

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1987

THE *Wyatt* COMPANY

ACTUARIES AND CONSULTANTS

EMPLOYEE BENEFITS
COMPENSATION PROGRAMS
EMPLOYEE COMMUNICATIONS
ADMINISTRATIVE SYSTEMS
RISK MANAGEMENT
INTERNATIONAL SERVICES

SUITE 1525
8400 NORMANDALE LAKE BOULEVARD
MINNEAPOLIS, MINNESOTA 55437

(612) 921-8700

OFFICES IN PRINCIPAL CITIES
AROUND THE WORLD

December 28, 1987

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, 1987 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 August 26, 1987.

Respectfully submitted,

THE WYATT COMPANY

Robert E. Perkins
Robert E. Perkins, FSA
Consulting Actuary

Michael C. Gunvalson
Michael C. Gunvalson, ASA
Associate Actuary

MINNEAPOLIS TEACHERS' RETIREMENT FUND

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COORDINATED

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MINNEAPOLIS TEACHERS' RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/86 VALUATION</u>	<u>07/01/87 VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	19.64%	18.96%
2. Required Contributions - Chapter 356 % of Payroll	32.02%	29.34%
3. Sufficiency (Deficiency) (A1-A2)	-12.38%	-10.38%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$276,360	\$336,065
b. Current Benefit Obligations (Table 8)	\$513,441	\$586,466
c. Funding Ratio (a/b)	53.83%	57.30%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$276,360	\$336,065
b. Actuarial Accrued Liability (Table 9)	\$543,886	\$626,069
c. Funding Ratio (a/b)	50.81%	53.68%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$491,884	\$569,247
b. Current and Expected Future Benefit Obligations	\$721,605	\$775,162
c. Funding Ratio (a/b)	68.17%	73.44%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	2,942	3,117
b. Projected Annual Earnings	\$97,717	\$108,398
c. Average Annual Earnings (Actual \$)	\$33,215	\$34,776
d. Average Age	44.6	44.5
e. Average Service	14.4	14.0
f. Additional Members on Leave	202	152
2. Others		
a. Service Retirements (Table 4)	2,160	2,153
b. Disability Retirements (Table 5)	45	43
c. Survivors (Table 6)	201	201
d. Deferred Retirements (Table 7)	272	352
e. Terminated Other Non-vested (Table 7)	366	358
f. Total	3,044	3,107

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 1987 by an amount of 10.38% of payroll. According to this valuation a contribution rate of 29.34% 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 57.30%. The corresponding ratio for the prior year was 53.83%.
- 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 1987 the ratio is 53.68%, which is an

increase from the 1986 value of 50.81%.

- 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

Beginning in 1984, changes in Section 356.215 of Minnesota Statutes require that the asset value used for actuarial purposes reflect a portion of the unrealized gains and losses. Only a portion of these gains and losses are considered because market values are typically volatile and could produce erratic changes in the contribution requirements from year to year.

The calculation of assets for actuarial purposes begins with the reporting of Total Assets by the Fund (Table 1, line B). These Total Assets, reduced by any Amounts Currently Payable (line C), produce the Assets Available for Benefits (line D5), which is the starting value for determining the Actuarial Value of Assets.

The calculation of the Actuarial Value of Assets is shown in Table 1 on lines F1 to F6. It combines the cost value and one-third of the difference between market value and cost value.

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 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.

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, 1988 for all those members who have been retired for at least twelve months.

The reconciliation of active members in Tables 7 and 15 include members on leave of absence.

Actuarial Balance Sheet

An actuarial balance sheet is required by Section 356.215, Subdivision 4f of Minnesota Law. This balance sheet (Table 8) establishes a method for evaluating both 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. The difference between the obligations

and the assets is shown as Current Unfunded Actuarial Liability on line G.

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of 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 first step in the calculation for active members involves projecting salaries and service to determine future benefits payable under the plan and then discounting those projected benefits to the date of the valuation. The second step is to determine the discounted value of benefits for the non-active members. The result of the first two steps is shown on line F, Total Current and Expected Future Benefit Obligations.

The third step is to determine the portion that represents Current Benefit Obligations. In the case of active members the Current Benefit Obligation is computed by attributing an equal benefit amount to each year of credited and expected future employee service. For all others, their entire liability is considered a Current Benefit Obligation.

Current and future funding levels are evaluated by comparing Current and Future Expected Assets on line C to Current and Expected Future Benefit Obligations on line F. The difference between the obligations and the assets is shown as the Current and Future Unfunded Actuarial Liability on line H.

Since line F has already been calculated, the remaining step is to determine the

Expected Future Assets . The statutory contribution rate in excess of the combined normal cost rate and expense rate is first calculated. The amount of assets for line B1 can be determined by projecting from the valuation date to the amortization date (the date for paying off all unfunded liabilities) on the assumption that total payroll is increasing at 6.5% annually and then discounted to the date of the valuation.

The Current Unfunded Actuarial Liability, line G, is a measurement of the status of the funding to the date of the valuation. The Current and Future Unfunded Actuarial Liability is a measurement of the adequacy of the current statutory contribution level.

GASB Disclosure

Table 8 shows that on July 1, 1987, the Pension Benefit Obligation consisted of the following components:

Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$280,875,000
Current Employees -	
Accumulated employee contributions	
including allocated investment income	138,632,000 *
Employer-financed vested	134,479,000
Employer-financed nonvested	<u>32,480,000</u>
Total Pension Benefit Obligation	\$586,466,000

* Estimated

Contribution Sufficiency

The approach used by the State of Minnesota to determine contribution sufficiency is the Entry Age Normal 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) shows similarities and differences. The similarity is that both approaches calculate the value of all future benefits the same way. This can be verified by comparing line F of Table 8 to line A6, column 1, of Table 9. The difference arises from the technique for allocating liabilities between 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.

An Unfunded Actuarial Accrued Liability is computed under the Entry Age Normal 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. Prior to 1984 these payments were calculated to be a level dollar amount similar to a fixed interest rate mortgage. The method of funding was changed in 1984 to produce a series of payments that remain a constant percentage of payroll each year.

Under this new approach the payments will increase 6.5% each year since 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 begin to cover not only the interest but also repay a portion of the unfunded.

Projected Cash Flow

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%. For purposes of this table only, 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% is used to project future investment return.

Plan Provisions

Significant changes were made in the plan benefits for 1987.

Most of the changes affected only current benefit recipients. The most costly change was the one time increase in benefits to any annuitant retired on or before July 1, 1986 up to a maximum of 20%. For the first time, a minimum retirement annuity was established equal to \$25 per month for each full year of service up to 30 years.

Some of the changes affected not only current, but also future annuitants. The 1.5% annual benefit increase commencing after age 65 and 24 months of benefit

payments was changed to 2.0%. This increase now applies to all annuitants, regardless of age, who have been receiving an annuity for at least 12 months.

In addition, the 1% bonus payment has been replaced by an annual post retirement increase based on the excess of the average time-weighted rate of return during the last three years over the assumed 8% interest rate. 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 in the last twelve months. The increase recognized for purposes of this valuation of 10.88% assumes the entire excess over 8% is used for benefit increases.

Vesting eligibility for Coordinated members has been reduced from 10 years to 5 years. This change applies to the Deferred Annuity, the Normal Retirement Benefit, the Early Retirement Benefit, the Disability Benefit and the Surviving Spouse Annuity.

The impact of all of these benefit changes, with one exception, is summarized in the following table. The exception is the increase based on excess earnings above 8%.

Impact of Change In Benefits

Actuarial Accrued Liability	\$ 22,353,000
Normal Cost	(2.45%)
Supplemental Contribution	<u>1.12</u>
Required Contribution	(1.33%)

The increase based on excess earnings is recognized by assuming the maximum possible benefit increase of 10.88% which increases the Unfunded Actuarial Accrued Liability by \$24,435,000. This increase in liability has been subtracted from the investment gain that would otherwise have been recognized. The investment return on the Current Assets for the year in excess of 8% is \$47,974,000. This excess return reduced by the increase in liability of \$24,435,000 produces an adjusted investment gain of \$23,539,000 (see Table 10, line D2).

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.

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 1

ACCOUNTING BALANCE SHEET (DOLLARS IN THOUSANDS)

July 1, 1987

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$6,834	\$6,834
2. Investments		
a. Fixed Income	5,437	5,868
b. Equity	308,205	220,003
c. Real Estate	72,354	72,354
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	0	0
4. Other	5,414	5,414
B. TOTAL ASSETS	<u>\$398,244</u>	<u>\$310,473</u>
C. AMOUNTS CURRENTLY PAYABLE	\$3,665	\$3,665
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$173,893	\$173,893
2. Employer Reserves	147,592	59,821
3. MPRIF Reserves	0	0
4. Non-MPRIF Reserves	73,094	73,094
5. Total Assets Available for Benefits	<u>\$394,579</u>	<u>\$306,808</u>
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	<u>\$398,244</u>	<u>\$310,473</u>
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$306,808
2. Market Value (D5)	\$394,579	
3. Cost Value (D5)	306,808	
4. Market Over Cost (F2-F3)	<u>\$87,771</u>	
5. 1/3 of Market Over Cost(F4)/3		29,257
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		<u>\$336,065</u>

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

TABLE 2

YEAR ENDING JUNE 30, 1987

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$338,291	\$245,394
B. OPERATING REVENUES		
1. Member Contributions	\$7,936	\$7,936
2. Employer Contributions	12,051	12,051
3. Investment Income	18,353	18,353
4. MPRIF Income	0	0
5. Net Realized Gain (Loss)	53,040	53,040
6. Other	0	0
7. Net Change in Unrealized Gain (Loss)	(5,126)	0
	-----	-----
8. Total Revenue	\$86,254	\$91,380
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$21,813	\$21,813
2. Disability Benefits	268	268
3. Survivor Benefits	160	160
4. Refunds	476	476
5. Expenses	1,432	1,432
6. Other	5,817	5,817
	-----	-----
7. Total Disbursements	\$29,966	\$29,966
	-----	-----
D. CHANGES IN ACCOUNTING METHOD	0	0
E. ASSETS AVAILABLE AT END OF YEAR	\$394,579	\$306,808
	=====	=====

TABLE 3

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1987

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	27	14							41
25-29	68	132	16						216
30-34	59	97	72	17					245
35-39	59	78	84	131	114				466
40-44	35	75	67	96	362	70			705
45-49	28	44	51	58	164	161	38		544
50-54	14	16	27	44	105	87	98	12	403
55-59	3	7	12	33	68	75	76	48	322
60-64		2	7	17	34	29	23	28	140
65+			3	3	7	7	6	9	35
TOTAL	293	465	339	399	854	429	241	97	3,117

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	12,561	19,287							14,858
25-29	16,204	21,110	21,258						19,577
30-34	17,825	25,708	25,472	27,042					23,833
35-39	20,506	27,286	31,345	29,728	33,714				29,418
40-44	18,629	25,715	30,144	35,124	37,476	38,059			34,330
45-49	17,532	23,218	31,673	35,578	38,841	39,391	41,041		35,777
50-54	19,617	22,058	27,298	33,337	38,280	41,092	41,929	39,841	37,253
55-59	21,438	33,931	28,218	32,806	35,715	41,000	41,334	40,712	38,268
60-64		16,485	29,855	28,762	37,126	40,690	40,209	40,814	37,434
65+			29,029	16,006	37,317	34,695	38,927	31,344	32,996
ALL	17,694	24,198	28,949	32,270	37,180	39,811	41,363	39,765	32,654

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
5,184	11,252	9,814	12,876	31,752	17,079	9,968	3,857	101,782

TABLE 4

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		2						2
50-54	3	12	1					16
55-59	16	83	33					132
60-64	14	149	118	12	6	10	4	313
65-69	5	100	211	43	13	7	3	382
70-74	1	21	143	139	11	1	2	318
75-79			2	200	112	17	2	333
80-84		1		60	179	81	27	348
85+					33	103	173	309
TOTAL	39	368	508	454	354	219	211	2,153

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		10,184						10,184
50-54	2,901	5,144	6,665					4,818
55-59	21,714	19,323	12,869					17,999
60-64	10,064	16,656	18,675	3,244	8,646	8,780	5,105	16,055
65-69	7,696	13,738	15,228	10,618	8,939	11,310	3,992	13,846
70-74	15,013	16,997	12,403	10,802	8,024	1,768	2,523	11,767
75-79			507	9,465	8,438	10,856	5,301	9,111
80-84		5,597		11,746	9,392	7,947	7,029	9,268
85+					10,654	10,382	7,916	9,031
ALL	14,116	16,043	15,005	10,120	9,136	9,436	7,618	11,881

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
551	5,904	7,623	4,595	3,234	2,066	1,607	25,580

TABLE 5

MINNEAPOLIS TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	2						3
50-54		2	1					3
55-59			1		1			2
60-64			5	1				6
65-69			3	6	3		2	14
70-74				6	2	1	1	10
75-79				1	1	1		3
80-84							1	1
85+							1	1
TOTAL	1	4	10	14	7	2	5	43

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	18,479	14,303						15,695
50-54		21,489	7,353					16,777
55-59			17,091		7,835			12,463
60-64			15,575	12,567				15,074
65-69			10,976	9,420	10,837		4,604	9,369
70-74				7,979	9,744	9,037	6,190	8,259
75-79				7,991	8,881	2,859		6,577
80-84							3,303	3,303
85+							5,498	5,498
TOTAL	18,479	17,896	13,525	8,925	9,817	5,948	4,840	10,583

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
18	72	135	125	69	12	24	455

TABLE 6

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1987

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	26	10	8				45
50-54	2	1	7	4	1	1		16
55-59	2	5	7	1	1	1	1	18
60-64	2	8	4	2	2			18
65-69	1	4	3	3	1	1	1	14
70-74	2	11	13	4	2			32
75-79	4	8	5	4	3	3		27
80-84	1	7	3	1	1	1	2	16
85+		2		4		2	7	15
TOTAL	15	72	52	31	11	9	11	201

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	15,088	4,952	4,765	6,145				5,348
50-54	10,880	5,088	6,658	9,741	7,155	5,355		7,808
55-59	16,183	22,089	15,048	5,532	4,578	20,193	13,147	16,200
60-64	14,648	12,603	11,107	6,081	3,572			10,769
65-69	706	6,508	11,640	5,627	2,393	2,664	551	6,010
70-74	7,172	7,785	9,488	7,828	11,949			8,704
75-79	9,187	9,556	7,795	6,760	14,576	5,048		8,818
80-84	5,367	12,385	9,286	8,821	8,636	5,960	3,054	9,340
85+		4,278		4,892		13,773	5,348	6,207
ALL	10,378	8,729	9,021	6,756	8,867	8,540	5,204	8,429

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
156	628	469	209	98	77	57	1,694

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 7

RECONCILIATION OF MEMBERS

	<u>ACTIVES</u>	<u>TERMINATED</u>	
		<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On June 30, 1986	3,144	272	366
B. Additions	367	106	17
C. Deletions:			
1. Service Retirement	(55)	(7)	(5)
2. Disability	(1)		
3. Death	(1)	0	0
4. Terminated-Deferred	(106)		
5. Terminated-Refund	(66)	(1)	(7)
6. Terminated-Other Non-vested	(17)		
7. Returned as Active		(20)	(11)
D. Data Adjustments	4	2	(2)
	Vested 2,328		
	Non-Vested 941		
E. Total on June 30, 1987	3,269	352	358

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1986	2,160	45	201
B. Additions	79	2	21
C. Deletions:			
1. Service Retirement		0	
2. Death	(85)	(3)	(7)
3. Annuity Expired	0	0	(14)
4. Returned as Active		(1)	
D. Data Adjustments	(1)	0	0
E. Total on June 30, 1987	2,153	43	201

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 8

ACTUARIAL BALANCE SHEET (DOLLARS IN THOUSANDS)

JULY 1, 1987

A. CURRENT ASSETS (TABLE 1, F6)				\$336,065
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions				84,089
2. Present Value of Future Normal Costs				149,093
3. Total Expected Future Assets				233,182
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				\$569,247
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>	
1. Benefit Recipients				
a. Retirement Annuities		\$251,637		\$251,637
b. Disability Benefits		5,254		5,254
c. Surviving Spouse and Child Benefits		12,764		12,764
2. Deferred Retirements		10,684		10,684
3. Former Members without Vested Rights		536		536
4. Active Members				
a. Retirement Annuities	6,180	256,174		262,354
b. Disability Benefits	18,752	0		18,752
c. Survivors' Benefits	7,096	0		7,096
d. Deferred Retirements	452	13,542		13,994
e. Refund Liability Due to Death or Withdrawal	0	3,395		3,395
5. Total Current Benefit Obligations	\$32,480	\$553,986		\$586,466
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				\$188,696
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				\$775,162
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$250,401
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				\$205,915

TABLE 9

MINNEAPOLIS TEACHERS' RETIREMENT FUND

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

JULY 1, 1987

	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	\$431,302	\$112,839	\$318,463
b. Disability Benefits	27,978	11,330	16,648
c. Survivors Benefits	10,464	3,414	7,050
d. Deferred Retirements	18,961	7,641	11,320
e. Refunds Due to Death or Withdrawal	5,582	13,869	(8,287)
f. Total	<u>\$494,287</u>	<u>\$149,093</u>	<u>\$345,194</u>
2. Deferred Retirements	\$10,684		\$10,684
3. Former Members Without Vested Rights	536		536
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	269,655		269,655
6. Total AAL	<u>\$775,162</u>	<u>\$149,093</u>	<u>\$626,069</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$626,069
2. Current Assets (Table 1,F6)			336,065
3. UAAL (B1-B2)			<u>\$290,004</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2009			\$1,983,221
2. Supplemental Contribution Rate (B3/C1)			14.62%

TABLE 10

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

YEAR ENDING JUNE 30, 1987

A. UAAL AT BEGINNING OF YEAR	\$267,526
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$17,931
2. Contribution	(19,987)
3. Interest on A, B1, and B2	21,320

4. Total (B1+B2+B3)	\$19,264

C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$286,790
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$5,831)
2. Investment Return	(23,539)
3. MPRIF Mortality	0
4. Mortality of Other Benefit Recipients	(953)
5. Other Items	11,184

6. Total	(\$19,139)

E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$267,651
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$22,353
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	\$0

H. UAAL AT END OF YEAR (E+F+G)	\$290,004
	=====

TABLE 11

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

JULY 1, 1987

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	7.60%	\$8,238
2. Employer Contributions	11.36%	12,312
3. Total	----- 18.96% =====	----- \$20,550 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	10.16%	\$11,017
b. Disability Benefits	1.06%	1,151
c. Survivors	0.35%	374
d. Deferred Retirement Benefits	0.64%	694
e. Refunds Due to Death or Withdrawal	1.12%	1,217
f. Total	----- 13.33% -----	----- \$14,453 -----
2. Supplemental Contribution Amortization by July 1, 2009 of UAAL of \$290,004	14.62%	\$15,848
3. Allowance for Expenses	1.39%	\$1,507
4. Total	----- 29.34%	----- \$31,808
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4)	-10.38%	(\$11,258)

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1987 is \$108,398

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 12

PROJECTED CASH FLOW JULY 1, 1987

<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>
1987					\$336,065
1988	\$20,550	\$0	\$30,861	\$26,473	352,227
1989	20,659	0	34,602	27,620	365,904
1990	21,482	0	35,907	28,695	380,174
1991	22,358	0	37,291	29,817	395,058
1992	23,176	0	38,996	30,972	410,210
1993	24,100	0	40,732	32,152	425,730
1994	24,934	0	43,064	33,333	440,933
1995	25,788	0	45,596	34,482	455,607
1996	26,649	0	48,245	35,585	469,596
1997	27,689	0	50,521	36,654	483,418
1998	28,622	0	53,663	37,672	496,049
1999	29,656	0	56,746	38,600	507,559
2000	30,645	0	60,452	39,412	517,164
2001	31,608	0	64,670	40,051	524,153
2002	32,654	0	68,998	40,478	528,287
2003	33,688	0	74,221	40,642	528,396
2004	34,652	0	80,335	40,444	523,157
2005	35,456	0	88,036	39,749	510,326
2006	36,534	0	94,781	38,496	490,575
2007	37,585	0	102,179	36,662	462,643
2008	38,315	0	111,806	34,072	423,224
2009	39,190	0	120,813	30,593	372,194
2010	40,742	0	128,221	26,276	310,991
2011	42,768	0	132,964	21,271	242,066
2012	44,941	0	137,700	15,655	164,962

TABLE 13

MINNEAPOLIS TEACHERS' RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement: 8% per annum Post-Retirement: 8% 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 GAM projected to 1975 by Scale D set back two years Female - 1971 GAM projected to 1975 by Scale D set back eight years Post-Retirement: Male - Same as above Female - Same as above Post-Disability: Male - Same as above Female - Same as above
Retirement Age:	Greater of one year from valuation date and either age 61 for the Basic Plan or age 63 for the Coordinated Plan.
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. (1.39% 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.

TABLE 13
(cont)

Social Security:	NA
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%.
Actuarial Cost Method:	Entry Age Normal 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	5	4	1,200	1,200	3	4	0	0
21	5	4	1,150	1,150	3	4	0	0
22	5	4	1,100	1,100	3	4	0	0
23	5	4	1,050	1,050	3	5	0	0
24	5	4	1,000	1,000	3	5	0	0
25	6	4	950	950	3	5	0	0
26	6	5	900	900	4	5	0	0
27	6	5	850	850	4	5	0	0
28	6	5	800	800	4	6	0	0
29	7	5	750	750	4	6	0	0
30	7	5	700	700	4	6	0	0
31	7	6	650	650	4	6	0	0
32	8	6	600	600	4	7	0	0
33	8	6	550	550	5	7	0	0
34	9	6	500	500	5	8	0	0
35	10	7	450	450	5	8	0	0
36	10	7	400	400	6	8	0	0
37	11	7	350	350	6	9	0	0
38	12	8	300	300	6	9	0	0
39	13	8	250	250	6	10	0	0
40	14	9	200	200	7	10	0	0
41	15	10	190	190	7	11	0	0
42	16	10	180	180	8	12	0	0
43	17	11	170	170	8	13	0	0
44	19	12	160	160	9	14	0	0
45	22	13	150	150	10	15	0	0
46	25	14	140	140	11	16	0	0
47	28	15	130	130	12	18	0	0
48	32	16	120	120	14	20	0	0
49	37	17	110	110	16	23	0	0
50	41	19	100	100	18	26	0	0
51	46	22	90	90	20	29	0	0
52	51	25	80	80	23	33	0	0
53	57	28	70	70	26	37	0	0
54	63	32	60	60	30	42	0	0

TABLE 13
(cont)

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
55	69	37	50	50	36	49	0	0
56	76	41	40	40	42	58	0	0
57	83	46	30	30	50	68	0	0
58	90	51	20	20	59	80	0	0
59	98	57	10	10	69	94	0	0
60	106	63	0	0	90	121	0	0
61	116	69	0	0	116	154	0	0
62	128	76	0	0	146	193	0	0
63	141	83	0	0	0	0	10,000	10,000
64	155	90	0	0	0	0	0	0
65	170	98	0	0	0	0	0	0
66	187	106	0	0	0	0	0	0
67	207	116	0	0	0	0	0	0
68	231	128	0	0	0	0	0	0
69	257	141	0	0	0	0	0	0
70	285	155	0	0	0	0	0	0

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 3A
BASIC

ACTIVE MEMBERS AS OF JUNE 30, 1987

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			18	16					34
35-39		3	24	126	113				266
40-44		5	29	91	362	70			557
45-49		3	14	54	161	161	38		431
50-54			19	43	105	87	98	12	364
55-59			5	31	66	75	76	48	301
60-64			3	16	34	28	23	26	130
65+			3	3	7	6	6	8	33
TOTAL	0	11	115	380	848	427	241	94	2,116

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			27,241	27,098					27,174
35-39		21,487	35,858	29,925	33,706				31,972
40-44		30,239	34,145	35,776	37,476	38,059			37,033
45-49		38,457	30,367	36,448	38,855	39,391	41,041		38,668
50-54			28,729	33,786	38,280	41,092	41,929	39,841	38,957
55-59			30,965	34,117	35,988	41,000	41,334	40,712	39,064
60-64			28,146	30,222	37,126	42,053	40,209	43,536	38,958
65+			29,029	16,006	37,317	40,080	38,927	34,481	34,734
ALL	0	30,094	31,639	32,816	37,204	39,986	41,363	40,852	37,274

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	331	3,638	12,470	31,550	17,074	9,968	3,840	78,871

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 4A
BASIC

SERVICE RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		2						2
50-54	3	12	1					16
55-59	16	83	33					132
60-64	14	149	118	12	6	10	4	313
65-69	5	100	211	43	13	7	3	382
70-74	1	21	143	139	11	1	2	318
75-79			2	200	112	17	2	333
80-84		1		60	179	81	27	348
85+					33	103	173	309
TOTAL	39	368	508	454	354	219	211	2,153

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		10,184						10,184
50-54	2,901	5,144	6,665					4,818
55-59	21,714	19,323	12,869					17,999
60-64	10,064	16,656	18,675	3,244	8,646	8,780	5,105	16,055
65-69	7,696	13,738	15,228	10,618	8,939	11,310	3,992	13,846
70-74	15,013	16,997	12,403	10,802	8,024	1,768	2,523	11,767
75-79			507	9,465	8,438	10,856	5,301	9,111
80-84		5,597		11,746	9,392	7,947	7,029	9,268
85+					10,654	10,382	7,916	9,031
ALL	14,116	16,043	15,005	10,120	9,136	9,436	7,618	11,881

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
551	5,904	7,623	4,595	3,234	2,066	1,607	25,580

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 5A
BASIC

DISABILITY RETIREMENTS AS OF JUNE 30, 1987

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	2						3
50-54		2	1					3
55-59			1		1			2
60-64			5	1				6
65-69			3	6	3		2	14
70-74				6	2	1	1	10
75-79				1	1	1		3
80-84							1	1
85+							1	1
TOTAL	1	4	10	14	7	2	5	43

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	18,479	14,303						15,695
50-54		21,489	7,353					16,777
55-59			17,091		7,835			12,463
60-64			15,575	12,567				15,074
65-69			10,976	9,420	10,837		4,604	9,369
70-74				7,979	9,744	9,037	6,190	8,259
75-79				7,991	8,881	2,859		6,577
80-84							3,303	3,303
85+							5,498	5,498
TOTAL	18,479	17,896	13,525	8,925	9,817	5,948	4,840	10,583

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
18	72	135	125	69	12	24	455

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 6A
BASIC

SURVIVORS AS OF JUNE 30, 1987

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	1	26	10	8				45
50-54	2	1	7	4	1	1		16
55-59	2	5	7	1	1	1	1	18
60-64	2	8	4	2	2			18
65-69	1	4	3	3	1	1	1	14
70-74	2	11	13	4	2			32
75-79	4	8	5	4	3	3		27
80-84	1	7	3	1	1	1	2	16
85+		2		4		2	7	15
TOTAL	15	72	52	31	11	9	11	201

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50	15,088	4,952	4,765	6,145				5,348
50-54	10,880	5,088	6,658	9,741	7,155	5,355		7,808
55-59	16,183	22,089	15,048	5,532	4,578	20,193	13,147	16,200
60-64	14,648	12,603	11,107	6,081	3,572			10,769
65-69	706	6,508	11,640	5,627	2,393	2,664	551	6,010
70-74	7,172	7,785	9,488	7,828	11,949			8,704
75-79	9,187	9,556	7,795	6,760	14,576	5,048		8,818
80-84	5,367	12,385	9,286	8,821	8,636	5,960	3,054	9,340
85+		4,278		4,892		13,773	5,348	6,207
ALL	10,378	8,729	9,021	6,756	8,867	8,540	5,204	8,429

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
156	628	469	209	98	77	57	1,694

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

TABLE 11A
BASIC

JULY 1, 1987

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	8.50%	\$7,140
2. Employer Contributions	13.35%	11,214
3. Total	----- 21.85% =====	----- \$18,354 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	11.13%	\$9,358
b. Disability Benefits	1.24%	1,042
c. Survivors	0.39%	326
d. Deferred Retirement Benefits	0.80%	669
e. Refunds Due to Death or Withdrawal	1.30%	1,089
f. Total	----- 14.86% -----	----- \$12,484 -----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1987 is \$83,998

MINNEAPOLIS TEACHERS' RETIREMENT FUND**TABLE 14A
BASIC****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, if hired before 7/1/77.
Amount	2.25% of Average Annual Compensation for each year of Teaching Service.
Early Retirement Benefit	
Eligibility	Under age 60 with 30 years of Teaching Service, if hired after 7/1/77.
Amount	Normal Retirement Benefit based on Teaching Service and Average Annual Compensation at retirement date with reduction of 0.25% for each month the Member is under age 60 at time of retirement. 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%

TABLE 14A
BASIC
(cont)

"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

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. (Amended 1987)

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. (Amended 1987)

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. (Amended 1987)

DEATH

Benefit A
Eligibility

A choice of A, B, or C.

Death before retirement.

Amount

The accumulation of Member and city contributions plus interest. Paid as a life annuity, 15 year certain and life, or lump sum. If an annuity is chosen the beneficiary also receives additional benefits.

TABLE 14A
BASIC
(cont)

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.
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. 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).
Benefit Increases	Same as retirement. <u>(Amended 1987)</u>
TERMINATION	
Refund of Contributions Eligibility	Termination from teaching service.
Amount	Member's contributions with interest as determined by the Board of Trustees. 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 becomes payable at age 60. 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, 1987

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	27	14							41
25-29	68	132	16						216
30-34	59	97	54	1					211
35-39	59	75	60	5	1				200
40-44	35	70	38	5					148
45-49	28	41	37	4	3				113
50-54	14	16	8	1					39
55-59	3	7	7	2	2				21
60-64		2	4	1		1		2	10
65+						1		1	2
TOTAL	293	454	224	19	6	2	0	3	1,001

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	12,561	19,287							14,858
25-29	16,204	21,110	21,258						19,577
30-34	17,825	25,708	24,882	26,131					23,294
35-39	20,506	27,518	29,540	24,741	34,620				26,022
40-44	18,629	25,392	27,091	23,251					24,156
45-49	17,532	22,102	32,167	23,834	38,104				24,752
50-54	19,617	22,058	23,899	13,994					21,353
55-59	21,438	33,931	26,255	12,482	26,705				26,857
60-64		16,485	31,136	5,392		2,535		5,422	17,629
65+						2,389		6,248	4,319
ALL	17,694	24,055	27,568	21,357	33,724	2,462	0	5,697	22,888

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
5,184	10,922	6,175	406	202	5	0	17	22,911

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

TABLE 11B
COORDINATED

JULY 1, 1987

	<u>% OF</u> <u>PAYROLL</u>	<u>\$</u> <u>AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$1,098
2. Employer Contributions	4.50%	1,098
3. Total	----- 9.00% =====	----- \$2,196 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	6.80%	\$1,659
b. Disability Benefits	0.45%	109
c. Survivors	0.20%	48
d. Deferred Retirement Benefits	0.10%	25
e. Refunds Due to Death or Withdrawal	0.52%	128
f. Total	----- 8.07% -----	----- \$1,969 -----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1987 is \$24,400

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 14B
COORDINATED

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.

RETIREMENT

Normal Retirement Benefit

Eligibility	Age 65 and 5 years of Allowable Service. <u>(Amended 1987)</u> Age 62 and 30 years of Allowable Service.
Amount	1% of Average Salary for the first 10 years of Allowable Service and 1.5% of Average Salary for each subsequent year.

Early Retirement Benefit

Eligibility	Age 55 and 5 years of Allowable Service. <u>(Amended 1987)</u> Any age with 30 years of Allowable Service.
Amount	Normal Retirement Benefit based on Allowable Service and Average Salary at retirement date with reduction for benefits commencing prior to the normal retirement age 65 (age 62 if 30 years of Allowable Service). The monthly reduction factor is 0.50% from normal retirement to age 60 and 0.25% from age 60 to the date benefits begin.

TABLE 14B
COORDINATED
(cont)

Form of Payment	<p>Life annuity.</p> <p>Actuarially equivalent options are:</p> <p>3 or 15 year certain and life</p> <p>50%, 75% or 100% bounce back joint and survivor (option is cancelled if Member is pre-deceased by beneficiary).</p> <p>Guaranteed refund</p> <p>A larger life annuity before age 62 and reduced thereafter.</p>
Benefit Increases	<p>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. <u>(Amended 1987)</u></p> <p>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. <u>(Amended 1987)</u></p>
DISABILITY	
Disability Benefit Eligibility	<p>Total and permanent disability before age 65 with 5 years of Allowable Service. Also, the last 3 years must have been uninterrupted. <u>(Amended 1987)</u></p>
Amount	<p>Normal Retirement Benefit based on Allowable Service and Average Salary at disability without reduction for commencement before age 65. Benefit is reduced by Workers' Compensation.</p> <p>Payments stop if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.</p>
Form of Payment	Same as for retirement.
Benefit Increases	Same as for retirement. <u>(Amended 1987)</u>
Retirement After Disability Eligibility	Age 65 with continued disability.
Amount	Any optional annuity continues. Otherwise the larger of the disability benefit paid before age 65 or the normal retirement benefit available at age 65, or an actuarially equivalent optional annuity.

**TABLE 14B
COORDINATED
(cont)**

Benefit Increases Same as for retirement.

DEATH

Surviving Spouse

Annuity

Eligibility

Member who dies before retirement benefits commence if age 50 with 5 years of Allowable Service or any age with 30 years of Allowable Service. If the Member dies before age 55, benefits commence when Member would have been age 55. (Amended 1987)

Amount

Survivor's payment of the 100% joint and survivor benefit the Member could have elected if terminated.

Benefit Increases

Same as retirement. (Amended 1987)

**Refund of Contributions
Eligibility**

Member dies before receiving any retirement benefits and survivor benefits are not payable.

Amount

Member's contributions with 5% interest.

TERMINATION

**Refund of Contributions
Eligibility**

Termination of teaching service.

Amount

Member's contributions with 5% interest. A deferred annuity may be elected in lieu of a refund.

**Deferred Annuity
Eligibility**

5 years of Allowable Service. (Amended 1987)

Amount

Benefit computed under law in effect at termination. Amount is payable as a normal or early retirement.