		2	1					3
65-69			4		2			6
70-74				3	3	1		7
75-79					2			2
80-84				1	3	2		6
85+						2	1	3
TOTAL	0	3	5	4	10	5	1	28

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59		6,450						6,450
60-64		9,073	5,920					8,022
65-69			4,393		1,624			3,470
70-74				3,113	1,574	768		2,119
75-79					2,458			2,458
80-84				3,312	3,287	1,762		2,783
85+						1,681	1,549	1,637
ALL	0	8,198	4,699	3,163	2,275	1,531	1,549	3,310

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
0	24	23	13	23	8	2	93

DULUTH TEACHERS' RETIREMENT FUND
RECONCILIATION OF MEMBERS

TABLE 7

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On June 30, 1988	1,578	51	159
B. Additions	301	1	172
C. Deletions:			
1. Service Retirement	(25)	(1)	
2. Disability	(3)		
3. Death	(2)	0	
4. Terminated-Deferred	(1)		
5. Terminated-Refund	(58)	(9)	(26)
6. Terminated-Other Non-vested	(169)		
7. Returned as Active			0
D. Data Adjustments	(1)	1	(1)
	Vested		
	Non-Vested		
	1,006		
	614		
E. Total on June 30, 1989	1,620	43	304

	<u>RETIREMENT ANNUITANTS</u>	<u>RECIPIENTS</u>	
		<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1988	625	10	30
B. Additions	29	3	2
C. Deletions:			
1. Service Retirement		0	
2. Death	(26)	0	(4)
3. Annuity Expired	0	0	0
4. Returned as Active	0	0	
D. Data Adjustments	(1)	0	0
E. Total on June 30, 1989	627	13	28

TABLE 8

DULUTH TEACHERS' RETIREMENT FUND

ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1989

A. CURRENT ASSETS (TABLE 1, F6)				\$86,539
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions				5,169
2. Present Value of Future Normal Costs				41,449

3. Total Expected Future Assets				46,618

C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				\$133,157
				=====
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$30,782		\$30,782
b. Disability Benefits		1,088		1,088
c. Surviving Spouse and Child Benefits		832		832
2. Deferred Retirements		437		437
3. Former Members without Vested Rights		154		154
4. Active Members				
a. Retirement Annuities	451	48,785		49,236
b. Disability Benefits	5,124	0		5,124
c. Survivors' Benefits	1,517	0		1,517
d. Deferred Retirements	95	3,711		3,806
e. Refund Liability Due to Death or Withdrawal	0	369		369

5. Total Current Benefit Obligations	\$7,187	\$86,158		\$93,345
	-----	-----		-----
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				\$48,003

F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				\$141,348
				=====
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$6,806
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				\$8,191

TABLE 9

DULUTH TEACHERS' RETIREMENT FUND

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

JULY 1, 1989

	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	\$90,236	\$30,140	\$60,096
b. Disability Benefits	8,834	4,446	4,388
c. Survivors Benefits	2,494	950	1,544
d. Deferred Retirements	5,761	4,952	809
e. Refunds Due to Death or Withdrawal	730	961	(231)
f. Total	<u>\$108,055</u>	<u>\$41,449</u>	<u>\$66,606</u>
2. Deferred Retirements	\$437		\$437
3. Former Members Without Vested Rights	154		154
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	32,702		32,702
6. Total	<u>\$141,348</u>	<u>\$41,449</u>	<u>\$99,899</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$99,899
2. Current Assets (Table 1,F6)			86,539
3. UAAL (B1-B2)			<u>\$13,360</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020			\$939,818
2. Supplemental Contribution Rate (B3/C1)			1.42%

TABLE 10

DULUTH TEACHERS' RETIREMENT FUND
CHANGES IN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1989

A. UAAL AT BEGINNING OF YEAR	\$14,480
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$3,674
2. Contribution	(4,047)
3. Interest on A, B1, and B2	1,143

4. Total (B1+B2+B3)	\$770

C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$15,250
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$1,858)
2. Investment Return	(4,317)
3. MPRIIF Mortality	0
4. Mortality of Other Benefit Recipients	(649)
5. Other Items	1,105

6. Total	(\$5,719)

E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$9,531
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$5,085
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	(\$1,256)

H. UAAL AT END OF YEAR (E+F+G)	\$13,360
	=====

TABLE 11

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

JULY 1, 1989

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$1,859
2. Employer Contributions	5.79%	2,392
	-----	-----
3. Total	10.29%	\$4,251
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	6.38%	\$2,636
b. Disability Benefits	0.89%	369
c. Survivors	0.21%	85
d. Deferred Retirement Benefits	1.02%	423
e. Refunds Due to Death or Withdrawal	0.19%	79
	-----	-----
f. Total	8.69%	\$3,592
	-----	-----
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL of \$13,360	1.42%	\$587
3. Allowance for Expenses	1.05%	\$434
	-----	-----
4. Total	11.16%	\$4,613
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4)		
	-0.87%	(\$362)

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1989 is \$41,314

TABLE 12

DULUTH TEACHERS' RETIREMENT FUND

PROJECTED CASH FLOW
JULY 1, 1989

<u>FISCAL YEAR</u>	<u>STATUTORY CONTRIBUTIONS</u>	<u>TRANSFERS</u>	<u>OTHER DISBURSEMENTS</u>	<u>INVESTMENT RETURN</u>	<u>CURRENT ASSETS YEAR END</u>
1989					\$86,539
1990	\$4,251	\$0	\$5,197	\$7,316	92,909
1991	4,528	\$0	5,422	7,859	99,874
1992	4,822	\$0	5,546	8,459	107,609
1993	5,135	\$0	5,800	9,119	116,063
1994	5,469	\$0	6,287	9,831	125,076
1995	5,825	\$0	6,857	10,588	134,632
1996	6,203	\$0	7,487	11,389	144,737
1997	6,606	\$0	8,274	12,232	155,301
1998	7,036	\$0	9,080	13,114	166,371
1999	7,493	\$0	10,063	14,032	177,833
2000	7,980	\$0	10,982	14,988	189,819
2001	8,499	\$0	12,115	15,981	202,184
2002	9,051	\$0	13,350	17,003	214,888
2003	9,640	\$0	14,632	18,053	227,949
2004	10,266	\$0	15,927	19,135	241,423
2005	10,934	\$0	17,341	20,249	255,265
2006	11,644	\$0	18,768	21,395	269,536
2007	12,401	\$0	20,546	22,564	283,955
2008	13,207	\$0	21,954	23,764	298,972
2009	14,066	\$0	23,477	25,013	314,574
2010	14,980	\$0	24,843	26,320	331,031
2011	15,954	\$0	26,278	27,699	348,406
2012	16,991	\$0	27,692	29,160	366,865
2013	18,095	\$0	29,069	30,717	386,608
2014	19,271	\$0	30,759	32,373	407,493
2015	20,524	\$0	31,578	34,167	430,606
2016	21,858	\$0	33,357	36,113	455,220
2017	23,279	\$0	35,217	38,186	481,468
2018	24,792	\$0	37,010	40,406	509,656
2019	26,403	\$0	39,068	42,782	539,773
2020	28,155	\$0	41,224	45,325	572,029

DULUTH TEACHERS' RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement:
	Effective July 1, 1989: 8.5% per annum Prior to July 1, 1989: 8.0% per annum
	Post-Retirement:
	Effective July 1, 1989: 8.5% per annum Prior to July 1, 1989: 8.0% per annum
Salary Increases:	Reported salary increased 6.5% to current fiscal year and 6.5% annually for each future year.
Mortality:	Pre-Retirement:
	Effective July 1, 1989: Male - 1971 Group Annuity Mortality Table male rates set back 8 years Female - 1971 Group Annuity Mortality Table male rates set back 8 years Prior to July 1, 1989: Male - 1971 GAM female rates Female - 1971 GAM female rates
	Post-Retirement:
	Male - Same as above Female - Same as above
	Post-Disability:
	Male - Same as above Female - Same as above
Retirement Age:	Old Plan: Age 63 New Plan: Age 63 with 30 years of service or age 65. In addition, 30% of the members are assumed to retire each year that they are eligible for the Rule of 90.
Separation:	Graded rates shown in rate table.
Disability:	Rates as shown in rate table.
Expenses:	Prior year expenses expressed as percentage of prior year payroll. (1.05% of 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:	80% of Members are assumed to be married. Female is three years younger than male.

TABLE 13
(cont)

Social Security:	NA
Benefit Increases After Retirement:	NA
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.</p> <p>Members in the Old Plan are assumed to receive their retirement benefits from the New Plan. Members who terminated under 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>Male - 40% elect 50% J & S option; - 40% elect 100% J & S option;</p> <p>Female - 10% elect 50% J & S option; 10% elect 100% J & S option.</p>
Actuarial Cost Method:	<p>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.</p>
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.
Projected Cash Flow Method:	Cash flows from the Fund were projected based on the current plan benefits, participant data, and actuarial assumptions. In addition, new entrants were assumed so that the total payroll would increase by 6.5% per annum.

TABLE 13
(cont)

SEPARATIONS EXPRESSED AS THE
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
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

TABLE 13
(cont)

<u>Age</u>	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</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>
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

TABLE 3A
OLD

ACTIVE MEMBERS AS OF JUNE 30, 1989

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									0
25-29									0
30-34			16	4					20
35-39		2	18	48	27				95
40-44		1	19	33	81	29			163
45-49			11	33	48	69	18		179
50-54			7	24	30	48	29	10	148
55-59			1	9	29	24	36	14	113
60-64		1		7	7	6	6	5	32
65+				1		3	1		5
TOTAL	0	4	72	159	222	179	90	29	755

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									0
25-29									0
30-34			24,638	26,739					25,058
35-39		12,845	23,589	31,982	37,189				31,469
40-44		3,133	29,340	35,707	37,770	37,239			36,063
45-49			27,473	36,043	38,317	38,139	38,682		37,199
50-54			32,508	34,271	39,910	37,560	40,836	39,860	38,061
55-59			24,367	32,897	38,074	38,683	39,181	44,424	38,809
60-64		26,098		33,970	38,078	39,987	36,658	39,444	37,110
65+				29,184		40,864	37,411		37,837
ALL	0	13,730	26,811	33,933	38,156	38,018	39,426	41,991	36,322

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
0	55	1,930	5,395	8,472	6,805	3,548	1,218	27,423

DULUTH TEACHERS' RETIREMENT FUND

TABLE 4A
OLD

SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	7	19						26
60-64	3	36	26					65
65-69	2	18	50	13				83
70-74		1	41	41	4			87
75-79			1	51	28	2		82
80-84					65	12		77
85+					11	35	30	76
TOTAL	12	74	118	105	108	49	30	496

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	4,264	3,331						3,582
60-64	12,096	6,097	2,397					4,894
65-69	7,073	5,781	4,902	1,747				4,651
70-74		112	3,989	3,724	1,321			3,697
75-79			4,499	3,726	3,734	1,308		3,679
80-84					4,258	3,150		4,085
85+					5,001	3,530	2,935	3,508
ALL	6,690	5,229	4,030	3,480	4,089	3,346	2,935	4,036

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
80	387	476	365	442	164	88	2,002

DULUTH TEACHERS' RETIREMENT FUND

TABLE 5A
OLD

DISABILITY RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		2						2
50-54				1				1
55-59	1	2						3
60-64			3					3
65-69			2					2
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	1	4	5	1	0	0	0	11

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		4,089						4,089
50-54				2,724				2,724
55-59	12,164	5,902						7,989
60-64			4,283					4,283
65-69			4,639					4,639
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	12,164	4,996	4,425	2,724	0	0	0	5,182

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
12	20	22	3	0	0	0	57

DULUTH TEACHERS' RETIREMENT FUND

TABLE 6A
OLD

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<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
50-54								0
55-59								0
60-64			1					1
65-69			3		2			5
70-74				3	3	1		7
75-79					2			2
80-84				1	3	2		6
85+						2	1	3
TOTAL	0	0	4	4	10	5	1	24

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								0
50-54								0
55-59								0
60-64			5,920					5,920
65-69			3,872		1,624			2,973
70-74				3,113	1,574	768		2,119
75-79					2,458			2,458
80-84				3,312	3,287	1,762		2,783
85+						1,681	1,549	1,637
ALL	0	0	4,384	3,163	2,275	1,531	1,549	2,589

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>TOTAL</u>
0	0	18	13	21	8	2	62

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

TABLE 11A
OLD

JULY 1, 1989

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$1,314
2. Employer Contributions	5.79%	1,691
3. Total	----- 10.29% =====	----- \$3,005 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	6.01%	\$1,757
b. Disability Benefits	0.83%	241
c. Survivors	0.23%	66
d. Deferred Retirement Benefits	1.17%	343
e. Refunds Due to Death or Withdrawal	0.17%	49
f. Total	----- 8.41% -----	----- \$2,456 -----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1989 is \$29,205

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 Board of Education. Employees in the Old Plan are those hired before July 1, 1981 who have not elected to join the New Plan.
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 5 highest years of annual salary.
RETIREMENT	
Normal Retirement Benefit	
Eligibility	Age 60 and 1 year of Credited Service.
Amount	The greater of 1.25% of Average Salary for each year of Credited Service. 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 Member is under age 65. 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. <u>(Amended 1989)</u>
Early Retirement Benefit	
Eligibility	Age 55 and 5 years of Credited Service. Rule of 90: Age plus Credited Service totals 90. <u>(Amended 1989)</u>

TABLE 14A
OLD
(cont)

Amount	<p>The greater of</p> <p>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.</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 the Member is under age 65. <u>(Amended 1989)</u></p>
Form of Payment	<p>Life annuity.</p> <p>Actuarially equivalent options are:</p> <p>5, 10, 15 or 20 year certain and life</p> <p>50% or 100% joint and survivor with bounce back feature without additional reduction (option is cancelled if Member is pre-deceased by beneficiary)</p> <p>Other equivalent options approved by the Board. <u>(Amended 1989)</u></p>
Benefit Increases	<p>If the investment income of the fund was at least 6% of the asset value of the fund at the end of the year, 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 3 years.</p> <p>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 preceding 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. <u>(Amended 1989)</u></p>

TABLE 14A
OLD
(cont)

DISABILITY

Disability Benefit
Eligibility

Totally and permanently disabled before the age of 60 with 5 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.

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. (Amended 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. (Amended 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 in excess of benefits paid. (Amended 1989)

TABLE 14A
OLD
(cont)

Surviving Spouse
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.

Surviving Spouse
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, or 6% interest compounded annually 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. (Amended 1989)

Deferred Annuity
Eligibility

10 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. (Amended 1989)

DULUTH TEACHERS' RETIREMENT FUND

TABLE 3B
NEW

ACTIVE MEMBERS AS OF JUNE 30, 1989

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	40	7							47
25-29	68	56	5						129
30-34	55	94	12						161
35-39	61	104	32						197
40-44	75	73	15						163
45-49	22	32	11						65
50-54	14	11	12	1					38
55-59	14	10	1						25
60-64	21	6							27
65+	13								13
TOTAL	383	393	88	1	0	0	0	0	865

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	2,765	14,415							4,500
25-29	4,226	18,258	22,304						11,018
30-34	2,870	18,005	22,545						13,173
35-39	4,038	19,769	25,829						15,882
40-44	3,477	22,345	28,621						14,241
45-49	4,269	24,716	31,937						19,017
50-54	1,819	16,452	27,326	33,101					14,933
55-59	2,526	12,880	27,275						7,657
60-64	2,115	18,469							5,749
65+	1,291								1,291
ALL	3,339	19,630	26,641	33,101	0	0	0	0	13,145

PRIOR FISCAL YEAR EARNINGS (IN THOUSANDS) BY YEARS OF SERVICE

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
1,279	7,715	2,344	33	0	0	0	0	11,371

DULUTH TEACHERS' RETIREMENT FUND

TABLE 4B
NEW

SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<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
50-54								0
55-59	3	26						29
60-64	7	54	4					65
65-69	5	17	11					33
70-74			4					4
75-79								0
80-84								0
85+								0
TOTAL	15	97	19	0	0	0	0	131

AVERAGE ANNUAL ANNUITY

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
50-54								0
55-59	10,111	7,471						7,744
60-64	8,076	9,193	7,560					8,972
65-69	8,071	5,628	7,465					6,611
70-74			8,998					8,998
75-79								0
80-84								0
85+								0
ALL	8,481	8,107	7,808	0	0	0	0	8,106

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<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>	TOTAL
127	787	148	0	0	0	0	1,062

DULUTH TEACHERS' RETIREMENT FUND

TABLE 5B
NEW

DISABILITY RETIREMENTS AS OF JUNE 30, 1989

<u>AGE</u>	<u>YEARS DISABLED</u>							<u>TOTAL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54	1							1
55-59								0
60-64	1							1
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	2	0	0	0	0	0	0	2

AVERAGE ANNUAL BENEFIT

<u>AGE</u>	<u>YEARS DISABLED</u>							<u>ALL</u>
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54	12,743							12,743
55-59								0
60-64	7,874							7,874
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	10,309	0	0	0	0	0	0	10,309

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>TOTAL</u>
21	0	0	0	0	0	0	21

DULUTH TEACHERS' RETIREMENT FUND

TABLE 6B
NEW

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59		1						1
60-64		2						2
65-69			1					1
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	0	3	1	0	0	0	0	4

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59		6,450						6,450
60-64		9,073						9,073
65-69			5,958					5,958
70-74								0
75-79								0
80-84								0
85+								0
ALL	0	8,198	5,958	0	0	0	0	7,638

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

	<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
	0	25	6	0	0	0	0	31

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

TABLE 11B
NEW

JULY 1, 1989

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$545
2. Employer Contributions	5.79%	701
	-----	-----
3. Total	10.29%	\$1,246
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	7.25%	\$879
b. Disability Benefits	1.06%	128
c. Survivors	0.16%	19
d. Deferred Retirement Benefits	0.66%	80
e. Refunds Due to Death or Withdrawal	0.25%	30
	-----	-----
f. Total	9.38%	\$1,136
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1989 is \$12,109

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 Board of Education. Employees in the New Plan are those who joined on or after July 1, 1981 including any Old Plan Members who may elect to join any time prior to retirement.
Contributions	
Member	4.50% 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 payments at separation.
Average Salary	Average of the 5 highest successive years of Salary. Average Salary is based on all Allowable Service if less than 5 years. <u>(Amended 1989)</u>

RETIREMENT

Normal Retirement Benefit

Eligibility	<p>First hired before July 1, 1989: Age 65 and 3 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and 1 year of Allowable Service. <u>(Amended 1989)</u></p> <p>First hired after June 30, 1989: The greater of age 65 or the age eligible for full Social Security retirement benefits and 3 years of Allowable Service. Proportionate Retirement Annuity is available at normal retirement age and 1 year of Allowable Service. <u>(Amended 1989)</u></p>
Amount	1.5% of Average Salary for each year of Allowable Service. <u>(Amended 1989)</u>

TABLE 14B
NEW
(cont)

Early Retirement Benefit
Eligibility

Age 55 and 3 years of Allowable Service.
Any age with 30 years of Allowable Service.
Rule of 90: Age plus Allowable Service totals 90.
(Amended 1989)

Amount

Hired before July 1, 1989:

The greater of

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.

or

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. (Amended 1989)

Hired after June 30, 1989:

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. (Amended 1989)

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 (option is cancelled if Member is pre-deceased by beneficiary).

Guaranteed refund

A larger life annuity before age 62 and reduced thereafter. (Amended 1989)

Benefit Increases

If the investment income of the fund was at least 6% of the asset value of the fund at the end of the year, 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 3 years.

TABLE 14B
NEW
(cont)

Members retired under law 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 3 years of Allowable Service. Also, at least 2 of the years of Allowable Service must have been uninterrupted.
(Amended 1989)

Amount

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

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 actuarially equivalent optional annuity.

Benefit Increases

Same as for retirement.

DEATH

Surviving Spouse
Optional Annuity
Eligibility

Member who dies before retirement benefits commence, if age 50 with 3 years of Allowable Service or any age with 30 years of Allowable Service. If the Member dies

TABLE 14B
NEW
(cont)

	before age 55, benefits commence when Member would have been age 55. <u>(Amended 1989)</u>
Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated.
Benefit Increases	Same as for a retired person if payments have been made over three years. The allocation is based on the years of service if the person on whose behalf the annuity is paid and the years receiving payment.
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. <u>(Amended 1989)</u>
TERMINATION	
Refund of Member's Contributions Eligibility	Termination of teaching service.
Amount	Member's contributions with 5% interest if termination occurred before May 16, 1989, or 6% interest if death occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund. <u>(Amended 1989)</u>
Deferred Annuity Eligibility	3 years of Allowable Service. <u>(Amended 1989)</u>
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. <u>(Amended 1989)</u>