

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1988

THE *Wyatt* COMPANY

AN INDEPENDENT WORLDWIDE BENEFITS
AND COMPENSATION CONSULTING FIRM

ACTUARIAL SERVICES
COMPENSATION PROGRAMS
ADMINISTRATIVE SYSTEMS
INTERNATIONAL SERVICES
ORGANIZATION SURVEYS

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December 27, 1988

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, 1988 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 22, 1988.

Respectfully submitted,

THE WYATT COMPANY

Robert E. Perkins

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MINNEAPOLIS TEACHERS' RETIREMENT FUND

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MINNEAPOLIS TEACHERS' RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/87</u> <u>VALUATION</u>	<u>07/01/88</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	18.96%	18.43%
2. Required Contributions - Chapter 356 % of Payroll	29.34%	29.76%
3. Sufficiency (Deficiency) (A1-A2)	-10.38%	-11.33%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$336,065	\$360,814
b. Current Benefit Obligations (Table 8)	\$586,466	\$628,003
c. Funding Ratio (a/b)	57.30%	57.45%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$336,065	\$360,814
b. Actuarial Accrued Liability (Table 9)	\$626,069	\$667,343
c. Funding Ratio (a/b)	53.68%	54.07%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$569,247	\$586,116
b. Current and Expected Future Benefit Obligations	\$775,162	\$813,417
c. Funding Ratio (a/b)	73.44%	72.06%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,117	3,188
b. Projected Annual Earnings	\$108,398	\$114,118
c. Average Annual Earnings (Actual \$)	\$34,776	\$35,796
d. Average Age	44.5	44.6
e. Average Service	14.0	14.0
f. Additional Members on Leave	152	220
2. Others		
a. Service Retirements (Table 4)	2,153	2,153
b. Disability Retirements (Table 5)	43	40
c. Survivors (Table 6)	201	211
d. Deferred Retirements (Table 7)	352	555
e. Terminated Other Non-vested (Table 7)	358	132
f. Total	3,107	3,091

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 1988 by an amount of 11.33% of payroll. According to this valuation a contribution rate of 29.76% 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 57.45%. The corresponding ratio for the prior year was 57.30%.
- 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 1988 the ratio is 54.07%, which is an increase from the 1987 value of 53.68%.

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

Asset Information (Tables 1 and 2)

Minnesota Statutes require that the asset value used for actuarial purposes recognize only a third of the unrealized gains and losses. This requirement exists because market values (which include all unrealized gains and losses) are typically volatile and can produce erratic changes in the contribution requirements from year to year.

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

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

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

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

Tables 3 through 6 summarize statistical information on members by category. Active members are grouped by age and completed years of service in Table 3. The earnings shown for these members are for the prior fiscal year. Earnings were not annualized for new hires due to problems in distinguishing between full-time and part-time members.

The service retirements are shown in Table 4 and disabled members are shown in Table 5. The survivors category (Table 6) includes spouses and children of deceased members. The benefits shown in Tables 4 through 6 include the projected increase effective January 1, 1989 for all those members who have been retired for at least twelve months.

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

Actuarial Balance Sheet (Table 8)

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

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

The Current Benefit Obligation used to measure current funding levels is calculated in accordance with Statement No. 5 of the Governmental Accounting

Standards Board (GASB). Those requirements are:

- o For active members - salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- o For non-active members - the discounted value of benefits.

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, 1988 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table. The liabilities using the old retirement age assumption are provided for comparison. See page 8 for an explanation of the change in actuarial assumptions.

	<u>Old Assumptions</u>	<u>New Assumptions</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$295,030,000	\$295,030,000
Current Employees -		
Accumulated employee contributions including allocated investment income	\$151,540,000 *	151,540,000 *
Employer-financed vested	\$140,433,000	152,600,000
Employer-financed nonvested	\$32,036,000	28,833,000
Total Pension Benefit Obligation	\$619,039,000	\$628,003,000

* Estimated

Actuarial Cost Method (Table 9)

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

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

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

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

Sources of Actuarial Gains and Losses (Table 10)

The assumptions used in making the calculations using the Entry Age Normal Actuarial Cost Method are based on long-term expectations. Each year the actual experience will deviate from the long-term expectation. The major sources of gain and loss, which have been identified, are:

- o A gain from salaries where the average increase was 5.5% compared to the expected 6.5%
- o A gain from Current Assets because the return was 11.6% instead of the assumed 8% (see page 9 for an explanation of the adjustments that are made to this gain).

Contribution Sufficiency (Table 11)

This report answers the question of "How adequate are the Statutory Contributions?" by comparing the Statutory Contributions to the Required Contributions.

The Required Contributions, set forth in Chapter 356, consist of:

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

Table 11 shows the Fund has a contribution deficiency since the Statutory

Contribution Rate is 18.43% compared to the Required Contribution Rate of 29.76%.

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% is used to project future investment return.

Changes in Actuarial Assumptions

The retirement age assumption for the Basic Plan has been reduced from age 61 to age 60. This change was made to recognize the increased frequency of earlier retirements.

Prior to the actuarial assumption change the Fund had an Unfunded Actuarial Accrued Liability of \$298,227,000 (see Table 10, line E). With the new retirement age assumption the Unfunded Actuarial Accrued Liability is \$306,529,000. See the following page for the impact due to the change in the retirement age assumption.

	<u>Impact Due To Change In Retirement Age</u>
Actuarial Accrued Liability	\$8,302,000
Projected Benefit Obligation for GASB No. 5	8,964,000
Normal Cost	.22%
Supplemental Contribution	<u>.41</u>
Required Contribution	.63%

Changes in Plan Provisions

Effective January 1, 1989, the annual post retirement adjustment is extended to recipients of the minimum normal retirement annuity. The increase in liability associated with this change was insignificant.

Annual Post Retirement Increase

The annual post retirement increase, which is based on excess earnings, is recognized in this report by assuming the maximum possible benefit increase of 4.60%. Last year the maximum possible increase was 10.88%, but the actual increase paid was only 8.00%. This maximum possible increase is based on the excess of the average time-weighted rate of return during the last three years over the assumed 8% interest rate. The actual increase, which is determined by the Board of Trustees, is payable to members and survivors on the following January 1 unless they began receiving benefits in the last twelve months.

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

\$11,701,000 = Investment return in excess of 8% on Current Assets
 - 12,043,000 = Maximum possible increase of 4.60% on January 1, 1989
 + 24,435,000 = Maximum possible increase of 10.88% on January 1, 1988
 - 17,967,000 = Actual increase of 8.00% on January 1, 1988

 \$ 6,126,000 = Investment gain for this report

Basic and Coordinated

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

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 1

ACCOUNTING BALANCE SHEET (DOLLARS IN THOUSANDS)

July 1, 1988

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$75,963	\$75,963
2. Investments		
a. Fixed Income	16,335	15,864
b. Equity	214,526	182,595
c. Real Estate	68,539	68,539
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	0	0
4. Other	8,420	8,420
B. TOTAL ASSETS	----- \$383,783 =====	----- \$351,381 =====
C. AMOUNTS CURRENTLY PAYABLE	\$1,368	\$1,368
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$186,402	\$186,402
2. Employer Reserves	117,273	84,871
3. MPRIF Reserves	0	0
4. Non-MPRIF Reserves	78,740	78,740
5. Total Assets Available for Benefits	----- \$382,415 -----	----- \$350,013 -----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	----- \$383,783 =====	----- \$351,381 =====

F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS

1. Cost Value of Assets Available for Benefits (D5)		\$350,013
2. Market Value (D5)	\$382,415	
3. Cost Value (D5)	350,013	
4. Market Over Cost (F2-F3)	----- \$32,402	
5. 1/3 of Market Over Cost(F4)/3		10,801
6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		----- \$360,814 =====

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

TABLE 2

YEAR ENDING JUNE 30, 1988

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$394,579	\$306,808
 B. OPERATING REVENUES		
1. Member Contributions	\$8,311	\$8,311
2. Employer Contributions	11,968	11,968
3. Investment Income	16,522	16,522
4. MPRIF Income	0	0
5. Net Realized Gain (Loss)	39,988	39,988
6. Other	0	0
7. Net Change in Unrealized Gain (Loss)	(55,369)	0
	-----	-----
8. Total Revenue	\$21,420	\$76,789
	-----	-----
 C. OPERATING EXPENSES		
1. Service Retirements	\$27,470	\$27,470
2. Disability Benefits	265	265
3. Survivor Benefits	130	130
4. Refunds	513	513
5. Expenses	1,362	1,362
6. Other	3,844	3,844
	-----	-----
7. Total Disbursements	\$33,584	\$33,584
	-----	-----
 D. CHANGES IN ACCOUNTING METHOD	0	0
 E. ASSETS AVAILABLE AT END OF YEAR	\$382,415	\$350,013
	=====	=====

TABLE 3

MINNEAPOLIS TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1988

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	18	18							36
25-29	47	163	16						226
30-34	37	136	68	21					262
35-39	47	114	95	108	75				439
40-44	29	79	61	97	340	90			696
45-49	20	66	51	60	155	210	35		597
50-54	9	25	25	46	93	107	110	14	429
55-59	3	11	13	35	73	68	66	60	329
60-64	2	2	3	13	30	29	26	35	140
65+	1		2	6	7	8	7	3	34
TOTAL	213	614	334	386	773	512	244	112	3,188

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	8,491	17,691							13,091
25-29	15,940	21,032	25,462						20,287
30-34	17,340	25,529	24,874	28,845					24,468
35-39	19,410	28,677	29,500	31,980	35,096				29,772
40-44	21,662	26,703	34,747	34,313	37,604	38,745			35,141
45-49	17,682	28,181	34,391	37,230	39,153	41,102	40,004		37,356
50-54	21,962	26,165	26,031	32,715	40,037	38,896	43,974	40,694	37,994
55-59	13,094	29,755	28,354	34,411	38,093	40,701	42,837	42,554	39,114
60-64	26,999	16,776	39,039	31,265	38,556	40,771	43,719	40,539	39,327
65+	24,490		23,492	22,831	34,213	41,271	40,194	41,093	34,787
ALL	17,620	25,199	29,815	33,353	38,017	40,157	42,961	41,653	33,611

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
3,753	15,472	9,958	12,874	29,387	20,561	10,483	4,665	107,153

TABLE 4

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1988

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			1					1
50-54	7	16						23
55-59	14	81	33					128
60-64	17	154	127	12	2	10	7	329
65-69	8	79	234	39	3	15	2	380
70-74		24	136	147	14	1	2	324
75-79		1	4	174	116	14	1	310
80-84		1		46	176	80	20	323
85+	1				38	113	183	335
TOTAL	47	356	535	418	349	233	215	2,153

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			19,691					19,691
50-54	6,305	10,380						9,139
55-59	20,481	19,555	13,259					18,033
60-64	11,640	15,726	20,451	5,454	6,202	11,499	5,984	16,570
65-69	20,512	14,557	15,460	10,809	5,623	10,641	7,845	14,593
70-74		19,198	13,900	12,190	10,541	3,452	5,021	13,285
75-79		3,019	4,062	10,189	8,926	10,414	4,707	9,606
80-84		5,816		12,637	9,850	8,946	9,280	9,975
85+	13,407				10,371	9,912	9,568	9,787
ALL	15,027	16,268	16,035	11,084	9,570	9,698	9,344	12,688

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
706	5,791	8,579	4,633	3,340	2,260	2,009	27,318

TABLE 5

MINNEAPOLIS TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1988

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		2	1					3
50-54		2		1				3
55-59								0
60-64			4		1		1	6
65-69			1	7	4			12
70-74				7		2	2	11
75-79				1	2	1		4
80-84							1	1
85+								0
TOTAL	0	4	6	16	7	3	4	40

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		19,060	10,717					16,279
50-54		21,893		7,492				17,093
55-59								0
60-64			17,800		7,982		6,590	14,295
65-69			12,877	10,464	11,601			11,044
70-74				8,552		9,479	5,554	8,175
75-79				8,142	9,577	4,393		7,922
80-84							3,766	3,766
85+								0
TOTAL	0	20,477	15,799	9,297	10,505	7,783	5,366	11,095

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
0	82	95	149	74	23	21	444

TABLE 6

MINNEAPOLIS TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1988

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		28	10	5	1			44
50-54		1	1	6		1		9
55-59	3	11	6	2	1	1	1	25
60-64	2	12	3	2	2			21
65-69	4	6	6	3				19
70-74	2	9	10	6	2		2	31
75-79	1	12	6	3	1	4		27
80-84	2	5	5	2	3	1	2	20
85+		2	1	3	1	2	6	15
TOTAL	14	86	48	32	11	9	11	211

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		6,517	4,855	2,135	23,328			6,023
50-54		6,792	12,459	6,596		5,456		7,142
55-59	13,508	13,420	10,971	4,893	8,159	20,573	10,514	12,120
60-64	20,854	13,423	23,934	6,196	5,806			14,219
65-69	7,741	4,592	11,473	11,164				8,466
70-74	12,185	8,725	7,968	7,999	5,826		3,609	8,046
75-79	10,277	7,283	10,606	5,822	15,520	7,296		8,277
80-84	10,403	8,889	14,061	7,266	15,127	8,786	7,688	10,982
85+		5,385	9,800	7,783	2,510	14,032	6,689	7,642
ALL	12,046	8,682	10,227	6,539	10,742	10,229	6,658	9,000

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
169	747	491	209	118	92	73	1,899

MINNEAPOLIS TEACHERS' RETIREMENT FUND
RECONCILIATION OF MEMBERS

TABLE 7

		<u>TERMINATED</u>	
	<u>ACTIVES*</u>	<u>DEFERRED RETIREMENT</u>	<u>OTHER NON-VESTED</u>
A. On June 30, 1987	3,269	352	358
B. Additions	313	8	0
C. Deletions:			
1. Service Retirement	(74)	(20)	(2)
2. Disability	0		
3. Death	(2)	0	0
4. Terminated-Deferred	(8)		
5. Terminated-Refund	(87)	(7)	(2)
6. Terminated-Other Non-vested	0		
7. Returned as Active		(1)	0
D. Data Adjustments	(3)	223	(222)
	Vested		
	Non-Vested		
	2,406		
	1,002		
E. Total on June 30, 1988	3,408	555	132

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1987	2,153	43	201
B. Additions	100	0	28
C. Deletions:			
1. Service Retirement		0	
2. Death	(101)	(3)	(5)
3. Annuity Expired	0	0	(13)
4. Returned as Active		0	
D. Data Adjustments	1	0	0
E. Total on June 30, 1988	2,153	40	211

* Includes members on leave.

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 8

ACTUARIAL BALANCE SHEET (DOLLARS IN THOUSANDS)

JULY 1, 1988

A. CURRENT ASSETS (TABLE 1, F6)				\$360,814
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions				79,228
2. Present Value of Future Normal Costs				146,074
3. Total Expected Future Assets				----- 225,302 -----
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				=====
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>		<u>Total</u>
1. Benefit Recipients				
a. Retirement Annuities		\$265,199		\$265,199
b. Disability Benefits		5,044		5,044
c. Surviving Spouse and Child Benefits		13,750		13,750
2. Deferred Retirements		10,785		10,785
3. Former Members without Vested Rights		252		252
4. Active Members				
a. Retirement Annuities	4,649	286,428		291,077
b. Disability Benefits	17,489	0		17,489
c. Survivors' Benefits	6,457	0		6,457
d. Deferred Retirements	238	14,102		14,340
e. Refund Liability Due to Death or Withdrawal	0	3,610		3,610
5. Total Current Benefit Obligations	----- \$28,833 -----	----- \$599,170 -----		----- \$628,003 -----
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				----- \$185,414 -----
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				=====
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$267,189
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				\$227,301

TABLE 9

MINNEAPOLIS TEACHERS' RETIREMENT FUND

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

JULY 1, 1988

	ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS <u>(1)</u>	ACTUARIAL PRESENT VALUE OF FUTURE NORMAL COSTS <u>(2)</u>	ACTUARIAL ACCRUED LIABILITY <u>(3)=(1)-(2)</u>
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$458,341	\$111,425	\$346,916
b. Disability Benefits	25,680	10,345	15,335
c. Survivors Benefits	9,360	2,989	6,371
d. Deferred Retirements	19,125	7,187	11,938
e. Refunds Due to Death or Withdrawal	5,881	14,128	(8,247)
f. Total	<u>\$518,387</u>	<u>\$146,074</u>	<u>\$372,313</u>
2. Deferred Retirements	\$10,785		\$10,785
3. Former Members Without Vested Rights	252		252
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	283,993		283,993
6. Total	<u>\$813,417</u>	<u>\$146,074</u>	<u>\$667,343</u>
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$667,343
2. Current Assets (Table 1,F6)			360,814
3. UAAL (B1-B2)			<u>\$306,529</u>
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2009			\$2,005,762
2. Supplemental Contribution Rate (B3/C1)			15.28%

TABLE 10

MINNEAPOLIS TEACHERS' RETIREMENT FUND

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

YEAR ENDING JUNE 30, 1988

A. UAAL AT BEGINNING OF YEAR	\$290,004
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$16,139
2. Contribution	(20,279)
3. Interest on A, B1, and B2	23,035

4. Total (B1+B2+B3)	\$18,895

C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$308,899
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$11,669)
2. Investment Return	(6,126)
3. MPRIF Mortality	0
4. Mortality of Other Benefit Recipients	(1,490)
5. Other Items	8,613

6. Total	(\$10,672)

E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$298,227
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	\$8,302

H. UAAL AT END OF YEAR (E+F+G)	\$306,529
	=====

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

TABLE 11

JULY 1, 1988

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	7.44%	\$8,485
2. Employer Contributions	10.99%	12,546
3. Total	----- 18.43% =====	----- \$21,031 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	10.16%	\$11,580
b. Disability Benefits	0.99%	1,133
c. Survivors	0.31%	358
d. Deferred Retirement Benefits	0.62%	710
e. Refunds Due to Death or Withdrawal	1.17%	1,335
f. Total	----- 13.25% -----	----- \$15,116 -----
2. Supplemental Contribution Amortization by July 1, 2009 of UAAL of \$306,529	15.28%	\$17,437
3. Allowance for Expenses	1.23%	\$1,404
4. Total	----- 29.76%	----- \$33,957
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY) (A3-B4)	-11.33%	(\$12,926)

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1988 is \$114,118

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 12

PROJECTED CASH FLOW JULY 1, 1988

<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>
1988					\$360,814
1989	\$21,031	\$0	\$32,208	\$28,418	378,055
1990	20,807	0	37,336	29,583	391,109
1991	21,601	0	38,824	30,600	404,486
1992	22,488	0	40,153	31,652	418,473
1993	23,292	0	42,085	32,726	432,406
1994	24,108	0	44,257	33,787	446,044
1995	24,945	0	46,642	34,816	459,163
1996	25,921	0	48,503	35,830	472,411
1997	26,805	0	51,299	36,813	484,730
1998	27,766	0	53,893	37,733	496,336
1999	28,692	0	57,216	38,566	506,378
2000	29,584	0	60,971	39,255	514,246
2001	30,562	0	64,708	39,774	519,874
2002	31,521	0	69,023	40,090	522,462
2003	32,411	0	74,326	40,120	520,667
2004	33,144	0	81,061	39,737	512,487
2005	34,129	0	87,095	38,880	498,401
2006	35,086	0	94,135	37,510	476,862
2007	35,759	0	102,977	35,460	445,104
2008	36,566	0	111,647	32,605	402,628
2009	37,955	0	117,499	29,028	352,112
2010	39,802	0	121,552	24,899	295,261
2011	41,772	0	127,766	20,181	229,448
2012	44,143	0	131,561	14,859	156,889
2013	46,801	0	134,584	9,040	78,146

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:	Effective July 1, 1988, greater of one year from valuation date and either age 60 for the Basic Plan or age 63 for the Coordinated Plan. Prior to July 1, 1988, 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. (1.23% 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.

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 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	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	<u>Death</u>		<u>Withdrawal</u>		<u>Disability</u>		<u>Retirement</u>	
	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, 1988

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			1	19					20
35-39			14	100	75				189
40-44		3	19	79	336	90			527
45-49		1	12	51	150	210	35		459
50-54			9	43	93	106	109	14	374
55-59			5	34	70	67	65	59	300
60-64			1	11	30	29	26	32	129
65+			1	6	7	7	7	3	31
TOTAL	0	4	62	343	761	509	242	108	2,029

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			25,818	28,808					28,659
35-39			32,414	32,600	35,096				33,577
40-44		27,423	35,169	37,023	37,735	38,745			37,649
45-49		31,610	34,345	38,489	39,610	41,102	40,004		40,043
50-54			23,784	33,446	40,037	39,245	44,333	40,694	39,940
55-59			26,608	35,373	38,741	41,041	43,220	43,237	40,525
60-64			38,290	30,323	38,556	40,771	43,719	43,818	40,696
65+			35,949	22,831	34,213	46,751	40,194	41,093	36,914
ALL	0	28,470	31,956	34,421	38,218	40,349	43,222	43,020	38,753

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	114	1,981	11,806	29,084	20,538	10,460	4,646	78,629

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 4A
BASIC

SERVICE RETIREMENTS AS OF JUNE 30, 1988

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			1					1
50-54	7	16						23
55-59	14	81	33					128
60-64	16	154	127	12	2	10	7	328
65-69	8	79	234	39	3	15	2	380
70-74		24	136	147	14	1	2	324
75-79		1	4	174	116	14	1	310
80-84		1		46	176	80	20	323
85+	1				38	113	183	335
TOTAL	46	356	535	418	349	233	215	2,152

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50			19,691					19,691
50-54	6,305	10,380						9,139
55-59	20,481	19,555	13,259					18,033
60-64	12,338	15,726	20,451	5,454	6,202	11,499	5,984	16,619
65-69	20,512	14,557	15,460	10,809	5,623	10,641	7,845	14,593
70-74		19,198	13,900	12,190	10,541	3,452	5,021	13,285
75-79		3,019	4,062	10,189	8,926	10,414	4,707	9,606
80-84		5,816		12,637	9,850	8,946	9,280	9,975
85+	13,407				10,371	9,912	9,568	9,787
ALL	15,343	16,268	16,035	11,084	9,570	9,698	9,344	12,694

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
706	5,791	8,579	4,633	3,340	2,260	2,009	27,318
							27317.45

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 5A
BASIC

DISABILITY RETIREMENTS AS OF JUNE 30, 1988

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		2	1					3
50-54		2		1				3
55-59								0
60-64			4		1		1	6
65-69			1	7	4			12
70-74				7		2	2	11
75-79				1	2	1		4
80-84							1	1
85+								0
TOTAL	0	4	6	16	7	3	4	40

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		19,060	10,717					16,279
50-54		21,893		7,492				17,093
55-59								0
60-64			17,800		7,982		6,590	14,295
65-69			12,877	10,464	11,601			11,044
70-74				8,552		9,479	5,554	8,175
75-79				8,142	9,577	4,393		7,922
80-84							3,766	3,766
85+								0
TOTAL	0	20,477	15,799	9,297	10,505	7,783	5,366	11,095

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
0	82	95	149	74	23	21	444

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 6A
BASIC

SURVIVORS AS OF JUNE 30, 1988

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		28	10	5	1			44
50-54		1	1	6		1		9
55-59	3	11	6	2	1	1	1	25
60-64	2	12	3	2	2			21
65-69	4	6	6	3				19
70-74	2	9	10	6	2		2	31
75-79	1	12	6	3	1	4		27
80-84	2	5	5	2	3	1	2	20
85+		2	1	3	1	2	6	15
TOTAL	14	86	48	32	11	9	11	211

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		6,517	4,855	2,135	23,328			6,023
50-54		6,792	12,459	6,596		5,456		7,142
55-59	13,508	13,420	10,971	4,893	8,159	20,573	10,514	12,120
60-64	20,854	13,423	23,934	6,196	5,806			14,219
65-69	7,741	4,592	11,473	11,164				8,466
70-74	12,185	8,725	7,968	7,999	5,826		3,609	8,046
75-79	10,277	7,283	10,606	5,822	15,520	7,296		8,277
80-84	10,403	8,889	14,061	7,266	15,127	8,786	7,688	10,982
85+		5,385	9,800	7,783	2,510	14,032	6,689	7,642
ALL	12,046	8,682	10,227	6,539	10,742	10,229	6,658	9,000

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH							
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
169	747	491	209	118	92	73	1,899

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

TABLE 11A
BASIC

JULY 1, 1988

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	8.50%	\$7,118
2. Employer Contributions	13.35%	11,179
	-----	-----
3. Total	21.85%	\$18,297
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	11.45%	\$9,584
b. Disability Benefits	1.19%	996
c. Survivors	0.36%	305
d. Deferred Retirement Benefits	0.81%	678
e. Refunds Due to Death or Withdrawal	1.41%	1,181
	-----	-----
f. Total	15.22%	\$12,744
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1988 is \$83,740

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.

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.

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 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.
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, 1988

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	18	18							36
25-29	47	163	16						226
30-34	37	136	67	2					242
35-39	47	114	81	8					250
40-44	29	76	42	18	4				169
45-49	20	65	39	9	5				138
50-54	9	25	16	3		1	1		55
55-59	3	11	8	1	3	1	1	1	29
60-64	2	2	2	2				3	11
65+	1		1			1			3
TOTAL	213	610	272	43	12	3	2	4	1,159

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	8,491	17,691							13,091
25-29	15,940	21,032	25,462						20,287
30-34	17,340	25,529	24,860	29,190					24,122
35-39	19,410	28,677	28,997	24,227					26,896
40-44	21,662	26,675	34,557	22,420	26,647				27,320
45-49	17,682	28,129	34,405	30,100	25,454				28,420
50-54	21,962	26,165	27,295	22,238		1,918	4,811		24,763
55-59	13,094	29,755	29,444	1,710	22,985	17,907	17,925	2,250	24,513
60-64	26,999	16,776	39,414	36,447				5,568	23,270
65+	24,490		11,034			2,911			12,812
ALL	17,620	25,178	29,327	24,837	25,235	7,579	11,368	4,739	24,611

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
3,753	15,358	7,977	1,068	303	23	23	19	28,524

MINNEAPOLIS TEACHERS' RETIREMENT FUND

TABLE 4B
COORDINATED

SERVICE RETIREMENTS AS OF JUNE 30, 1988

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<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	1	0	0	0	0	0	0	1

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59								0
60-64	483							483
65-69								0
70-74								0
75-79								0
80-84								0
85+								0
ALL	483	0	0	0	0	0	0	483

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

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

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

TABLE 11B
COORDINATED

JULY 1, 1988

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$1,367
2. Employer Contributions	4.50%	1,367
3. Total	9.00% =====	----- \$2,734 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	6.57%	\$1,996
b. Disability Benefits	0.45%	137
c. Survivors	0.17%	53
d. Deferred Retirement Benefits	0.11%	32
e. Refunds Due to Death or Withdrawal	0.51%	154
f. Total	7.81% -----	----- \$2,372 -----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1988 is \$30,378

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. Age 62 and 30 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and 1 year 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. 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	Life annuity. Actuarially equivalent options are: 3 or 15 year certain and life 50%, 75% or 100% bounce back joint and survivor (option is cancelled if Member is pre-deceased by beneficiary). Guaranteed refund A larger life annuity before age 62 and reduced thereafter.
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.
DISABILITY Disability Benefit Eligibility	Total and permanent disability before age 65 with 5 years of Allowable Service. Also, the last 3 years must have been uninterrupted.
Amount	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. Payments stop if disability ceases or death occurs. Benefits may be reduced on resumption or partial employment.
Form of Payment	Same as for retirement.
Benefit Increases	Same as for retirement.
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.

Amount

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

Benefit Increases

Same as 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.

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.

Amount

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