

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1990

THE *Wyatt* COMPANY

ACTUARIAL SERVICES
COMPENSATION PROGRAMS
ADMINISTRATIVE SYSTEMS
INTERNATIONAL SERVICES
ORGANIZATION SURVEYS

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EMPLOYEE BENEFITS
EMPLOYEE COMMUNICATIONS
RISK MANAGEMENT
INSURANCE CONSULTING
HEALTH CARE CONSULTING

December 18, 1990

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

RE: MINNEAPOLIS TEACHERS' RETIREMENT FUND

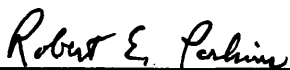
Commission Members:


We have prepared an actuarial valuation of the Fund as of July 1, 1990 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

MINNEAPOLIS TEACHERS' RETIREMENT FUND

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MINNEAPOLIS TEACHERS' RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/89 VALUATION</u>	<u>07/01/90 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	18.21%	17.36%
2. Required Contributions - Chapter 356 % of Payroll	30.28%	30.40%
3. Sufficiency (Deficiency) (A1-A2)	-12.07%	-13.04%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$385,146	\$407,966
b. Current Benefit Obligations (Table 8)	\$729,935	\$766,108
c. Funding Ratio (a/b)	52.76%	53.25%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$385,146	\$407,966
b. Actuarial Accrued Liability (Table 9)	\$781,132	\$816,647
c. Funding Ratio (a/b)	49.31%	49.96%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$604,871	\$612,564
b. Current and Expected Future Benefit Obligations	\$928,897	\$970,951
c. Funding Ratio (a/b)	65.12%	63.09%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,164	3,252
b. Projected Annual Earnings	\$118,036	\$123,784
c. Average Annual Earnings (Actual \$)	\$37,306	\$38,064
d. Average Age	45.0	44.7
e. Average Service	14.3	13.7
f. Additional Members on Leave	334	373
2. Others		
a. Service Retirements (Table 4)	2,171	2,254
b. Disability Retirements (Table 5)	38	40
c. Survivors (Table 6)	197	204
d. Deferred Retirements (Table 7)	525	519
e. Terminated Other Non-vested (Table 7)	139	134
f. Total	3,070	3,151

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 1990 by an amount of 13.04% of payroll. According to this valuation a contribution rate of 30.40% is required to comply with Minnesota Law. All plan provisions and all actuarial assumptions are the same as in the prior valuation.

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 year's ratio is 53.25%. The corresponding ratio for the prior year was 52.76%.
- 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 1990 the ratio is 49.96%, which is an increase from the 1989 value of 49.31%.

- 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 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, 1990 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table.

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$376,789,000
Current Employees -	
Accumulated employee contributions including allocated investment income	181,539,000 *
Employer-financed vested	179,321,000
Employer-financed nonvested	28,459,000

Total Pension Benefit Obligation	\$766,108,000

* Estimated

The net assets available for benefits at cost is \$392,825,000. The total Pension Benefit Obligation exceeds the assets by \$373,283,000 to produce a funded ratio of 51.28%.

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 because the average increase was 4.8% instead of the assumed 6.5% increase.
- o A gain from Current Assets because the return was 12.1% instead of the assumed 8.5%. (See page 9 for comments on annual post retirement increase).

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 17.36% compared to the Required Contribution Rate of 30.40%.

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.

The table shows that the Current Assets will decline to \$0 by the year 2011.

Changes in Plan Provisions

This valuation does not reflect any changes in plan provisions since the prior valuation.

Changes in Actuarial Assumptions

This valuation does not reflect any changes in actuarial assumptions since the prior valuation.

Discretionary Annual Post Retirement Increase

The 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. Because last year's assumed increase of 2% was the increase actually paid on January 1, 1990, and because there is no January 1, 1991 increase, no adjustment is made to the investment gain reported in Table 10.

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, 1990

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$27,320	\$27,320
2. Investments		
a. Fixed Income	124,498	127,018
b. Equity	232,939	184,997
c. Real Estate	49,253	49,253
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	0	0
4. Other	13,786	13,786
B. TOTAL ASSETS	----- \$447,796 =====	----- \$402,374 =====
C. AMOUNTS CURRENTLY PAYABLE	\$9,549	\$9,549
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$198,197	\$198,197
2. Employer Reserves	136,641	91,219
3. MPRIF Reserves	0	0
4. Non-MPRIF Reserves	103,409	103,409
5. Total Assets Available for Benefits	----- \$438,247 -----	----- \$392,825 -----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	----- \$447,796 =====	----- \$402,374 =====
<hr/>		
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$392,825
2. Market Value (D5)	\$438,247	
3. Cost Value (D5)	392,825	

4. Market Over Cost (F2-F3)	\$45,422	
5. 1/3 of Market Over Cost(F4)/3		15,141
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		----- \$407,966 =====

TABLE 2

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

YEAR ENDING JUNE 30, 1990

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$415,537	\$369,951
B. OPERATING REVENUES		
1. Member Contributions	\$8,653	\$8,653
2. Employer Contributions	12,249	12,249
3. Investment Income	24,962	24,962
4. MPRIF Income	0	0
5. Net Realized Gain (Loss)	20,164	20,164
6. Other	0	0
7. Net Change in Unrealized Gain (Loss)	(164)	0
	-----	-----
8. Total Revenue	\$65,864	\$66,028
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$35,955	\$35,955
2. Disability Benefits	272	272
3. Survivor Benefits	376	376
4. Refunds	851	851
5. Expenses	2,705	2,705
6. Other	2,995	2,995
	-----	-----
7. Total Disbursements	\$43,154	\$43,154
	-----	-----
D. CHANGES IN ACCOUNTING METHOD	0	0
E. ASSETS AVAILABLE AT END OF YEAR	\$438,247	\$392,825
	=====	=====

TABLE 3

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1990

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	13	1							14
25-29	62	148	22						232
30-34	37	138	75	10					260
35-39	77	135	93	90	27				422
40-44	64	106	87	113	219	165			754
45-49	24	72	44	66	105	287	44		642
50-54	15	43	31	50	62	131	119	18	469
55-59	8	13	9	30	40	83	84	24	291
60-64	2	7	5	12	26	33	22	31	138
65+	2	2		4	4	6	5	7	30
TOTAL	304	665	366	375	483	705	274	80	3,252

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	12,131	23,511							12,944
25-29	15,785	24,329	25,420						22,149
30-34	15,769	26,774	25,753	31,200					25,084
35-39	16,995	30,420	33,416	35,295	38,427				30,183
40-44	18,790	32,094	38,744	36,162	40,513	42,013			36,958
45-49	18,379	33,094	41,699	40,938	40,597	43,432	42,887		40,460
50-54	12,842	27,982	32,971	40,667	43,809	43,956	46,216	41,627	40,884
55-59	13,359	39,430	32,536	38,794	42,276	43,164	45,091	47,415	42,183
60-64	13,437	32,292	34,672	33,639	39,667	44,216	46,151	35,933	39,490
65+	16,486	15,419		14,962	27,542	34,702	45,041	34,603	30,315
ALL	16,551	28,847	33,585	37,166	40,831	43,128	45,310	40,542	35,741

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
5,031	19,183	12,292	13,937	19,721	30,407	12,415	3,243	116,229

TABLE 4

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			1					1
50-54	7	26	1					34
55-59	6	125	35	1				167
60-64	15	195	119	20		7	1	357
65-69	1	92	216	90	10	10	7	426
70-74		26	111	156	17	2		312
75-79			21	147	117	17	3	305
80-84				37	161	94	19	311
85+					52	115	174	341
TOTAL	29	464	504	451	357	245	204	2,254

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			20,876					20,876
50-54	14,437	14,027	15,851					14,165
55-59	28,105	20,680	17,292	7,319				20,157
60-64	16,220	18,939	20,123	13,924		9,384	4,658	18,711
65-69	16,962	17,982	17,695	16,639	6,336	13,601	9,063	17,028
70-74		19,522	14,696	14,258	6,663	8,760		14,404
75-79			16,211	13,698	9,578	9,913	4,769	11,992
80-84				11,821	10,293	9,553	10,050	10,236
85+					12,057	9,972	9,692	10,147
ALL	18,274	18,976	17,521	14,321	10,032	9,929	9,607	14,462

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
530	8,805	8,830	6,459	3,581	2,433	1,960	32,598

TABLE 5

MINNEAPOLIS TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			2					2
50-54		1	1	1				3
55-59		2						2
60-64	1		2	1	1			5
65-69			1	3	2	1		7
70-74				3	7	2	1	13
75-79				1	2	2	1	6
80-84						1	1	2
85+								0
TOTAL	1	3	6	9	12	6	3	40

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			15,642					15,642
50-54		17,618	23,734	7,943				16,432
55-59		15,875						15,875
60-64	15,286		16,985	25,395	8,463			16,623
65-69			16,121	13,805	12,480	10,688		13,312
70-74				8,307	10,290	10,162	5,090	9,412
75-79				8,260	9,113	10,238	6,686	8,941
80-84						4,658	3,992	4,325
85+								0
TOTAL	15,286	16,456	17,518	11,992	10,306	9,357	5,256	11,832

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
15	49	105	108	124	56	16	473

TABLE 6

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1990

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	4	16	22	3	1			46
50-54		3	2	3			1	9
55-59		6	1	2	2		1	12
60-64	3	10	9	4	1		1	28
65-69	1	11	7	5		1		25
70-74		7	5	2		1	2	17
75-79	4	8	8	6	3	1	2	32
80-84		6	4	2	1	3	2	18
85+	1	2	3	3	2	1	5	17
TOTAL	13	69	61	30	10	7	14	204

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8,485	3,888	4,950	4,105	5,988			4,855
50-54		18,173	11,843	3,859			5,784	10,619
55-59		18,907	13,998	16,008	6,518		11,147	15,303
60-64	21,050	17,809	11,432	9,444	6,987		21,811	14,668
65-69	9,095	14,460	11,430	12,458		5,323		12,631
70-74		9,394	8,294	10,677		2,994	3,826	8,190
75-79	9,439	13,056	10,611	11,153	11,795	7,319	12,716	11,317
80-84		9,049	7,573	8,761	10,804	14,539	7,818	9,565
85+	6,045	10,124	7,233	8,757	5,995	16,355	8,859	8,641
ALL	11,537	11,769	8,325	9,601	8,419	10,801	9,411	10,046

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH							
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
150	811	508	288	84	76	132	2,049

MINNEAPOLIS 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, 1989	3,498	525	139
B. Additions	364	11	0
C. Deletions:			
1. Service Retirement	(156)	(11)	0
2. Disability	(1)	0	0
3. Death	(9)	0	0
4. Terminated-Deferred	(10)	-	0
5. Terminated-Refund	(101)	(6)	(3)
6. Terminated-Other Non-vested	0	0	-
7. Returned as Active	-	0	0
D. Data Adjustments	40	0	(2)
	Vested		
	Non-Vested		
	2,875		
	750		
E. Total on June 30, 1990	3,625	519	134

	<u>RETIREMENT ANNUITANTS</u>	<u>RECIPIENTS</u>	
		<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1989	2,171	38	197
B. Additions	171	2	21
C. Deletions:			
1. Service Retirement	-	0	-
2. Death	(87)	0	(5)
3. Annuity Expired	0	0	(9)
4. Returned as Active	0	0	-
D. Data Adjustments	(1)	0	0
E. Total on June 30, 1990	2,254	40	204

* Includes members on leave.

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 8

**ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)**

JULY 1, 1990

A. CURRENT ASSETS (TABLE 1, F6)			\$407,966
B. EXPECTED FUTURE ASSETS			
1. Present Value of Expected Future Statutory Supplemental Contributions			50,294
2. Present Value of Future Normal Costs			154,304
3. Total Expected Future Assets			204,598
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS			\$612,564
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>
1. Benefit Recipients			
a. Retirement Annuities		\$344,151	\$344,151
b. Disability Benefits		5,504	5,504
c. Surviving Spouse and Child Benefits		15,581	15,581
2. Deferred Retirements		11,182	11,182
3. Former Members without Vested Rights		371	371
4. Active Members			
a. Retirement Annuities	1,254	343,370	344,624
b. Disability Benefits	21,343	0	21,343
c. Survivors' Benefits	5,774	0	5,774
d. Deferred Retirements	88	14,036	14,124
e. Refund Liability Due to Death or Withdrawal	0	3,454	3,454
5. Total Current Benefit Obligations	\$28,459	\$737,649	\$766,108
E. EXPECTED FUTURE BENEFIT OBLIGATIONS			\$204,843
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS			\$970,951
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)			\$358,142
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)			\$358,387

TABLE 9

MINNEAPOLIS TEACHERS' RETIREMENT FUND

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

JULY 1, 1990

	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	\$531,617	\$118,875	\$412,742
b. Disability Benefits	30,675	11,363	19,312
c. Survivors Benefits	8,518	2,673	5,845
d. Deferred Retirements	19,002	6,266	12,736
e. Refunds Due to Death or Withdrawal	4,350	15,127	(10,777)
f. Total	<u>\$594,162</u>	<u>\$154,304</u>	<u>\$439,858</u>
2. Deferred Retirements	\$11,182		\$11,182
3. Former Members Without Vested Rights	371		371
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	365,236		365,236
6. Total	<u>\$970,951</u>	<u>\$154,304</u>	<u>\$816,647</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$816,647
2. Current Assets (Table 1,F6)			407,966
3. UAAL (B1-B2)			<u>\$408,681</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020			\$2,748,300
2. Supplemental Contribution Rate (B3/C1)			14.87%

TABLE 10

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

YEAR ENDING JUNE 30, 1990

A. UAAL AT BEGINNING OF YEAR	\$395,986
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$18,291
2. Contribution	(20,902)
3. Interest on A, B1, and B2	33,548

4. Total (B1+B2+B3)	\$30,937

C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$426,923
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$11,162)
2. Investment Return	(13,280)
3. MPRIF Mortality	0
4. Mortality of Other Benefit Recipients	495
5. Other Items	5,705

6. Total	(\$18,242)

E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$408,681
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	\$0

H. UAAL AT END OF YEAR (E+F+G)	\$408,681
	=====

TABLE 11

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

JULY 1, 1990

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	7.10%	\$8,793
2. Employer Contributions	10.26%	12,700
	-----	-----
3. Total	17.36%	\$21,493
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	10.31%	\$12,767
b. Disability Benefits	1.02%	1,257
c. Survivors	0.25%	304
d. Deferred Retirement Benefits	0.46%	575
e. Refunds Due to Death or Withdrawal	1.26%	1,555
	-----	-----
f. Total	13.30%	\$16,458
	-----	-----
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL of \$408,681	14.87%	\$18,407
3. Allowance for Expenses	2.23%	\$2,760
	-----	-----
4. Total	30.40%	\$37,625
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY)		
(A3-B4)	-13.04%	(\$16,132)

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1990 is \$123,784

TABLE 12

MINNEAPOLIS TEACHERS' RETIREMENT FUND

PROJECTED CASH FLOW
JULY 1, 1990

<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>
1990					\$407,966
1991	\$21,493	\$0	\$38,912	\$33,937	424,484
1992	21,582	0	44,268	35,117	436,915
1993	22,477	0	46,242	36,128	449,278
1994	23,348	0	48,625	37,114	461,115
1995	24,245	0	51,223	38,048	472,185
1996	25,233	0	53,478	38,935	482,875
1997	26,147	0	56,663	39,747	492,106
1998	27,121	0	59,919	40,435	499,743
1999	28,045	0	63,985	40,951	504,754
2000	28,911	0	68,762	41,210	506,113
2001	29,868	0	73,487	41,166	503,660
2002	30,777	0	79,071	40,759	496,125
2003	31,588	0	85,937	39,861	481,637
2004	32,279	0	93,817	38,324	458,423
2005	33,197	0	100,667	36,098	427,051
2006	34,096	0	108,774	33,126	385,499
2007	34,662	0	119,512	29,161	329,810
2008	35,368	0	130,285	24,000	258,893
2009	36,587	0	138,284	17,684	174,880
2010	38,298	0	144,164	10,365	79,379
2011	40,105	0	150,068	2,074	0
2012	42,317	0	154,380	0	0
2013	44,800	0	159,893	0	0
2014	47,594	0	164,095	0	0
2015	50,562	0	168,434	0	0
2016	53,783	0	154,841	0	0
2017	57,279	0	159,351	0	0
2018	61,002	0	167,227	0	0
2019	64,967	0	173,137	0	0
2020	69,190	0	179,441	0	0

TABLE 13

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement: 8.5% per annum
	Post-Retirement: 8.5% per annum
Salary Increases:	Reported salary increased 6.5% to current fiscal year and 6.5% annually for each future year.
Mortality:	Pre-Retirement:
	Male - 1971 Group Annuity Mortality Table male rates set back eight years
	Female - 1971 Group Annuity Mortality Table male rates set back eight years
	Post-Retirement:
	Male - Same as above Female - Same as above
Retirement Age:	Post-Disability:
	Male - Same as above
	Female - Same as above
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:	Male-1955 UAW Table Female-1955 UAW Table
Expenses:	Prior year expenses expressed as percentage of prior year payroll. (2.23% 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 male Members and 60% of female Members are assumed to be married. Female is three years younger than male.
Social Security:	NA

TABLE 13
(cont)

Benefit Increases After Retirement: 2.0% per annum.

Special Considerations: 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%.

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

- 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)

<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	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, 1990

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				4					4
35-39			4	51	27				82
40-44			15	68	216	165			464
45-49			7	49	96	284	44		480
50-54			8	32	62	126	119	18	365
55-59			1	27	40	81	82	23	254
60-64			1	8	24	33	22	26	114
65+				3	4	5	5	6	23
TOTAL	0	0	36	242	469	694	272	73	1,786

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				31,321					31,321
35-39			34,794	37,670	38,427				37,779
40-44			40,092	38,996	40,465	42,013			40,788
45-49			44,928	40,302	41,672	43,682	42,887		42,880
50-54			29,087	40,755	43,809	44,484	46,216	41,627	44,128
55-59			32,301	38,550	42,276	43,914	45,380	49,155	43,988
60-64			21,099	33,881	39,460	44,216	46,151	42,256	42,213
65+				16,232	27,542	41,482	45,041	38,276	35,702
ALL	0	0	37,254	38,585	41,030	43,467	45,398	43,947	42,354

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	1,341	9,338	19,243	30,167	12,348	3,208	75,645

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 4A
BASIC

SERVICE RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			1					1
50-54	7	26	1					34
55-59	6	125	35	1				167
60-64	15	194	119	20		7	1	356
65-69	1	92	216	90	10	10	7	426
70-74		26	111	156	17	2		312
75-79			21	147	117	17	3	305
80-84				37	161	94	19	311
85+					52	115	174	341
TOTAL	29	463	504	451	357	245	204	2,253

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			20,876					20,876
50-54	14,437	14,027	15,851					14,165
55-59	28,105	20,680	17,292	7,319				20,157
60-64	16,220	19,034	20,123	13,924		9,384	4,658	18,762
65-69	16,962	17,982	17,695	16,639	6,336	13,601	9,063	17,028
70-74		19,522	14,696	14,258	6,663	8,760		14,404
75-79			16,211	13,698	9,578	9,913	4,769	11,992
80-84				11,821	10,293	9,553	10,050	10,236
85+					12,057	9,972	9,692	10,147
ALL	18,274	19,016	17,521	14,321	10,032	9,929	9,607	14,468

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT							
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
530	8,804	8,830	6,459	3,581	2,433	1,960	32,597

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 5A
BASIC

DISABILITY RETIREMENTS AS OF JUNE 30, 1990

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	1				3
55-59		2						2
60-64	1		2	1	1			5
65-69			1	3	2	1		7
70-74				3	7	2	1	13
75-79				1	2	2	1	6
80-84						1	1	2
85+								0
TOTAL	1	3	6	9	12	6	3	40

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50			15,642					15,642
50-54		17,618	23,734	7,943				16,432
55-59		15,875						15,875
60-64	15,286		16,985	25,395	8,463			16,623
65-69			16,121	13,805	12,480	10,688		13,312
70-74				8,307	10,290	10,162	5,090	9,412
75-79				8,260	9,113	10,238	6,686	8,941
80-84						4,658	3,992	4,325
85+								0
TOTAL	15,286	16,456	17,518	11,992	10,306	9,357	5,256	11,832

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>
15	49	105	108	124	56	16	473

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 6A
BASIC

SURVIVORS AS OF JUNE 30, 1990

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	4	16	22	3	1			46
50-54		3	2	3			1	9
55-59		6	1	2	2		1	12
60-64	3	10	9	4	1		1	28
65-69	1	11	7	5		1		25
70-74		7	5	2		1	2	17
75-79	4	8	8	6	3	1	2	32
80-84		6	4	2	1	3	2	18
85+	1	2	3	3	2	1	5	17
TOTAL	13	69	61	30	10	7	14	204

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	8,485	3,888	4,950	4,105	5,988			4,855
50-54		18,173	11,843	3,859			5,784	10,619
55-59		18,907	13,998	16,008	6,518		11,147	15,303
60-64	21,050	17,809	11,432	9,444	6,987		21,811	14,668
65-69	9,095	14,460	11,430	12,458		5,323		12,631
70-74		9,394	8,294	10,677		2,994	3,826	8,190
75-79	9,439	13,056	10,611	11,153	11,795	7,319	12,716	11,317
80-84		9,049	7,573	8,761	10,804	14,539	7,818	9,565
85+	6,045	10,124	7,233	8,757	5,995	16,355	8,859	8,641
ALL	11,537	11,769	8,325	9,601	8,419	10,801	9,411	10,046

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
150	811	508	288	84	76	132	2,049

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

TABLE 11A
BASIC

JULY 1, 1990

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	8.50%	\$6,848
2. Employer Contributions	13.35%	10,755
3. Total	----- 21.85% =====	----- \$17,603 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	12.10%	\$9,748
b. Disability Benefits	1.27%	1,026
c. Survivors	0.29%	230
d. Deferred Retirement Benefits	0.55%	446
e. Refunds Due to Death or Withdrawal	1.76%	1,414
f. Total	----- 15.97% -----	----- \$12,864 -----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1990 is \$80,561

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.
Amount	2.5% of Average Annual Compensation for each year of Teaching Service.
Early Retirement Benefit	
Eligibility	Age 55 with less than 30 years of Teaching Service.
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 2.5% of Average Annual Compensation for each

TABLE 14A
BASIC
(cont)

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.

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).

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.

**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.

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.
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.

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 3B
COORDINATED

ACTIVE MEMBERS AS OF JUNE 30, 1990

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	13	1							14
25-29	62	148	22						232
30-34	37	138	75	6					256
35-39	77	135	89	39					340
40-44	64	106	72	45	3				290
45-49	24	72	37	17	9	3			162
50-54	15	43	23	18		5			104
55-59	8	13	8	3		2	2	1	37
60-64	2	7	4	4	2			5	24
65+	2	2		1		1		1	7
TOTAL	304	665	330	133	14	11	2	7	1,466

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	12,131	23,511							12,944
25-29	15,785	24,329	25,420						22,149
30-34	15,769	26,774	25,753	31,120					24,986
35-39	16,995	30,420	33,354	32,190					28,351
40-44	18,790	32,094	38,463	31,879	43,972				30,829
45-49	18,379	33,094	41,088	42,770	29,133	19,745			33,288
50-54	12,842	27,982	34,322	40,510		30,671			29,498
55-59	13,359	39,430	32,565	40,986		12,789	33,246	7,390	29,794
60-64	13,437	32,292	38,066	33,154	42,148			3,051	26,556
65+	16,486	15,419		11,151		800		12,563	12,618
ALL	16,551	28,847	33,185	34,584	34,172	21,724	33,246	5,030	27,684

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
5,031	19,185	10,951	4,600	478	239	66	35	40,585

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 4B
COORDINATED

SERVICE RETIREMENTS AS OF JUNE 30, 1990

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		535						535
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
ALL	0	535	0	0	0	0	0	535

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, 1990

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$1,945
2. Employer Contributions	4.50%	1,945
3. Total	----- 9.00% =====	----- \$3,890 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	6.99%	\$3,019
b. Disability Benefits	0.53%	231
c. Survivors	0.17%	74
d. Deferred Retirement Benefits	0.30%	129
e. Refunds Due to Death or Withdrawal	0.33%	141
f. Total	----- 8.32% -----	----- \$3,594 -----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1990 is \$43,223

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.

RETIREMENT

Normal Retirement Benefit	
Eligibility	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. 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.
Amount	1.5% of Average Salary for each year of Allowable Service.

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.

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.

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.

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

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.

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).

**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.
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.
Deferred Benefit Eligibility	3 years of Allowable Service.
Amount	Benefit computed under law in effect at termination and increased by the following annual percentage: 3% until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.