

ST. PAUL TEACHERS' RETIREMENT FUND

ACTUARIAL VALUATION REPORT

JULY 1, 1990

THE *Wyatt* COMPANY

ACTUARIAL SERVICES
PENSION PROGRAMS
ADMINISTRATIVE SYSTEMS
INTERNATIONAL SERVICES
ORGANIZATION SURVEYS

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EMPLOYEE COMMUNICATIONS
RISK MANAGEMENT
INSURANCE CONSULTING
HEALTH CARE CONSULTING

November 28, 1990

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

RE: ST. PAUL TEACHERS' RETIREMENT FUND


Commission Members:

We have prepared an actuarial valuation of the Fund as of July 1, 1990 based on membership and financial data supplied by the Fund.


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

Respectfully submitted,

THE WYATT COMPANY



Robert E. Perkins, FSA
Consulting Actuary



Michael C. Gunvalson, FSA
Actuary

ST. PAUL TEACHERS' RETIREMENT FUND

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ST. PAUL TEACHERS' RETIREMENT FUND

REPORT HIGHLIGHTS (DOLLARS IN THOUSANDS)

	<u>07/01/89</u> <u>VALUATION</u>	<u>07/01/90</u> <u>VALUATION</u>
A. CONTRIBUTIONS (TABLE 11)		
1. Statutory Contributions - Chapter 354A % of Payroll	15.98%	15.64%
2. Required Contributions - Chapter 356 % of Payroll	19.75%	18.86%
3. Sufficiency (Deficiency) (A1-A2)	-3.77%	-3.22%
B. FUNDING RATIOS		
1. Accrued Benefit Funding Ratio		
a. Current Assets (Table 1)	\$260,402	\$296,819
b. Current Benefit Obligations (Table 8)	\$405,654	\$436,956
c. Funding Ratio (a/b)	64.19%	67.93%
2. Accrued Liability Funding Ratio		
a. Current Assets (Table 1)	\$260,402	\$296,819
b. Actuarial Accrued Liability (Table 9)	\$434,587	\$466,137
c. Funding Ratio (a/b)	59.92%	63.68%
3. Projected Benefit Funding Ratio (Table 8)		
a. Current and Expected Future Assets	\$460,041	\$501,700
b. Current and Expected Future Benefit Obligations	\$547,666	\$580,264
c. Funding Ratio (a/b)	84.00%	86.46%
C. PLAN PARTICIPANTS		
1. Active Members		
a. Number (Table 3)	3,312	3,343
b. Projected Annual Earnings	\$102,290	\$109,881
c. Average Annual Earnings (Actual \$)	\$30,885	\$32,869
d. Average Age	43.0	43.3
e. Average Service	11.1	11.3
f. Additional Members on Leave of Absence	124	129
2. Others		
a. Service Retirements (Table 4)	1,080	1,111
b. Disability Retirements (Table 5)	30	30
c. Survivors (Table 6)	126	129
d. Deferred Retirements (Table 7)	36	36
e. Terminated Other Non-vested (Table 7)	1,186	888
f. Total	2,458	2,194

ST. PAUL 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 St. Paul Teachers' Retirement Fund are not sufficient for 1990 by an amount of 3.22% of payroll. According to this valuation a contribution rate of 18.86% is required to comply with Minnesota Law. This contribution rate is based on a new retirement age assumption for the Basic Plan adopted for the July 1, 1990 valuation. All plan provisions and all other actuarial assumptions are the same as in the prior valuation.

The financial status of the Fund is measured by three different funding ratios:

- o The Accrued Benefit Funding Ratio is a measure of current funding status, and when viewed over a period of years, presents a view of the funding progress. This year's ratio is 67.93%. The corresponding ratio for the prior year was 64.19%.
- o The Accrued Liability Funding Ratio is also a measure of funding status and funding progress. It is based on the actuarial cost method that has historically been used. For 1990 the ratio is 63.68%, which is

an increase from the 1989 value of 59.92%.

- 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 MPRIIF appears on some of the tables with a corresponding value of zero. MPRIIF 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 about members by category. Active members are grouped by age and completed years of service in Table 3. The earnings shown for these members are for the prior fiscal year except in the case of new full-time hires whose earnings have been annualized.

The service retirements are shown in Table 4 and disabled members are shown in Table 5. Retirees receiving disability benefits are categorized as disabilities rather than service retirees. The survivors category (Table 6) includes spouses and children of deceased members.

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

Actuarial Balance Sheet (Table 8)

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

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

The Current Benefit Obligation used to measure current funding levels is calculated in accordance with Statement No. 5 of the Governmental Accounting Standards Board (GASB). Those requirements are:

- o For active members - salary and service are projected to retirement to determine benefits for each member and the ratio of credited service to total service establishes the portion of the projected benefit to be used in calculating the current funding level.
- o For non-active members - the discounted value of benefits, including augmentation in cases where benefits have not commenced.

GASB Disclosure

The Current Benefit Obligation amounts in Table 8 are required to be disclosed by Statement No. 5 of the Governmental Accounting Standards Board (GASB). However, Statement No. 5 uses the terms "Actuarial Present Value of Credited Projected Benefits" and "Pension Benefit Obligation" rather than "Current Benefit Obligation".

The July 1, 1990 Pension Benefit Obligation reported in Table 8 is reformatted for GASB reporting purposes in the following table. This table shows the impact of the changes in actuarial assumptions. See page 8 for an explanation of the changes in actuarial assumptions.

	<u>Old Assumptions</u>	<u>New Assumptions</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$155,935,000	\$155,935,000
Current Employees -		
Accumulated employee contributions including allocated investment income	102,297,000 *	102,297,000 *
Employer-financed vested	152,415,000	151,639,000
Employer-financed nonvested	28,846,000	27,085,000
	-----	-----
Total Pension Benefit Obligation	\$439,493,000	\$436,956,000

* Estimated

The net assets available for benefits, at cost, is \$290,193,000. The total Pension Benefit Obligation exceeds the assets by \$146,763,000 to produce a funded ratio of 66.41%.

Actuarial Cost Method (Table 9)

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

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

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

The payments will increase 6.5% each year because that is the assumed rate of increase in payroll. Although the payment schedule will be adequate to amortize

the existing unfunded, the lower payments in the earlier years will not be sufficient to cover the interest on the unfunded liability. After a few years the annual payment will cover the interest and also repay a portion of the unfunded.

Sources of Actuarial Gains and Losses (Table 10)

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

- o A gain from salaries even though the average increase of 7.5% was higher than the assumed 6.5% increase. This gain occurred because most of the increases above 6.5% were for the younger members whose liabilities are much lower than the liabilities for the older members, who had salary increases under 6.5%.
- o A gain from Current Assets because the return was 14.6% instead of the assumed 8.5%.

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 15.64% compared to the Required Contribution Rate of 18.86%.

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%. Table 12 is the only table in this report where new members are assumed to be hired in order to replace those who terminate from the active group. This open group method provides a more realistic picture of future cash flow. The statutory interest rate of 8.5% is used to project future investment return.

Changes in Plan Provisions

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

Changes in Actuarial Assumptions

The retirement age assumption for the Basic Plan has been reduced from the greater of age 62 or age 60 and 25 years of service to the greater of age 61 or age 60 and 25 years of service.

	<u>Impact Due To Changes In Actuarial Assumptions</u>
Actuarial Accrued Liability	\$(3,971,000)
Pension Benefit Obligation for GASB No. 5	(2,537,000)
Normal Cost	(.08%)
Supplemental Contribution	<u>(.16%)</u>
Required Contribution	(.24%)

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

TABLE 1

ST. PAUL TEACHERS' RETIREMENT FUND

ACCOUNTING BALANCE SHEET
(DOLLARS IN THOUSANDS)

July 1, 1990

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS		
1. Cash, Equivalents, Short-Term Securities	\$60,911	\$60,911
2. Investments		
a. Fixed Income	149,030	144,628
b. Equity	95,079	79,602
c. Real Estate	729	729
3. Equity in Minnesota Post-Retirement Investment Fund (MPRIF)	0	0
4. Other	6,347	6,347
	-----	-----
B. TOTAL ASSETS	\$312,096	\$292,217
	=====	=====
C. AMOUNTS CURRENTLY PAYABLE	\$2,024	\$2,024
D. ASSETS AVAILABLE FOR BENEFITS		
1. Member Reserves	\$63,990	\$63,990
2. Employer Reserves	246,082	226,203
3. MPRIF Reserves	0	0
4. Non-MPRIF Reserves	0	0
	-----	-----
5. Total Assets Available for Benefits	\$310,072	\$290,193
	-----	-----
E. TOTAL AMOUNTS CURRENTLY PAYABLE AND ASSETS AVAILABLE FOR BENEFITS	\$312,096	\$292,217
	=====	=====
F. DETERMINATION OF ACTUARIAL VALUE OF ASSETS		
1. Cost Value of Assets Available for Benefits (D5)		\$290,193
2. Market Value (D5)	\$310,072	
3. Cost Value (D5)	290,193	

4. Market Over Cost (F2-F3)	\$19,879	
5. 1/3 of Market Over Cost(F4)/3		6,626

6. Actuarial Value of Assets (F1+F5) (Same as "Current Assets")		\$296,819
		=====

ST. PAUL TEACHERS' RETIREMENT FUND
CHANGES IN ASSETS AVAILABLE FOR BENEFITS
(DOLLARS IN THOUSANDS)

TABLE 2

YEAR ENDING JUNE 30, 1990

	<u>MARKET VALUE</u>	<u>COST VALUE</u>
A. ASSETS AVAILABLE AT BEGINNING OF YEAR	\$276,364	\$252,421
B. OPERATING REVENUES		
1. Member Contributions	\$7,123	\$7,123
2. Employer Contributions	9,788	9,788
3. Investment Income	20,218	20,218
4. MPRIF Income	0	0
5. Net Realized Gain (Loss)	19,078	19,078
6. Other	0	0
7. Net Change in Unrealized Gain (Loss)	(4,064)	0
	-----	-----
8. Total Revenue	\$52,143	\$56,207
	-----	-----
C. OPERATING EXPENSES		
1. Service Retirements	\$15,888	\$15,888
2. Disability Benefits	550	550
3. Survivor Benefits	944	944
4. Refunds	481	481
5. Expenses	572	572
6. Other	0	0
	-----	-----
7. Total Disbursements	\$18,435	\$18,435
	-----	-----
D. CHANGES IN RESERVES	0	0
E. ASSETS AVAILABLE AT END OF YEAR	\$310,072	\$290,193
	=====	=====

TABLE 3

ST. PAUL TEACHERS' RETIREMENT FUND

ACTIVE MEMBERS AS OF JUNE 30, 1990

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	74	31							105
25-29	113	176	23						312
30-34	84	124	89	23					320
35-39	69	135	101	118	29				452
40-44	81	115	82	131	177	118			704
45-49	53	76	69	71	75	167	41		552
50-54	22	44	33	47	65	106	99	29	445
55-59	16	24	24	30	32	68	49	69	312
60-64	9	3	6	11	13	23	13	30	108
65+	5	4	2	3	2	11	3	3	33
TOTAL	526	732	429	434	393	493	205	131	3,343

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	3,796	22,498							9,317
25-29	4,753	22,901	28,121						16,713
30-34	4,047	23,096	28,101	30,504					20,020
35-39	5,237	25,535	29,858	34,345	42,257				26,775
40-44	3,944	22,248	31,878	37,152	42,572	43,096			32,642
45-49	4,685	25,812	34,253	42,568	43,272	44,531	46,405		36,559
50-54	3,049	25,512	35,079	37,873	45,147	44,474	45,860	47,518	39,762
55-59	1,708	16,456	34,770	38,032	43,770	43,456	45,331	47,663	39,305
60-64	1,259	13,030	28,454	30,772	42,679	43,233	46,984	50,904	39,322
65+	981	19,900	31,862	41,615	42,814	43,492	46,532	43,998	33,597
ALL	4,178	23,491	31,160	36,930	43,211	43,943	45,924	48,289	30,863

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
2,198	17,195	13,368	16,028	16,982	21,664	9,414	6,326	103,175

TABLE 4

ST. PAUL TEACHERS' RETIREMENT FUND

SERVICE RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS RETIRED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50								0
50-54								0
55-59	21	46						67
60-64	14	135	62	1				212
65-69	14	81	133	20				248
70-74	3	15	82	71	4			175
75-79			6	105	36	1		148
80-84				18	69	22	2	111
85+					31	54	65	150
TOTAL	52	277	283	215	140	77	67	1,111

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	19,931	14,889						16,469
60-64	19,844	16,918	13,545	17,019				16,125
65-69	29,086	16,976	15,602	10,218				16,378
70-74	30,883	11,465	12,956	12,792	5,469			12,898
75-79			14,185	8,585	9,775	4,825		9,076
80-84				8,630	8,122	4,849	2,947	7,462
85+					7,697	4,986	3,665	4,974
ALL	23,004	16,303	14,355	10,169	8,377	4,945	3,643	12,384

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT							
<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
1,196	4,516	4,062	2,186	1,173	381	244	13,758

TABLE 5

ST. PAUL TEACHERS' RETIREMENT FUND

DISABILITY RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		1	1	1				3
50-54	1	1						2
55-59		2	3	1				6
60-64		1	4	2	1			8
65-69			1	3				4
70-74			2	1				3
75-79					2			2
80-84						1		1
85+							1	1
TOTAL	1	5	11	8	3	1	1	30

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		30,119	16,405	9,709				18,744
50-54	31,634	29,723						30,679
55-59		12,752	17,130	14,929				15,304
60-64		51,908	25,951	11,535	13,548			24,041
65-69			21,840	26,998				25,709
70-74			16,401	24,088				18,963
75-79					5,208			5,208
80-84						4,400		4,400
85+							2,117	2,117
TOTAL	31,634	27,451	20,567	19,099	7,988	4,400	2,117	19,280

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
32	137	226	153	24	4	2	578

TABLE 6

ST. PAUL TEACHERS' RETIREMENT FUND

SURVIVORS AS OF JUNE 30, 1990

AGE	YEARS SINCE DEATH							TOTAL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50		5		1		1		7
50-54	1	3	2	2				8
55-59		3	2					5
60-64	1	7	5	3				16
65-69		6	10	1	2			19
70-74		7	5	7	2			21
75-79	1	2	7	2	2	1		15
80-84	2	6	8	3		2	1	22
85+	1	3	4	3	1	2	2	16
TOTAL	6	42	43	22	7	6	3	129

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50		11,762		4,437		3,350		9,514
50-54	8,234	13,761	8,310	5,639				9,677
55-59		17,980	9,596					14,626
60-64	9,529	14,007	8,801	4,358				10,291
65-69		11,822	6,843	7,076	2,640			7,985
70-74		7,052	6,825	6,633	6,245			6,781
75-79	6,444	2,652	8,749	5,859	4,102	2,280		6,346
80-84	12,315	4,344	4,519	6,099		1,980	1,441	5,025
85+	869	6,624	3,434	6,378	3,405	4,252	2,165	4,366
ALL	8,284	10,086	6,826	5,975	4,197	3,015	1,924	7,376

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>TOTAL</u>
50	424	294	131	29	18	6	952

ST. PAUL 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, 1989	3,436	36	1,186
B. Additions	477	22	290
C. Deletions:			
1. Service Retirement	(53)	(8)	0
2. Disability	(1)	(1)	0
3. Death	(6)	0	0
4. Terminated-Deferred	(22)	-	0
5. Terminated-Refund	(69)	(3)	(443)
6. Terminated-Other Non-vested	(269)	(1)	-
7. Returned as Active	-	0	(17)
D. Data Adjustments	(21)	(9)	(128)
	Vested		
	Non-Vested		
	2,489		
	983		
E. Total on June 30, 1990	3,472	36	888

	<u>RECIPIENTS</u>		
	<u>RETIREMENT ANNUITANTS</u>	<u>DISABLED</u>	<u>SURVIVORS</u>
A. On June 30, 1989	1,080	30	126
B. Additions	65	2	8
C. Deletions:			
1. Service Retirement		0	
2. Death	(32)	(3)	(5)
3. Annuity Expired	0	0	(1)
4. Returned as Active	0	0	
D. Data Adjustments	(2)	1	1
E. Total on June 30, 1990	1,111	30	129

* Includes members on leave.

TABLE 8

ST. PAUL TEACHERS' RETIREMENT FUND

ACTUARIAL BALANCE SHEET
(DOLLARS IN THOUSANDS)

JULY 1, 1990

A. CURRENT ASSETS (TABLE 1, F6)				\$296,819
B. EXPECTED FUTURE ASSETS				
1. Present Value of Expected Future Statutory Supplemental Contributions				90,754
2. Present Value of Future Normal Costs				114,127
3. Total Expected Future Assets				204,881
C. TOTAL CURRENT AND EXPECTED FUTURE ASSETS				\$501,700
D. CURRENT BENEFIT OBLIGATIONS	<u>Non-Vested</u>	<u>Vested</u>	<u>Total</u>	
1. Benefit Recipients				
a. Retirement Annuities		\$138,644		\$138,644
b. Disability Benefits		6,345		6,345
c. Surviving Spouse and Child Benefits		8,826		8,826
2. Deferred Retirements with Future Augmentation		1,556		1,556
3. Former Members without Vested Rights		564		564
4. Active Members				
a. Retirement Annuities	700	224,092		224,792
b. Disability Benefits	18,781	0		18,781
c. Survivors' Benefits	7,327	0		7,327
d. Deferred Retirements	277	26,934		27,211
e. Refund Liability Due to Death or Withdrawal	0	2,910		2,910
5. Total Current Benefit Obligations	\$27,085	\$409,871		\$436,956
E. EXPECTED FUTURE BENEFIT OBLIGATIONS				\$143,308
F. TOTAL CURRENT AND EXPECTED FUTURE BENEFIT OBLIGATIONS				\$580,264
G. CURRENT UNFUNDED ACTUARIAL LIABILITY (D5-A)				\$140,137
H. CURRENT AND FUTURE UNFUNDED ACTUARIAL LIABILITY (F-C)				\$78,564

TABLE 9

ST. PAUL TEACHERS' RETIREMENT FUND

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

JULY 1, 1990

	ACTUARIAL PRESENT VALUE OF PROJECTED BENEFITS (1)	ACTUARIAL PRESENT VALUE OF FUTURE NORMAL COSTS (2)	ACTUARIAL ACCRUED LIABILITY (3)=(1)-(2)
A. DETERMINATION OF ACTUARIAL ACCRUED LIABILITY (AAL)			
1. Active Members			
a. Retirement Annuities	\$345,352	\$72,585	\$272,767
b. Disability Benefits	26,833	10,514	16,319
c. Survivors Benefits	10,061	3,410	6,651
d. Deferred Retirements	37,676	20,397	17,279
e. Refunds Due to Death or Withdrawal	4,407	7,221	(2,814)
f. Total	<u>\$424,329</u>	<u>\$114,127</u>	<u>\$310,202</u>
2. Deferred Retirements with Future Augmentation	\$1,556		\$1,556
3. Former Members Without Vested Rights	564		564
4. Annuitants in MPRIF	0		0
5. Recipients Not in MPRIF	153,815		153,815
6. Total	<u>\$580,264</u> =====	<u>\$114,127</u> =====	<u>\$466,137</u> =====
B. DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)			
1. AAL (A6)			\$466,137
2. Current Assets (Table 1,F6)			296,819
3. UAAL (B1-B2)			<u>\$169,318</u> =====
C. DETERMINATION OF SUPPLEMENTAL CONTRIBUTION RATE			
1. Present Value of Future Payrolls through the Amortization Date of July 1, 2020			\$2,439,619
2. Supplemental Contribution Rate (B3/C1)			6.94%

TABLE 10

ST. PAUL TEACHERS' RETIREMENT FUND

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

YEAR ENDING JUNE 30, 1990

A. UAAL AT BEGINNING OF YEAR	\$174,185
B. CHANGE DUE TO INTEREST REQUIREMENTS AND CURRENT RATE OF FUNDING	
1. Normal Cost and Expenses	\$13,244
2. Contribution	(16,911)
3. Interest on A, B1, and B2	14,650
4. Total (B1+B2+B3)	----- \$10,983 -----
C. EXPECTED UAAL AT END OF YEAR (A+B4)	\$185,168
D. INCREASE (DECREASE) DUE TO ACTUARIAL LOSSES (GAINS) BECAUSE OF EXPERIENCE DEVIATIONS FROM EXPECTED	
1. Salary Increases	(\$630)
2. Investment Return	(15,872)
3. MPRIF Mortality	0
4. Mortality of Other Benefit Recipients	2,108
5. Other Items	2,515
6. Total	----- (\$11,879) -----
E. UAAL AT END OF YEAR BEFORE PLAN AMENDMENTS AND CHANGES IN ACTUARIAL ASSUMPTIONS (C+D6)	\$173,289
F. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO PLAN AMENDMENTS	\$0
G. CHANGE IN ACTUARIAL ACCRUED LIABILITY DUE TO CHANGES IN ACTUARIAL ASSUMPTIONS	(\$3,971)
H. UAAL AT END OF YEAR (E+F+G)	----- \$169,318 =====

TABLE 11

ST. PAUL TEACHERS' RETIREMENT FUND
DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

JULY 1, 1990

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	6.50%	\$7,139
2. Employer Contributions	9.14%	10,042
	-----	-----
3. Total	15.64%	\$17,181
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356		
1. Normal Cost		
a. Retirement Benefits	7.23%	\$7,941
b. Disability Benefits	1.11%	1,218
c. Survivors	0.37%	412
d. Deferred Retirement Benefits	1.99%	2,187
e. Refunds Due to Death or Withdrawal	0.70%	769
	-----	-----
f. Total	11.40%	\$12,527
	-----	-----
2. Supplemental Contribution Amortization by July 1, 2020 of UAAL of \$169,318	6.94%	\$7,626
3. Allowance for Expenses	0.52%	\$571
	-----	-----
4. Total	18.86%	\$20,724
C. CONTRIBUTION SUFFICIENCY (DEFICIENCY)		
(A3-B4)	-3.22%	(\$3,543)

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1990 is \$109,881

TABLE 12

ST. PAUL TEACHERS' RETIREMENT FUND

PROJECTED CASH FLOW
JULY 1, 1990

<u>FISCAL YEAR</u>	<u>STATUTORY CONTRIBUTIONS</u>	<u>TRANSFERS TO MPRIF</u>	<u>OTHER DISBURSEMENTS</u>	<u>INVESTMENT RETURN</u>	<u>CURRENT ASSETS YEAR END</u>
1990					\$296,819
1991	\$17,181	\$0	\$19,774	\$25,119	319,345
1992	17,433	0	22,850	26,914	340,842
1993	18,065	0	24,363	28,704	363,248
1994	18,683	0	26,236	30,555	386,250
1995	19,358	0	28,531	32,441	409,518
1996	20,012	0	30,943	34,344	432,931
1997	20,627	0	33,739	36,242	456,061
1998	21,282	0	36,762	38,107	478,688
1999	21,932	0	39,932	39,923	500,611
2000	22,719	0	43,288	41,678	521,720
2001	23,549	0	46,893	43,354	541,730
2002	24,416	0	50,927	44,920	560,139
2003	25,306	0	55,018	46,349	576,776
2004	26,121	0	60,206	47,577	590,268
2005	27,015	0	65,403	48,541	600,421
2006	27,983	0	70,502	49,229	607,131
2007	29,043	0	74,400	49,678	611,452
2008	30,281	0	78,447	49,926	613,212
2009	31,670	0	82,283	49,972	612,571
2010	33,355	0	85,977	49,832	609,781
2011	35,213	0	88,765	49,555	605,784
2012	37,292	0	91,656	49,181	600,601
2013	39,619	0	94,020	48,739	594,939
2014	42,141	0	95,998	48,281	589,363
2015	44,843	0	99,296	47,782	582,692
2016	47,744	0	101,633	47,239	576,042
2017	50,846	0	104,628	46,678	568,938
2018	54,151	0	107,251	46,103	561,941
2019	57,670	0	109,850	45,547	555,308
2020	61,419	0	114,007	44,966	547,686

ST. PAUL TEACHERS' RETIREMENT FUND
SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

Interest:	Pre-Retirement: 8.5% per annum Post-Retirement: 8.5% per annum
Salary Increases:	Total reported pay for prior fiscal year increased 6.5% to current fiscal year and 6.5% annually for each future year.
Mortality:	Pre-Retirement: Male - 1971 Group Annuity Mortality Table male rates set back 8 years Female - 1971 Group Annuity Mortality Table male rates set back 8 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, 1990, Basic members are assumed to retire at the greater of age 61 or age 60 and 25 years of service but not later than age 65. Prior to July 1, 1990, Basic members were assumed to retire at the greater of age 62 or age 60 and 25 years of service but not later than age 65. Coordinated members are assumed to retire at age 62 and 30 years of service but not later than age 65. If over assumed retirement age, one year from valuation date. In addition, 45% of Basic Members and 30% of Coordinated Members are assumed to retire each year that they are eligible for the Rule of 90.
Separation:	Graded rates shown in rate table.
Disability:	Rates as shown in rate table.
Administrative and Investment Expenses:	Prior year expenses expressed as percentage of prior year payroll. (0.52% 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.

TABLE 13
(cont)

Family Composition:	85% of male Members and 60% of female Members are assumed to be married. Female is four years younger than male. Assume Members have two children.
Social Security:	NA
Benefit Increases After Retirement:	NA
Special Consideration:	<p>Annual bonus payment totaling 1% of the year end assets is accounted for by using a 7.5% post and pre-retirement interest rate.</p> <p>Married Coordinated Members assumed to elect subsidized joint and survivor form of annuity as follows:</p> <p>Males - 15% elect 50% J & S option; 50% elect 100% J & S option;</p> <p>Females - 10% elect 50% J & S option; 10% elect 100% J & S option.</p>
Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method with normal costs expressed as a level percentage of earnings. Under this method Actuarial Gains(Losses) reduce(increase) the Unfunded Actuarial Accrued Liability.
Asset Valuation Method:	Cost Value plus one-third Unrealized Gains or Losses.
Payment on the Unfunded Actuarial Accrued Liability:	A level percentage of payroll each year to the statutory amortization date assuming payroll increases of 6.5% per annum.
Projected Cash Flow Method:	Cash flows from the Fund were projected based on the current plan benefits, participant data, and actuarial assumptions. In addition, new entrants were assumed so that the total payroll would increase by 6.5% per annum.

TABLE 13
(cont)SEPARATIONS EXPRESSED AS THE
NUMBER OF OCCURRENCES PER 10,000

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
20	4	4	600	1,000	7	7	0	0
21	4	4	600	1,000	7	7	0	0
22	4	4	600	1,000	7	7	0	0
23	4	4	600	1,000	7	7	0	0
24	4	4	600	1,000	7	7	0	0
25	5	5	600	1,000	8	8	0	0
26	5	5	600	1,000	8	8	0	0
27	5	5	600	1,000	8	8	0	0
28	5	5	600	1,000	8	8	0	0
29	5	5	600	1,000	8	8	0	0
30	5	5	600	1,000	8	8	0	0
31	6	6	570	1,000	9	9	0	0
32	6	6	540	1,000	9	9	0	0
33	6	6	510	1,000	9	9	0	0
34	7	7	480	1,000	9	9	0	0
35	7	7	450	1,000	10	10	0	0
36	7	7	430	960	10	10	0	0
37	8	8	410	920	10	10	0	0
38	8	8	390	880	11	11	0	0
39	9	9	370	840	11	11	0	0
40	9	9	350	800	12	12	0	0
41	10	10	340	720	12	12	0	0
42	10	10	330	640	13	13	0	0
43	11	11	320	560	14	14	0	0
44	12	12	310	530	15	15	0	0
45	13	13	300	500	16	16	0	0
46	14	14	280	460	18	18	0	0
47	15	15	260	420	19	19	0	0
48	16	16	240	380	21	21	0	0
49	18	18	220	340	22	22	0	0
50	20	20	200	300	24	24	0	0
51	23	23	180	260	26	26	0	0
52	26	26	160	220	29	29	0	0
53	29	29	140	180	32	32	0	0
54	33	33	120	140	36	36	0	0

TABLE 13
(cont)

Age	Death		Withdrawal		Disability		Retirement	
	Male	Female	Male	Female	Male	Female	Male	Female
55	38	38	100	100	40	40	0	0
56	42	42	80	80	46	46	0	0
57	47	47	60	60	53	53	0	0
58	53	53	40	40	61	61	0	0
59	59	59	20	20	72	72	0	0
60	65	65	0	0	84	84	0	0
61	71	71	0	0	98	98	0	0
62	78	78	0	0	113	113	10,000	10,000
63	85	85	0	0	131	131	0	0
64	93	93	0	0	149	149	0	0
65	100	100	0	0	0	0	0	0
66	109	109	0	0	0	0	0	0
67	119	119	0	0	0	0	0	0
68	131	131	0	0	0	0	0	0
69	144	144	0	0	0	0	0	0
70	159	159	0	0	0	0	0	0

ST. PAUL TEACHERS' RETIREMENT FUND

TABLE 3A
BASIC

ACTIVE MEMBERS AS OF JUNE 30, 1990

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25									0
25-29									0
30-34				1					1
35-39			5	47	27				79
40-44			4	66	167	109			346
45-49			4	31	72	160	38		305
50-54			1	15	55	103	97	29	300
55-59			2	12	30	67	47	68	226
60-64				3	10	22	13	30	78
65+				1	2	10	3	3	19
TOTAL	0	0	16	176	363	471	198	130	1,354

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				32,788					32,788
35-39			18,177	32,582	42,011				34,893
40-44			33,930	37,855	42,411	43,276			41,716
45-49			33,096	42,673	43,387	44,425	46,570		44,120
50-54			20,820	39,442	45,745	44,604	46,024	47,518	45,217
55-59			32,898	40,671	43,971	43,448	45,570	47,767	45,017
60-64				40,699	42,371	42,806	46,984	50,904	46,480
65+				42,187	42,814	41,887	46,532	43,998	43,067
ALL	0	0	27,850	37,667	43,210	43,930	46,092	48,348	43,473

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
0	0	446	6,629	15,685	20,691	9,126	6,285	58,862

ST. PAUL TEACHERS' RETIREMENT FUND

TABLE 4A
BASIC

SERVICE RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS RETIRED							TOTAL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59	21	45						66
60-64	13	128	62	1				204
65-69	12	75	131	20				238
70-74	3	13	76	71	4			167
75-79			6	103	36	1		146
80-84				18	69	22	2	111
85+					31	54	65	150
TOTAL	49	261	275	213	140	77	67	1,082

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59	19,931	15,149						16,671
60-64	21,243	17,639	13,545	17,019				16,621
65-69	32,381	18,104	15,746	10,218				16,863
70-74	30,883	13,047	13,581	12,792	5,469			13,320
75-79			14,185	8,734	9,775	4,825		9,188
80-84				8,630	8,122	4,849	2,947	7,462
85+					7,697	4,986	3,665	4,974
ALL	23,998	17,115	14,617	10,256	8,377	4,945	3,643	12,611

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT

<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>TOTAL</u>
1,176	4,466	4,020	2,185	1,173	381	244	13,645

ST. PAUL TEACHERS' RETIREMENT FUND

TABLE 5A
BASIC

DISABILITY RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS DISABLED							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		1	1	1				3
50-54	1	1						2
55-59		2	3	1				6
60-64		1	4	2	1			8
65-69			1	3				4
70-74			2	1				3
75-79					2			2
80-84						1		1
85+							1	1
TOTAL	1	5	11	8	3	1	1	30

AVERAGE ANNUAL BENEFIT

AGE	YEARS DISABLED							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		30,119	16,405	9,709				18,744
50-54	31,634	29,723						30,679
55-59		12,752	17,130	14,929				15,304
60-64		51,908	25,951	11,535	13,548			24,041
65-69			21,840	26,998				25,709
70-74			16,401	24,088				18,963
75-79					5,208			5,208
80-84						4,400		4,400
85+							2,117	2,117
TOTAL	31,634	27,451	20,567	19,099	7,988	4,400	2,117	19,280

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS OF DISABILITY

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
32	137	226	153	24	4	2	578

ST. PAUL TEACHERS' RETIREMENT FUND

TABLE 6A
BASIC

SURVIVORS AS OF JUNE 30, 1990

AGE	YEARS SINCE DEATH							TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		5		1		1		7
50-54	1	3	2	2				8
55-59		3	2					5
60-64	1	7	5	3				16
65-69		6	10	1	2			19
70-74		7	5	7	2			21
75-79	1	2	7	2	2	1		15
80-84	2	6	8	3		2	1	22
85+	1	3	4	3	1	2	2	16
TOTAL	6	42	43	22	7	6	3	129

AVERAGE ANNUAL BENEFIT

AGE	YEARS SINCE DEATH							ALL
	<1	1-4	5-9	10-14	15-19	20-24	25+	
<50		11,762		4,437		3,350		9,514
50-54	8,234	13,761	8,310	5,639				9,677
55-59		17,980	9,596					14,626
60-64	9,529	14,007	8,801	4,358				10,291
65-69		11,822	6,843	7,076	2,640			7,985
70-74		7,052	6,825	6,633	6,245			6,781
75-79	6,444	2,652	8,749	5,859	4,102	2,280		6,346
80-84	12,315	4,344	4,519	6,099		1,980	1,441	5,025
85+	869	6,624	3,434	6,378	3,405	4,252	2,165	4,366
ALL	8,284	10,086	6,826	5,975	4,197	3,015	1,924	7,376

TOTAL ANNUAL BENEFIT (IN THOUSANDS) BY YEARS SINCE DEATH

<1	1-4	5-9	10-14	15-19	20-24	25+	TOTAL
50	424	294	131	29	18	6	952

ST. PAUL TEACHERS' RETIREMENT FUND
DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

TABLE 11A
BASIC

JULY 1, 1990

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	8.00%	\$5,015
2. Employer Contributions	12.63%	7,918
	-----	-----
3. Total	20.63%	\$12,933
	=====	=====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	8.21%	\$5,151
b. Disability Benefits	1.54%	963
c. Survivors	0.58%	365
d. Deferred Retirement Benefits	2.50%	1,566
e. Refunds Due to Death or Withdrawal	0.90%	565
	-----	-----
f. Total	13.73%	\$8,610
	-----	-----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1990 is \$62,688

ST. PAUL TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility	A teacher who is employed in a public school district located in the corporate limits of the City of St. Paul and who is not covered by the Social Security Act. Also includes employees of the St. Paul Teachers' Retirement Fund.
Contributions	
Member	8.0% of Salary.
Employer	12.63% of Salary.
Allowable Service	All periods of service for which salary deductions were made and service during sabbatical leave. After June 30, 1974, St. Paul service for part-time teachers is granted on a proportional basis of actual duty days to the agreed number of annual duty days. Years of service credited prior to May 31, 1976 shall not be recomputed.
Salary	Total compensation. Excludes lump sum payments for unused vacation leave or unused sick leave at separation.
Average Salary	Average of the 5 highest years of Salary during the last 10 years while making contributions or while disabled.
RETIREMENT	
Normal Retirement Benefit	
Eligibility	Age 65 and 5 years of Allowable Service. Proportionate Retirement Annuity is available at age 65 and 1 year of Allowable Service.
Amount	2.5% of Average Salary for each year of Allowable Service.
Early Retirement Benefit	
Eligibility	Age 55 and 5 years of Allowable Service. Age 60 and 25 years of Allowable Service. Rule of 90: Age plus Allowable Service totals 90.
Amount	The greater of 2% of Average Salary for each year of Allowable Service not to exceed 40 years with reduction of 0.25% for each month the Member is under age 65 (age 60 if 25 years of Allowable Service). No

TABLE 14A
BASIC
(cont)

reduction if age plus years of Allowable Service totals 90

or

2.5% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

Form of Payment

Life annuity.

Benefit Increases

If the investment income of the fund was at least 6% of the asset value of the fund at the end of the fiscal year, the Board of Trustees may declare a bonus of up to 1% of the asset value of the fund at the end of the fiscal year. This bonus is allocated to those eligible on a prorated basis according to the combined number of years of service and years receiving a benefit. A retired Member is eligible if receiving an annuity for at least 3 years.

Members retired under laws in effect before January 1, 1970 receive an additional lump sum payment each year. In 1989, this lump sum payment is the greater of \$25 times each full year of Allowable Service or the difference between \$400 times each full year of Allowable Service and the sum of the benefits paid from any Minnesota public pension plan plus cash payments from the Social Security Administration for the preceding fiscal year July 1, 1988 through June 30, 1989. In each following year the lump sum will increase by the same increase that is applied to regular annuities.

DISABILITY

Disability Benefit
Eligibility

Totally and permanently disabled before the age of 65 with 5 years of St. Paul service.

Amount

An annuity of 75% of the annual contract salary for the last full year of service reduced by any Social Security and Workers' Compensation benefits.

Payments are recomputed as a retirement at age 65. Payments stop if disability ceases or death occurs.

Form of Payment

Life annuity.

Benefit Increases

Same as for retirement.

TABLE 14A
BASIC
(cont)

**Retirement After
Disability**

Eligibility

Age 65 with continued disability.

Amount

Normal Retirement Benefit based on Average Salary and Allowable Service as if Member had continued in his latest position during the period of his disability.

Form of Payment

Life annuity.

Benefit Increases

Same as for retirement.

DEATH

Family Benefits

Eligibility

Active Member with 3 years of St. Paul service.

Amount

Benefit of 15% of B.A. salary to spouse plus 25% of B.A. salary to each eligible child (maximum of 2). B.A. salary is the maximum salary payable to a teacher holding a B.A. degree.

Spouse's benefits cease upon remarriage, death, or when the spouse elects survivor's benefits. Such election does not affect benefits paid to children but total benefits may not exceed 90% of the Member's final salary. Children's benefits cease upon marriage or age 18 (22 if full time student).

Survivor's Benefits

Eligibility

Active or retired Member with 5 years of St Paul service. A surviving spouse must have been married to the Member for 3 years at the time of his death or retirement, whichever occurs first.

Amount

Survivor's payment of the 100% joint and survivor benefit earned by the Member to the date of his death or his retirement, whichever occurs first.

Benefit Increases

Same as for a retired person if payments have been made over three years. The allocation is based on the years of service of the person on whose behalf the annuity is paid and the years receiving payment.

Refund of Contributions

Eligibility

Death of a Member or former Member when Family Benefits and Survivor's Benefits are not payable.

**TABLE 14A
BASIC
(cont)**

Amount

The excess of the Member's contributions with 5% interest if death occurred before May 16, 1989 and 6% interest if death occurred on or after May 16, 1989 (unless the Member was disabled) over total benefits paid.

TERMINATION

Refund of Contributions
Eligibility

Termination of teaching service.

Amount

Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989, and 6% interest compounded annually if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.

Deferred Annuity
Eligibility

5 years of Allowable Service.

Amount

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

ST. PAUL TEACHERS' RETIREMENT FUND

TABLE 3B
COORDINATED

ACTIVE MEMBERS AS OF JUNE 30, 1990

AGE	YEARS OF SERVICE								TOTAL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	74	31							105
25-29	113	176	23						312
30-34	84	124	89	22					319
35-39	69	135	96	71	2				373
40-44	81	115	78	65	10	9			358
45-49	53	76	65	40	3	7	3		247
50-54	22	44	32	32	10	3	2		145
55-59	16	24	22	18	2	1	2	1	86
60-64	9	3	6	8	3	1			30
65+	5	4	2	2		1			14
TOTAL	526	732	413	258	30	22	7	1	1,989

AVERAGE ANNUAL EARNINGS

AGE	YEARS OF SERVICE								ALL
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	3,796	22,498							9,317
25-29	4,753	22,901	28,121						16,713
30-34	4,047	23,096	28,101	30,400					19,980
35-39	5,237	25,535	30,467	35,512	45,584				25,056
40-44	3,944	22,248	31,773	36,437	45,277	40,923			23,871
45-49	4,685	25,812	34,324	42,486	40,534	46,946	44,316		27,221
50-54	3,049	25,512	35,524	37,137	41,861	40,010	37,889		28,477
55-59	1,708	16,456	34,941	36,273	40,760	44,008	39,715	40,558	24,295
60-64	1,259	13,030	28,454	27,049	43,706	52,628			20,709
65+	981	19,900	31,862	41,329		59,534			20,744
ALL	4,178	23,491	31,288	36,428	43,226	44,233	41,165	40,558	22,279

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

<1	1-4	5-9	10-14	15-19	20-24	25-29	30+	TOTAL
2,198	17,195	12,922	9,398	1,297	973	288	41	44,312

ST. PAUL TEACHERS' RETIREMENT FUND

TABLE 4B
COORDINATED

SERVICE RETIREMENTS AS OF JUNE 30, 1990

AGE	YEARS RETIRED							TOTAL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59		1						1
60-64	1	7						8
65-69	2	6	2					10
70-74		2	6					8
75-79				2				2
80-84								0
85+								0
TOTAL	3	16	8	2	0	0	0	29

AVERAGE ANNUAL ANNUITY

AGE	YEARS RETIRED							ALL
	<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	
<50								0
50-54								0
55-59		3,155						3,155
60-64	1,658	3,743						3,483
65-69	9,315	2,871	6,179					4,821
70-74		1,180	5,035					4,071
75-79				948				948
80-84								0
85+								0
ALL	6,763	3,059	5,321	948	0	0	0	3,920

TOTAL ANNUAL ANNUITY (IN THOUSANDS) BY YEARS OF RETIREMENT							
<u><1</u>	<u>1-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25+</u>	<u>TOTAL</u>
20	49	43	2	0	0	0	114

ST. PAUL TEACHERS' RETIREMENT FUND
DETERMINATION OF CONTRIBUTION SUFFICIENCY
(DOLLARS IN THOUSANDS)

TABLE 11B
COORDINATED

JULY 1, 1990

	<u>% OF PAYROLL</u>	<u>\$ AMOUNT</u>
A. STATUTORY CONTRIBUTIONS - CHAPTER 354A		
1. Employee Contributions	4.50%	\$2,124
2. Employer Contributions	4.50%	2,124
3. Total	----- 9.00% =====	----- \$4,248 =====
B. REQUIRED CONTRIBUTIONS - CHAPTER 356 (NORMAL COST ONLY)		
1. Normal Cost		
a. Retirement Benefits	5.91%	\$2,790
b. Disability Benefits	0.54%	255
c. Survivors	0.10%	47
d. Deferred Retirement Benefits	1.32%	621
e. Refunds Due to Death or Withdrawal	0.43%	204
f. Total	----- 8.30% -----	----- \$3,917 -----

Note: Projected Annual Payroll for Fiscal Year Beginning
on July 1, 1990 is \$47,192

ST. PAUL TEACHERS' RETIREMENT FUND

SUMMARY OF PLAN PROVISIONS

Eligibility	A teacher who is employed by a public school district located in the corporate limits of the City of St. Paul and who is covered by the Social Security Act. Also includes employees of the St. Paul Teachers' Retirement Fund.
Contributions	
Member	4.5% of Salary.
Employer	4.5% of Salary.
Allowable Service	All periods of service for which salary deductions were made and service during sabbatical leave. After June 30, 1974, St. Paul service for part-time teachers is granted on a proportional basis of actual duty days to the agreed number of annual duty days. Years of service credited prior to May 31, 1976 shall not be recomputed.
Salary	Total Compensation. Excludes lump sum payments for unused vacation leave or unused sick leave at separation.
Average Salary	Average of the 5 highest successive years of Salary. Average Salary is based on all Allowable Service if less than 5 years.

RETIREMENT

Normal Retirement Benefit

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

TABLE 14B
COORDINATED
(cont)

**Early Retirement Benefit
Eligibility**

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

Amount

First hired before July 1, 1989:

The greater of

1% of Average Salary for the first 10 years of Allowable Service and 1.5% of Average Salary for each subsequent year with reduction of 0.25% for each month the Member is under age 65 at time of retirement (age 62 if 30 years of Allowable Service). No reduction if age plus years of Allowable Service totals 90

or

1.5% of Average Salary for each year of Allowable Service assuming augmentation to age 65 at 3% per year and actuarial reduction for each month the Member is under age 65.

First hired after June 30, 1989:

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

Form of Payment

Life annuity. Actuarially equivalent options are:

Guaranteed refund

15 year certain and life

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

Benefit Increases

If the investment income of the fund was at least 6% of the asset value of the fund at the end of the fiscal year, the Board of Trustees may declare a bonus of up to 1% of the asset value of the fund at the end of the fiscal year. This bonus is allocated to those eligible on a prorated basis according to the combined number of years of service and years receiving a benefit. A retired Member is eligible if receiving an annuity for at least 3 years.

TABLE 14B
COORDINATED
(cont)

DISABILITY

Disability Benefit
Eligibility

Total and permanent disability before normal retirement age with 3 years of Allowable Service. Also, at least 2 of the years of Allowable Service must have been uninterrupted.

Amount

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

Payments are recomputed as a retirement at normal retirement age. Payments stop if disability ceases or death occurs. Benefits may be reduced on resumption of partial employment.

Form of Payment

Same as for retirement.

Benefit Increases

Same as for retirement.

Retirement After
Disability
Eligibility

Normal retirement age with continued disability.

Amount

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

Benefit Increases

Same as for retirement.

DEATH

Surviving Spouse Annuity
Eligibility

Member or former Member who dies before retirement or disability benefits commence, if age 50 with 3 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 for a retired person if payments have been made over three years. The allocation is based on the years of service of the person on whose behalf the annuity is paid and the years receiving payment.

TABLE 14B
COORDINATED
(cont)

Refund of Contributions Eligibility	Member or former Member dies before receiving any disability or retirement benefits and survivor benefits are not payable.
Amount	Member's contributions with 5% interest compounded annually if death occurred before May 16, 1989, and 6% interest compounded annually if death occurred on or after May 16, 1989.

TERMINATION

Refund of Contributions Eligibility	Termination of teaching service.
Amount	Member's contributions with 5% interest compounded annually if termination occurred before May 16, 1989, and 6% interest compounded annually if termination occurred on or after May 16, 1989. A deferred annuity may be elected in lieu of a refund.
Deferred Benefit Eligibility	3 years of Allowable Service.
Amount	Benefit computed under law in effect at termination and increased by the following annual percentage: 3% until January 1 of the year following attainment of age 55 and 5% thereafter until the annuity begins. Amount is payable as a normal or early retirement.