

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1989

— Minn. Stat. 356.215 Subd. 3 —

December 28, 1989

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

RE: MINNEAPOLIS 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

Robert E. Perkins, FSA
Consulting Actuary

Michael C. Gunvalson

Michael C. Gunvalson, FSA
Actuary

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE OF CONTENTS

	<u>PAGE</u>
<u>REPORT HIGHLIGHTS</u>	<u>1</u>
<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	8
Projected Cash Flow	8
Changes in Plan Provisions	9
Changes in Actuarial Assumptions	11
Impact of the 1989 Pension Law	11
Annual Post Retirement Increase	12
Basic and Coordinated	13
<u>ASSET INFORMATION</u>	
Table 1 Accounting Balance Sheet	14
Table 2 Changes in Assets Available for Benefits	15
<u>MEMBERSHIP DATA</u>	
Table 3 Active Members	16
Table 4 Service Retirements	17
Table 5 Disability Retirements	18
Table 6 Survivors	19
Table 7 Reconciliation of Members	20

FUNDING STATUS

Table 8	Actuarial Balance Sheet	21
Table 9	Determination of Unfunded Actuarial Accrued Liability (UAAL) and Supplemental Contribution Rate	22
Table 10	Changes in Unfunded Actuarial Accrued Liability(UAAL)	23
Table 11	Determination of Contribution Sufficiency	24
Table 12	Projected Cash Flow	25

ACTUARIAL ASSUMPTIONS

Table 13	Summary of Actuarial Assumptions and Methods	26
----------	----------------------------------------------	----

BASIC

MEMBERSHIP DATA

Table 3A	Active Members	30
Table 4A	Service Retirements	31
Table 5A	Disability Retirements	32
Table 6A	Survivors	33

FUNDING STATUS

Table 11A	Determination of Contribution Sufficiency	34
-----------	-------------------------------------------	----

PLAN PROVISIONS

Table 14A	Summary of Plan Provisions	35
-----------	----------------------------	----

COORDINATED

MEMBERSHIP DATA

Table 3B	Active Members	39
Table 4B	Service Retirements	40

FUNDING STATUS

Table 11B	Determination of Contribution Sufficiency	41
-----------	-------------------------------------------	----

PLAN PROVISIONS

Table 14B	Summary of Plan Provisions	42
-----------	----------------------------	----

MINNEAPOLIS TEACHERS' RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	07/01/88 <u>VALUATION</u>	07/01/89 <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	18.43%	18.21%
2. Required Contributions - Chapter 356 % of Payroll	29.76%	30.28%
3. Sufficiency (Deficiency) (A1-A2)	-11.33%	-12.07%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$360,814	\$385,146
b. Current Benefit Obligations (Table 8)	\$628,003	\$729,935
c. Funding Ratio (a/b)	57.45%	52.76%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$360,814	\$385,146
b. Actuarial Accrued Liability (Table 9)	\$667,343	\$781,132
c. Funding Ratio (a/b)	54.07%	49.31%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$586,116	\$604,871
b. Current and Expected Future Benefit Obligations	\$813,417	\$928,897
c. Funding Ratio (a/b)	72.06%	65.12%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,188	3,164
b. Projected Annual Earnings	\$114,118	\$118,036
c. Average Annual Earnings (Actual \$)	\$35,796	\$37,306
d. Average Age	44.6	45.0
e. Average Service	14.0	14.3
f. Additional Members on Leave	220	334
2. Others		
a. Service Retirements (Table 4)	2,153	2,171
b. Disability Retirements (Table 5)	40	38
c. Survivors (Table 6)	211	197
d. Deferred Retirements (Table 7)	555	525
e. Terminated Other Non-vested (Table 7)	132	139
f. Total	3,091	3,070

MINNEAPOLIS 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 Minneapolis Teachers' Retirement Fund are not sufficient for 1989 by an amount of 12.07% of payroll. According to this valuation a contribution rate of 30.28% 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 52.76%. The corresponding ratio for the prior year was 57.45%.
- 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 49.31%, which is a decrease from the 1988 value of 54.07%.

- 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. Earnings were not annualized for new hires due to problems in distinguishing between full-time and part-time members.

The service retirements are shown in Table 4 and disabled members are shown in Table 5. The survivors category (Table 6) includes spouses and children of deceased members. The benefits shown in Tables 4 through 6 include the projected increase effective January 1, 1990 for all those members who have been retired for at least twelve months.

The reconciliation of active members in Tables 7 includes members on leave of absence.

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	\$317,890,000	\$322,393,000
Current Employees -		
Accumulated employee contributions including allocated investment income	\$159,243,000 *	175,475,000 *
Employer-financed vested	\$163,160,000	186,783,000
Employer-financed nonvested	\$31,476,000	30,149,000
	-----	-----
Total Pension Benefit Obligation	\$671,769,000	\$714,800,000
* 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	\$322,393,000	\$335,772,000
Current Employees -		
Accumulated employee contributions including allocated investment income	175,475,000 *	175,475,000 *
Employer-financed vested	186,783,000	190,970,000
Employer-financed nonvested	30,149,000	27,718,000
	-----	-----
Total Pension Benefit Obligation	\$714,800,000	\$729,935,000

* 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 even though the average increase of 6.8% was higher than the assumed 6.5% increase. This gain occurred because most of the increases above 6.5% were for the younger members whose liabilities are much lower than the liabilities for the older members, who had salary increases under 6.5%.
- o A gain from Current Assets because the return was 11.8% instead of the assumed 8% (see page 11 for an explanation of the adjustments that are made to this gain).

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 18.21% compared to the Required Contribution Rate of 30.28%.

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. The disbursements represent benefit payments and expenses made directly by 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.

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 from 5 years to 3 years. The uninterrupted service requirement for the disability benefit for Coordinated members was reduced from 3 years to 2 years.
- o The retirement benefit for Basic members was changed to be equal to the greater of:
 - 2.25% of average salary for each year of service. The early retirement reduction is .25% for each month that retirement precedes age 60. If member meets the Rule of 90 requirement, there is no early retirement reduction; or
 - 2.5% of average salary for each year of service. The early retirement reduction is an actuarial equivalent reduction assuming augmentation at 3% per year to age 60.

- o Special rules apply to Coordinated 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 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 assuming augmentation at 3% per year to age 65.
- o The deferred annuity is now augmented at 5% a year for each year that the benefit is deferred beyond age 55.
- o The interest rate credited on refund of contributions was increased from 5% to 6%.
- o The joint and survivor annuity option now provides a bounce back feature without further reduction.

	<u>Impact Due To Changes In Plan Provisions</u>
Actuarial Accrued Liability	\$48,476,000
Pension Benefit Obligation for GASB No. 5	43,031,000
Normal Cost	1.21%
Supplemental Contribution	<u>1.66%</u>
Required Contribution	2.87%

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 1971 Group Annuity Mortality Table projected to 1975 set back two years for males and set back eight years for females to the 1971 Group Annuity Mortality Table male rates set back eight 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 Minneapolis Teachers will be identical to those factors applied to the statewide teachers plan.

	<u>Impact Due To Changes In Actuarial Assumptions</u>		
	<u>Interest Rate Change</u>	<u>Amortization Date Change</u>	<u>Mortality Table Change</u>
Actuarial Accrued Liability	(\$15,127,000)	\$0,000,000	\$35,015,000
Pension Benefit Obligation for GASB No. 5	(17,697,000)	0,000,000	32,832,000
Normal Cost	(1.08%)	.00%	.51%
Supplemental Contribution	<u>.09%</u>	<u>(4.77%)</u>	<u>1.31%</u>
Required Contribution	(.99%)	(4.77%)	1.82%

Impact of the 1989 Pension Law

The 1989 Pension Law (Minnesota Laws 1989, Ch. 319) enacted benefit changes

applicable to the first class city teacher plans and other public pension plans. The provisions of this new law serve to lower the Required Contribution Percentage by 2.89%. The factors that contribute to the 2.89% decrease are detailed below and were discussed in the previous two sections.

<u>1989 Pension Law</u>	<u>Impact on Required Contribution</u>
Changes in Plan Provisions	2.87%
Interest Rate Change	(.99%)
Amortization Date Change	<u>(4.77%)</u>
Total 1989 Pension Law Impact	(2.89%)

The mortality table change was not part of the 1989 Pension Law. As previously discussed, this table was adopted for consistency with the statewide teachers' plan.

Annual Post Retirement Increase

The annual post retirement increase, which is based on excess earnings, is recognized in this report by using the declared January 1, 1990 increase of 2.00%. Last year the assumed increase was 4.60%, but the actual increase paid was only 4.50%. Last year's assumed increase was based on the excess of the average time-weighted rate of return during the prior three years over the assumed 8% interest rate. The actual increase, which is determined by the Board of Trustees, is payable to members and survivors on the following January 1 unless they began receiving benefits within the last twelve months.

The investment gain reported on line 2 of Table 10 is computed as follows:

\$13,570,000 = Investment return in excess of 8% on Current Assets
 - 5,913,000 = Declared increase of 2.00% on January 1, 1990
 + 12,043,000 = Assumed increase of 4.60% on January 1, 1989
 - 11,781,000 = Actual increase of 4.50% on January 1, 1989
 \$ 7,919,000 = Investment gain for this report

Basic and Coordinated

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

TABLE 1

MINNEAPOLIS 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	\$42,705	\$42,705
2. Investments		
a. Fixed Income	102,343	99,686
b. Equity	207,940	165,011
c. Real Estate	61,062	61,062
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	0	0
4. Other	9,317	9,317
	-----	-----
B. TOTAL ASSETS	\$423,367	\$377,781
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$7,830	\$7,830
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$197,864	\$197,864
2. Employer Reserves	131,648	86,062
3. MPRIF Reserves	0	0
4. Non-MPRIF Reserves	86,025	86,025
	-----	-----
5. Total Assets Available for Benefits	\$415,537	\$369,951
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$423,367	\$377,781
	=====	=====
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$369,951
2. Market Value (D5)	\$415,537	
3. Cost Value (D5)	369,951	

4. Market Over Cost (F2-F3)	\$45,586	
5. 1/3 of Market Over Cost(F4)/3		15,195

6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$385,146
		=====

TABLE 2

MINNEAPOLIS TEACHERS' RETIREMENT FUND
CHANGES IN ASSETS AVAILABLE FOR BENEFITS
(DOLLARS IN THOUSANDS)

YEAR ENDING JUNE 30, 1989

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$382,415	\$350,013
B. OPERATING REVENUES		
1. Member Contributions	\$8,492	\$8,492
2. Employer Contributions	12,202	12,202
3. Investment Income	24,411	24,411
4. MPRIF Income	0	0
5. Net Realized Gain (Loss)	12,934	12,934
6. Other	0	0
7. Net Change in Unrealized Gain (Loss)	13,184	0
	-----	-----
8. Total Revenue	\$71,223	\$58,039
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$30,369	\$30,369
2. Disability Benefits	270	270
3. Survivor Benefits	220	220
4. Refunds	487	487
5. Expenses	2,043	2,043
6. Other	4,712	4,712
	-----	-----
7. Total Disbursements	\$38,101	\$38,101
	-----	-----
D. CHANGES IN ACCOUNTING METHOD	0	0
E. ASSETS AVAILABLE AT END OF YEAR	\$415,537	\$369,951
	=====	=====

TABLE 3

MINNEAPOLIS 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	15	4							19
25-29	33	163	23						219
30-34	43	144	56	17					260
35-39	35	130	90	95	43				393
40-44	33	93	69	91	292	121			699
45-49	21	68	51	66	136	244	41		627
50-54	10	28	33	50	69	110	122	17	439
55-59	1	11	15	29	52	79	74	51	312
60-64	2	6	5	10	38	27	34	42	164
65+			1	3	4	11	6	7	32
TOTAL	193	647	343	361	634	592	277	117	3,164

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	4,574	13,709							6,497
25-29	9,936	21,793	26,583						20,509
30-34	9,839	25,992	26,065	30,642					23,640
35-39	11,772	30,214	33,244	34,292	37,296				31,026
40-44	14,392	29,907	36,297	34,344	39,345	41,306			36,299
45-49	12,433	28,826	35,668	38,321	40,714	41,874	42,672		38,395
50-54	12,598	27,943	30,348	38,041	42,723	42,927	44,306	44,469	40,189
55-59	3,724	33,138	29,746	38,240	39,745	42,627	46,510	45,172	41,997
60-64	13,638	24,424	40,452	35,517	36,287	44,515	45,208	40,251	39,876
65+			9,200	16,093	35,393	41,815	43,239	32,391	35,787
ALL	11,008	26,758	32,203	35,589	39,692	42,173	44,740	42,539	35,029

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
2,125	17,313	11,046	12,848	25,163	24,967	12,393	4,977	110,832

TABLE 4

MINNEAPOLIS 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		1	1					2
50-54	6	24						30
55-59	10	90	35	1				136
60-64	21	130	142	14		13	7	327
65-69	4	83	236	56	5	7	3	394
70-74	1	26	136	142	16	2	1	324
75-79		1	9	162	103	14	2	291
80-84				48	176	91	16	331
85+					49	120	167	336
TOTAL	42	355	559	423	349	247	196	2,171

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		19,574	20,467					20,021
50-54	14,656	11,690						12,283
55-59	15,451	19,987	14,617	7,176				18,177
60-64	15,934	17,202	20,896	8,901		10,525	9,269	17,934
65-69	7,100	16,027	16,664	14,240	5,281	11,243	8,929	15,789
70-74	584	19,575	14,159	13,133	8,447	8,588	3,914	13,754
75-79		3,137	18,079	12,089	8,556	10,298	8,454	10,882
80-84				11,864	10,334	8,980	8,954	10,117
85+					11,224	10,464	9,716	10,203
ALL	14,430	17,402	17,031	12,582	9,775	9,918	9,583	13,526

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
606	6,178	9,521	5,322	3,411	2,450	1,878	29,366

TABLE 5

MINNEAPOLIS 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	1					3
50-54		2		1				3
55-59								0
60-64			2	1	1			4
65-69			1	6	3	1		11
70-74				4	2	2	2	10
75-79				1	2	2		5
80-84						1	1	2
85+								0
TOTAL	0	4	4	13	8	6	3	38

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		18,402	11,139					15,981
50-54		22,756		7,787				17,766
55-59								0
60-64			16,652	24,897	8,297			16,624
65-69			15,805	12,007	13,951	10,478		12,743
70-74				7,244	8,625	9,963	5,773	7,769
75-79				8,098	8,934	10,037		9,208
80-84						4,566	3,914	4,240
85+								0
TOTAL	0	20,579	15,062	10,908	10,658	9,174	5,153	11,582

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>
0	82	60	143	85	55	15	440

TABLE 6

MINNEAPOLIS 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		29	11	3				43
50-54	2	2	1	3	1	1		10
55-59	1	12	3	1	2	1	1	21
60-64	1	12	6	1	1			21
65-69	2	8	6	3		1		20
70-74		7	9	3	1	1	2	23
75-79	1	6	10	3	2	3	1	26
80-84	2	5	4	2	3		3	19
85+		3	1	3	1	1	5	14
TOTAL	9	84	51	22	11	8	12	197

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		4,551	5,187	2,574				4,576
50-54	18,650	9,396	12,950	7,204	24,247	5,671		12,057
55-59	11,528	11,772	15,336	5,161	6,390	21,384	10,929	11,860
60-64	3,723	17,883	17,194	3,282	6,850			15,792
65-69	22,017	9,709	11,925	11,604		5,219		11,664
70-74		10,086	8,062	9,436	9,383	2,936	3,751	8,317
75-79	24,335	10,748	9,633	10,478	12,654	7,502	7,828	10,470
80-84	7,888	9,077	8,283	6,426	15,723		8,372	9,444
85+		8,248	10,186	10,361	2,609	16,034	7,707	8,799
ALL	15,188	9,399	9,862	8,012	11,668	9,219	7,492	9,632

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
137	789	503	176	128	74	90	1,897

TABLE 7

MINNEAPOLIS TEACHERS' RETIREMENT FUND

RECONCILIATION OF MEMBERS

	<u>ACTIVES*</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On June 30, 1988	3,408	555	132
B. Additions	253	3	1
C. Deletions:			
1. Service Retirement	(69)	(18)	(4)
2. Disability	(1)		
3. Death	(2)	0	0
4. Terminated-Deferred	(3)		
5. Terminated-Refund	(98)	(1)	(4)
6. Terminated-Other Non-vested	(1)		
7. Returned as Active		0	0
D. Data Adjustments	11	(14)	14
	Vested 2,808		
	Non-Vested 690		
E. Total on June 30, 1989	3,498	525	139

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1988	2,153	40	211
B. Additions	107	1	22
C. Deletions:			
1. Service Retirement		0	
2. Death	(91)	(3)	(5)
3. Annuity Expired	0	0	(31)
4. Returned as Active		0	
D. Data Adjustments	2	0	0
E. Total on June 30, 1989	2,171	38	197

* Includes members on leave.

TABLE 8

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1989

A. CURRENT ASSETS (TABLE 1, F6)				\$385,146
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions				71,960
2. Present Value of Future Normal Costs				147,765
3. Total Expected Future Assets				219,725
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				\$604,871
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>	
1. Benefit Recipients				
a. Retirement Annuities		\$305,586		\$305,586
b. Disability Benefits		5,200		5,200
c. Surviving Spouse and Child Benefits		14,693		14,693
2. Deferred Retirements		9,945		9,945
3. Former Members without Vested Rights		348		348
4. Active Members				
a. Retirement Annuities	1,645	349,304		350,949
b. Disability Benefits	20,363	0		20,363
c. Survivors' Benefits	5,586	0		5,586
d. Deferred Retirements	124	14,115		14,239
e. Refund Liability Due to Death or Withdrawal	0	3,026		3,026
5. Total Current Benefit Obligations	\$27,718	\$702,217		\$729,935
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				\$198,962
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				\$928,897
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$344,789
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				\$324,026

TABLE 9

MINNEAPOLIS 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	\$532,217	\$113,654	\$418,563
b. Disability Benefits	29,248	10,848	18,400
c. Survivors Benefits	8,142	2,499	5,643
d. Deferred Retirements	19,130	6,309	12,821
e. Refunds Due to Death or Withdrawal	4,388	14,455	(10,067)
f. Total	<u>\$593,125</u>	<u>\$147,765</u>	<u>\$445,360</u>
2. Deferred Retirements	\$9,945		\$9,945
3. Former Members Without Vested Rights	348		348
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	325,479		325,479
6. Total	<u>\$928,897</u> =====	<u>\$147,765</u> =====	<u>\$781,132</u> =====
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$781,132
2. Current Assets (Table 1,F6)			385,146
3. UAAL (B1-B2)			<u>\$395,986</u> =====
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020			\$2,685,077
2. Supplemental Contribution Rate (B3/C1)			14.75%

TABLE 10

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

YEAR ENDING JUNE 30, 1989

A. UAAL AT BEGINNING OF YEAR	\$306,529
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$16,542
2. Contribution	(20,694)
3. Interest on A, B1, and B2	24,356

4. Total (B1+B2+B3)	\$20,204

C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$326,733
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$505)
2. Investment Return	(7,919)
3. MPRIF Mortality	0
4. Mortality of Other Benefit Recipients	3,415
5. Other Items	5,898

6. Total	\$889

E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$327,622
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$48,476
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	\$19,888

H. UAAL AT END OF YEAR (E+F+G)	\$395,986
	=====

TABLE 11

MINNEAPOLIS 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	7.37%	\$8,694
2. Employer Contributions	10.84%	12,795
	-----	-----
3. Total	18.21%	\$21,489
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	10.67%	\$12,602
b. Disability Benefits	1.05%	1,240
c. Survivors	0.26%	302
d. Deferred Retirement Benefits	0.50%	586
e. Refunds Due to Death or Withdrawal	1.27%	1,504
	-----	-----
f. Total	13.75%	\$16,234
	-----	-----
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL of \$395,986	14.75%	\$17,410
3. Allowance for Expenses	1.78%	\$2,101
	-----	-----
4. Total	30.28%	\$35,745
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY)		
(A3-B4)	-12.07%	(\$14,256)

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1989 is \$118,036

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 12

PROJECTED CASH FLOW
JULY 1, 1989

<u>FISCAL YEAR</u>	<u>STATUTORY CONTRIBUTIONS</u>	<u>TRANSFERS TO MPRIF</u>	<u>OTHER DISBURSEMENTS</u>	<u>INVESTMENT RETURN</u>	<u>CURRENT ASSETS YEAR END</u>
1989					\$385,146
1990	\$21,489	\$0	\$34,794	\$32,172	404,013
1991	21,211	0	41,320	33,486	417,390
1992	22,123	0	42,783	34,600	431,330
1993	22,956	0	44,944	35,729	445,071
1994	23,789	0	47,425	36,827	458,262
1995	24,643	0	50,165	37,868	470,608
1996	25,613	0	52,422	38,862	482,661
1997	26,496	0	55,643	39,787	493,301
1998	27,468	0	58,762	40,601	502,608
1999	28,356	0	62,855	41,255	509,364
2000	29,239	0	67,281	41,679	513,001
2001	30,191	0	71,737	41,839	513,294
2002	31,101	0	77,154	41,673	508,914
2003	31,930	0	83,565	41,063	498,342
2004	32,610	0	91,353	39,862	479,461
2005	33,547	0	98,507	37,993	452,494
2006	34,441	0	106,309	35,408	416,034
2007	35,012	0	117,316	31,865	365,595
2008	35,718	0	127,649	27,169	300,833
2009	37,028	0	134,928	21,410	224,343
2010	38,812	0	140,260	14,758	137,653
2011	40,656	0	145,929	7,226	39,606
2012	42,941	0	152,277	(1,280)	(71,010)
2013	45,481	0	156,454	(10,752)	(192,735)
2014	48,324	0	160,426	(21,147)	(325,984)
2015	51,344	0	161,743	(32,401)	(468,784)
2016	54,620	0	165,713	(44,568)	(624,445)
2017	58,170	0	172,894	(57,954)	(797,123)
2018	61,951	0	177,808	(72,679)	(985,659)
2019	65,978	0	183,262	(88,766)	(1,191,709)
2020	70,266	0	189,031	(106,343)	(1,416,817)

MINNEAPOLIS TEACHERS' RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	<p>Pre-Retirement:</p> <p>Effective July 1, 1989: 8.5% per annum</p> <p>Prior to July 1, 1989: 8.0% per annum</p> <p>Post-Retirement:</p> <p>Effective July 1, 1989: 8.5% per annum</p> <p>Prior to July 1, 1989: 8.0% per annum</p>
Salary Increases:	Reported salary increased 6.5% to current fiscal year and 6.5% annually for each future year.
Mortality:	<p>Pre-Retirement:</p> <p>Effective July 1, 1989:</p> <p>Male - 1971 Group Annuity Mortality Table male rates set back eight years</p> <p>Female - 1971 Group Annuity Mortality Table male rates set back eight years</p> <p>Prior to July 1, 1989:</p> <p>Male - 1971 GAM projected to 1975 by Scale D set back two years</p> <p>Female - 1971 GAM projected to 1975 by Scale D set back eight years</p> <p>Post-Retirement:</p> <p>Male - Same as above</p> <p>Female - Same as above</p> <p>Post-Disability:</p> <p>Male - Same as above</p> <p>Female - Same as above</p>
Retirement Age:	Greater of one year from valuation date and either age 60 for the Basic Plan or age 63 for the Coordinated Plan. In addition, 30% of Coordinated Members are assumed to retire each year that they are eligible for Rule of 90.
Separation:	Rates shown in table based on 1979-83 experience study.
Disability:	<p>Male-1955 UAW Table</p> <p>Female-1955 UAW Table</p>
Expenses:	Prior year expenses expressed as percentage of prior year payroll. (1.78% of payroll)

TABLE 13
(cont)

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 male Members and 60% of female Members are assumed to be married. Female is three years younger than male.
Social Security:	NA
Benefit Increases After Retirement:	2.0% per annum.
Special Considerations:	<p>Discretionary post retirement benefit increase is accounted for by increasing the reserve value for all service retirements, disability retirements and survivors eligible for the increase by an amount that equals the excess of the three year time weighted total rate of return over the assumed interest rate of 8%. This benefit increase is accounted for by using a post-retirement interest rate of 8.0%.</p> <p>Married Members assumed to elect subsidized joint and survivor form of annuity as follows:</p> <ul style="list-style-type: none"> Males - 15% elect 50% J&S option; - 50% elect 100% J&S option; Females - 10% elect 50% J&S option; - 10% elect 100% J&S option.
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.
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	1,200	1,200	3	4	0	0
21	4	4	1,150	1,150	3	4	0	0
22	4	4	1,100	1,100	3	4	0	0
23	4	4	1,050	1,050	3	5	0	0
24	4	4	1,000	1,000	3	5	0	0
25	5	5	950	950	3	5	0	0
26	5	5	900	900	4	5	0	0
27	5	5	850	850	4	5	0	0
28	5	5	800	800	4	6	0	0
29	5	5	750	750	4	6	0	0
30	5	5	700	700	4	6	0	0
31	6	6	650	650	4	6	0	0
32	6	6	600	600	4	7	0	0
33	6	6	550	550	5	7	0	0
34	7	7	500	500	5	8	0	0
35	7	7	450	450	5	8	0	0
36	7	7	400	400	6	8	0	0
37	8	8	350	350	6	9	0	0
38	8	8	300	300	6	9	0	0
39	9	9	250	250	6	10	0	0
40	9	9	200	200	7	10	0	0
41	10	10	190	190	7	11	0	0
42	10	10	180	180	8	12	0	0
43	11	11	170	170	8	13	0	0
44	12	12	160	160	9	14	0	0
45	13	13	150	150	10	15	0	0
46	14	14	140	140	11	16	0	0
47	15	15	130	130	12	18	0	0
48	16	16	120	120	14	20	0	0
49	18	18	110	110	16	23	0	0
50	20	20	100	100	18	26	0	0
51	23	23	90	90	20	29	0	0
52	26	26	80	80	23	33	0	0
53	29	29	70	70	26	37	0	0
54	33	33	60	60	30	42	0	0

TABLE 13
(cont)

Age	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>	
	Male	Female	Male	Female	Male	Female	Male	Female
55	38	38	50	50	36	49	0	0
56	42	42	40	40	42	58	0	0
57	47	47	30	30	50	68	0	0
58	53	53	20	20	59	80	0	0
59	59	59	10	10	69	94	0	0
60	65	65	0	0	90	121	0	0
61	71	71	0	0	116	154	0	0
62	78	78	0	0	146	193	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

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 3A
BASIC

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				10					10
35-39			11	78	43				132
40-44			17	64	289	121			491
45-49			14	52	128	244	41		479
50-54			11	38	69	108	122	17	365
55-59			6	28	52	78	73	51	288
60-64				8	36	27	34	38	143
65+				3	4	10	6	6	29
TOTAL	0	0	59	281	621	588	276	112	1,937

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				31,476					31,476
35-39			44,164	35,361	37,296				36,725
40-44			36,226	36,684	39,483	41,306			39,454
45-49			36,227	39,152	41,531	41,874	42,672		41,390
50-54			27,299	39,014	42,723	42,907	44,306	44,469	42,537
55-59			31,065	38,292	39,745	42,924	46,679	45,172	43,002
60-64				34,669	36,170	44,515	45,208	44,107	41,920
65+				16,093	35,393	45,808	43,239	37,200	38,985
ALL	0	0	35,517	36,786	39,917	42,274	44,779	44,277	40,989

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	0	2,096	10,337	24,789	24,856	12,359	4,959	79,396

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 4A
BASIC

SERVICE RETIREMENTS AS OF JUNE 30, 1989

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		1	1					2
50-54	6	24						30
55-59	10	90	35	1				136
60-64	21	129	142	14		13	7	326
65-69	4	83	236	56	5	7	3	394
70-74	1	26	136	142	16	2	1	324
75-79		1	9	162	103	14	2	291
80-84				48	176	91	16	331
85+					49	120	167	336
TOTAL	42	354	559	423	349	247	196	2,170

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		19,574	20,467					20,021
50-54	14,656	11,690						12,283
55-59	15,451	19,987	14,617	7,176				18,177
60-64	15,934	17,331	20,896	8,901		10,525	9,269	17,987
65-69	7,100	16,027	16,664	14,240	5,281	11,243	8,929	15,789
70-74	584	19,575	14,159	13,133	8,447	8,588	3,914	13,754
75-79		3,137	18,079	12,089	8,556	10,298	8,454	10,882
80-84				11,864	10,334	8,980	8,954	10,117
85+					11,224	10,464	9,716	10,203
ALL	14,430	17,449	17,031	12,582	9,775	9,918	9,583	13,532

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
606	6,177	9,521	5,322	3,411	2,450	1,878	29,365

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 5A
BASIC

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	1					3
50-54		2		1				3
55-59								0
60-64			2	1	1			4
65-69			1	6	3	1		11
70-74				4	2	2	2	10
75-79				1	2	2		5
80-84						1	1	2
85+								0
TOTAL	0	4	4	13	8	6	3	38

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		18,402	11,139					15,981
50-54		22,756		7,787				17,766
55-59								0
60-64			16,652	24,897	8,297			16,624
65-69			15,805	12,007	13,951	10,478		12,743
70-74				7,244	8,625	9,963	5,773	7,769
75-79				8,098	8,934	10,037		9,208
80-84						4,566	3,914	4,240
85+								0
TOTAL	0	20,579	15,062	10,908	10,658	9,174	5,153	11,582

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
0	82	60	143	85	55	15	440

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 6A
BASIC

SURVIVORS AS OF JUNE 30, 1989

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		29	11	3				43
50-54	2	2	1	3	1	1		10
55-59	1	12	3	1	2	1	1	21
60-64	1	12	6	1	1			21
65-69	2	8	6	3		1		20
70-74		7	9	3	1	1	2	23
75-79	1	6	10	3	2	3	1	26
80-84	2	5	4	2	3		3	19
85+		3	1	3	1	1	5	14
TOTAL	9	84	51	22	11	8	12	197

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		4,551	5,187	2,574				4,576
50-54	18,650	9,396	12,950	7,204	24,247	5,671		12,057
55-59	11,528	11,772	15,336	5,161	6,390	21,384	10,929	11,860
60-64	3,723	17,883	17,194	3,282	6,850			15,792
65-69	22,017	9,709	11,925	11,604		5,219		11,664
70-74		10,086	8,062	9,436	9,383	2,936	3,751	8,317
75-79	24,335	10,748	9,633	10,478	12,654	7,502	7,828	10,470
80-84	7,888	9,077	8,283	6,426	15,723		8,372	9,444
85+		8,248	10,186	10,361	2,609	16,034	7,707	8,799
ALL	15,188	9,399	9,862	8,012	11,668	9,219	7,492	9,632

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
137	789	503	176	128	74	90	1,897

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

TABLE 11A
BASIC

JULY 1, 1989

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	8.50%	\$7,187
2. Employer Contributions	13.35%	11,288
	-----	-----
3. Total	21.85%	\$18,475
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	12.20%	\$10,319
b. Disability Benefits	1.26%	1,062
c. Survivors	0.29%	245
d. Deferred Retirement Benefits	0.57%	484
e. Refunds Due to Death or Withdrawal	1.64%	1,389
	-----	-----
f. Total	15.96%	\$13,499
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1989 is \$84,557

TABLE 14A
BASIC

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility	A teacher who is employed by the Board of Education of Special School District No. 1 and who is not covered by the Social Security Act. Certain part-time licensed employees are covered as well as employees of the Minneapolis Teachers Retirement Fund (unless they belong to the Minneapolis Employees Retirement Fund).
Contributions	
Member	8.5% of Salary.
Employer	6.5% of Salary to the Retirement Fund (city contributions). 6.85% of Salary to the Contingent Fund.
Teaching Service	A year is earned during a calendar year if the Member is employed in a covered position and employee contributions are deducted. May also include certain part-time service and military service.
Salary	All compensation received as service as a teacher.
Average Annual Compensation	Average of the 5 highest consecutive years of compensation.
RETIREMENT	
Normal Retirement Benefit	
Eligibility	Age 60. Any age if 30 years of Teaching Service. <u>(Amended 1989)</u>
Amount	2.5% of Average Annual Compensation for each year of Teaching Service. <u>(Amended 1989)</u>
Early Retirement Benefit	
Eligibility	Age 55 with less than 30 years of Teaching Service. <u>(Amended 1989)</u>
Amount	The greater of 2.25% of Average Annual Compensation for each year of Teaching Service with reduction of 0.25% for each month the Member is under the age first eligible for a normal retirement benefit or

TABLE 14A
BASIC
(cont)

2.5% of Average Annual Compensation for each year of Teaching Service assuming augmentation to the age first eligible for a normal retirement benefit at 3% per year and actuarial reduction for each month the Member is under the age first eligible for a normal retirement benefit. (Amended 1989)

An alternative benefit is available to Members who are at least age 50 and have 7 years of Teaching Service. The benefit is based on the accumulation of the 6.5% "city deposits" to the Retirement Fund. Other benefits are also provided under this alternative depending on the Member's age and Teaching Service.

Form of Payment

Life annuity.
Actuarially equivalent options are:
3 or 15 year certain and life
50%, 75% or 100% joint and survivor with bounce back feature without additional reduction
(option is cancelled if Member is pre-deceased by beneficiary) (Amended 1989)

Benefit Increases

Benefits are increased 2.0% annually beginning on the January 1 or July 1 if the Member has been receiving benefits for at least 12 months. Beneficiaries are entitled to the same increase the Member would have received.

In addition, if the time weighted rate of return over the last 3 years exceeds 8%, the Board of Trustees may increase benefits on January 1 by all or a portion of the excess.

Members retired under laws in effect before May 1, 1974 and before any adjustment under Laws 1987, Chapter 372, receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of \$25 times each full year of Teaching 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. (Amended 1989)

TABLE 14A
BASIC
(Cont)

DISABILITY

Disability Benefit
Eligibility

Total and permanent disability with 3 years of Teaching Service.

Amount

An annuity based on the continued accumulation of Member and city contributions at the current rate for a period of 15 years (but not beyond age 65) plus an additional benefit equal to the smaller of 100% of the annuity provided by city contributions only or \$150 per month. A Member with 20 years of Teaching Service also receives an additional \$7.50 per month.

Payments stop if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.

Form of Payment

Same as for retirement.

Benefit Increases

Same as for retirement.

DEATH

Benefit A
Eligibility

A choice of A, B, or C.

Death before retirement.

Amount

The accumulation of Member and city contributions plus 5% interest if death occurred before May 16, 1989, or 6% interest if death occurred on or after May 16, 1989. Paid as a life annuity, 15 year certain and life, or lump sum. If an annuity is chosen the beneficiary also receives additional benefits. (Amended 1989)

Benefit B
Eligibility

An active Member with 7 years of Teaching Service. A former Member age 60 with 7 years of Teaching Service who dies before retirement or disability benefits begin.

Amount

The actuarial equivalent of any benefits the Member could have received if he had resigned on the date of death. Paid to the beneficiary in the form of a life annuity or a 15 year certain and life annuity.

Benefit C
Eligibility

An active Member who dies and leaves surviving children.

TABLE 14A
BASIC
(Cont)

Amount	A monthly benefit of \$248.30 to the surviving widow while caring for a child and an additional \$248.30 per month for each surviving dependent child. The maximum family benefit is \$579.30 per month. These benefits may be increased by the Board of Trustees.
Benefit Increases	Same as retirement.
TERMINATION	
Refund of Contributions	
Eligibility	Termination from teaching service.
	Benefits to the widow cease upon remarriage or death or when no longer caring for an eligible child. Benefits for dependent children cease upon marriage or age 18 (age 22 if full time student).
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. <u>(Amended 1989)</u>
Deferred Annuity	
Eligibility	7 years of Teaching Service.
Amount	Benefit computed under law in effect at termination and increased by the following percentage: 3% until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. In addition, the interest earned on the Member and city contributions between termination and age 60 can be applied to provide an additional annuity. <u>(Amended 1989)</u>

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 3B
COORDINATED

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	15	4							19
25-29	33	163	23						219
30-34	43	144	56	7					250
35-39	35	130	79	17					261
40-44	33	93	52	27	3				208
45-49	21	68	37	14	8				148
50-54	10	28	22	12		2			74
55-59	1	11	9	1		1	1		24
60-64	2	6	5	2	2			4	21
65+			1			1		1	3
TOTAL	193	647	284	80	13	4	1	5	1,227

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	4,574	13,709							6,497
25-29	9,936	21,793	26,583						20,509
30-34	9,839	25,992	26,065	29,452					23,327
35-39	11,772	30,214	31,723	29,383					28,144
40-44	14,392	29,907	36,320	28,797	26,113				28,850
45-49	12,433	28,826	35,457	35,235	27,640				28,700
50-54	12,598	27,943	31,872	34,961		44,034			28,610
55-59	3,724	33,138	28,867	36,784		19,488	34,199		29,938
60-64	13,638	24,424	40,452	38,906	38,388			3,619	25,959
65+			9,200			1,891		3,540	4,877
ALL	11,008	26,758	31,515	31,383	28,941	27,362	34,199	3,603	25,620

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
2,125	17,313	8,950	2,511	376	109	34	18	31,436

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 4B
COORDINATED

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								0
60-64		1						1
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
TOTAL	0	1	0	0	0	0	0	1

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								0
60-64		525						525
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
ALL	0	525	0	0	0	0	0	525

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>	<u>TOTAL</u>	
0	1	0	0	0	0	0	1	

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

TABLE 11B
COORDINATED

JULY 1, 1989

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$1,507
2. Employer Contributions	4.50%	1,507
	-----	-----
3. Total	9.00%	\$3,014
	=====	=====
 B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	6.83%	\$2,283
b. Disability Benefits	0.53%	178
c. Survivors	0.17%	57
d. Deferred Retirement Benefits	0.30%	102
e. Refunds Due to Death or Withdrawal	0.34%	115
	-----	-----
f. Total	8.17%	\$2,735
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1989 is \$33,479

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility	A teacher who is employed by the Board of Education of Special School District No. 1 and who is covered by the Social Security Act. Certain part-time licensed employees are covered as well as employees of the Minneapolis Teachers Retirement Fund (unless they belong to the Minneapolis Employees Retirement Fund).
Contributions	
Member	4.5% of Salary.
Employer	4.5% of Salary.
Allowable Service	A year is earned during a school year 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 sick leave payments or lump sum payments for annual leave or 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
COORDINATED
(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

First 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)

First hired after June 30, 1989:

1.5% of Average Salary for each year of Allowable Service assuming augmentation to the age eligible for full Social Security retirement benefits at 3% per year and actuarial reduction for each month the Member is under the Social Security retirement age.
(Amended 1989)

Form of Payment

Life annuity.

Actuarially equivalent options are:

3 or 15 year certain and life

50%, 75% or 100% joint and survivor with bounce back feature without additional reduction (option is cancelled if Member is pre-deceased by beneficiary).

Guaranteed refund

(Amended 1989)

Benefit Increases

Benefits are increased 2.0% annually beginning on the January 1 or July 1 if the Member has been receiving benefits for at least 12 months. Beneficiaries are entitled to the same increase the Member would have received.

In addition, if the time weighted rate of return over the last 3 years exceeds 8%, the Board of Trustees may increase benefits on January 1 by all or a portion of the excess.

TABLE 14B
COORDINATED
(cont)

Members retired under law in effect before May 1, 1974 and before any adjustment under Laws 1987, Chapter 372, receive an additional lump sum payment each year. In 1989, this lump sum payment is \$25 times each full year of Allowable 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

Total and permanent disability before normal retirement age 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 Worker's Compensation.

Payments stop if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.

Form of Payment

Same as for retirement.

Benefit Increases

Same as for retirement.

Retirement After Disability Eligibility

Normal retirement age with continued disability.

Amount

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

Benefit Increases

Same as for retirement.

DEATH

Surviving Spouse Annuity Eligibility

Member who dies before retirement benefits commence, if age 50 with 3 years of Allowable Service. Benefits may commence when the Member would have been qualified for a retirement benefit (earlier of age 55 or age when Member would have had 30 years of Allowable Service). (Amended 1989)

**TABLE 14B
COORDINATED
(cont)**

Amount	Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated.
Benefit Increases	Same as for retirement.
Refund of Contributions Eligibility	Member dies before receiving any retirement benefits and survivor benefits are not payable.
Amount	Member's contributions with 5% interest if death occurred before May 16, 1989, and 6% interest if death occurred on or after May 16, 1989. <u>(Amended 1989)</u>
TERMINATION	
Refund of Contributions Eligibility	Termination of 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. <u>(Amended 1989)</u>
Deferred Benefit 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>