

79-1585

Teachers' Retirement Fund Association
St. Paul, Minnesota

ACTUARIAL VALUATION REPORT
as of
December 31, 1978

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STATE OF MINNESOTA

Teachers' Retirement Fund Association
St. Paul, Minnesota

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COMPENSATION & CAPITAL INCORPORATED

125 SOUTH WACKER DRIVE

CHICAGO, ILLINOIS 60606

TELEPHONE 312 332-4420

May 7, 1979

Board of Trustees
St. Paul Teachers' Retirement
Fund Association
555 Wabasha Street, Room 303
St. Paul, Minnesota 55102

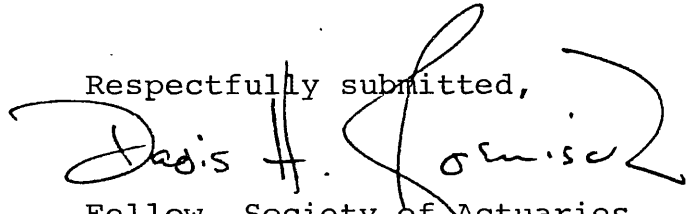
Gentlemen:

In accordance with your request, we have made an actuarial valuation of the St. Paul Teachers' Retirement Fund Association for the year ended December 31, 1978, in order to determine the adequacy of the contributions being made to that system and to prepare the financial and actuarial reports as required by the laws of the State of Minnesota.

The results of our analysis are set forth in the following report. The basic financial and employee data are those submitted to us by the Association office; the summaries and actuarial figures are those prepared by us from such data.

On the basis of the foregoing, and the assumptions indicated herein, we hereby certify that, to the best of our knowledge and belief, the attached statements are true and correct.

Respectfully submitted,


Fellow, Society of Actuaries
Enrolled Actuary No. 174

DHR:fn

Teachers' Retirement Fund Association
St. Paul, Minnesota

COMMENTS

This report sets forth the information of the Teachers' Retirement Fund Association of the City of St. Paul, Minnesota required by law for the legislature based on the annual actuarial valuation.

These figures have been prepared in accordance with the requirements of the law under the supervision of an approved actuary. Included in these requirements are the use of the Entry Age Normal Cost Method, anticipated salary increases of 3-1/2% per year, and an assumed interest of 5% per year.

The actuarial valuation measures all aspects of the St. Paul Teachers' Fund in accordance with the plan described in the section of the report titled "Summary of the Plan". This valuation takes into account the Minnesota Laws of 1977 Chapter 429 which permits Federal Social Security coverage for members of the Association.

Exhibit 4, shows the present value of benefits for past and future service of active members, and current benefits being received by retirees (and beneficiaries).

Exhibit 5, also indicates an amount of Unfunded Accumulated Contribution Requirement of \$108,223,034. This amount represents an increase of \$16,714,813.27. The primary reasons for the increase are estimated in Exhibit 7.

Exhibit 5, restates the dollar amount of obligation in Exhibit 4 as percentages based on current payroll of active members. The resulting percentage total rate requirement may then be compared with the statutory contribution rate to ascertain the actuarial balance of the Fund.

The state teachers' levy of 11.2412% is well short of the actuarial requirement of 21.6408% (Exhibit 5). This shortfall of roughly \$5.5 million in the current year continues to erode the financial strength of the Plan. This deficit was not substantially modified by coordination with Social Security although, if the state's contributions to that plan remain in the same proportion to the teachers' contributions, the actuarial balance of the program for new teachers will be much better than at present. As this better balance develops, the Plan will be under heavy financial strain as the Basic members retire and the liability for their pension falls due. Just how all of these trends will work out cannot be foretold at this time but, with coordination, any shortfall in the financing arrangements will become increasingly apparent over the next decade.

FINANCIAL EXHIBITS

Teachers' Retirement Fund Association
St. Paul, Minnesota

FINANCIAL BALANCE SHEET
(December 31, 1978)

A S S E T S

Cash		\$	9,309.25
Receivables			
Interest	\$ 747,379.40		
Dividends	68,690.00		
Employer Contribution	<u>988,794.31</u>		1,804,863.71
Short-Term Notes, at Discounted Value			19,208,466.93
Bonds, at Amortized Cost			33,026,847.68
Stocks, at Cost			14,179,005.58
Deferred Yield Adjustment Account			1,803,881.95
Furniture and Equipment, Less Depreciation			4,592.43
Administrative Expenses Payable			<u>(13,048.85)</u>
TOTAL ASSETS			<u>\$70,023,918.68</u>
Members Accumulated Contributions (without interest)			\$28,059,834.75
Administration Expenses 1978 -	\$164,534.12		

Teachers' Retirement Fund Association
St. Paul, Minnesota

EXHIBIT 2

SOURCES AND USES OF FUNDS

S O U R C E S

Cash Balance January 1, 1978		\$ 14,726.94
Income from Employer Contribution:		
State of Minnesota - Basic	\$5,142,239.90	
- Coordinated	71,604.53	
Federal Programs - Basic	254,834.53	
- Coordinated	-	
		\$ 5,468,678.96
Income from Members:		
Payroll Deductions - Basic	\$3,959,363.85	
- Coordinated	89,187.80	
Prior Service	141,111.06	
Return of Refunds	20,729.58	
		\$ 4,210,392.29
Income from Investments:		
Interest	\$3,854,777.39	
Dividends	739,056.18	
Miscellaneous	10,650.68	
		\$ 4,604,484.25
Investments Sold		115,737,642.36
Total		<u>\$130,035,924.80</u>

USES

Pension Paid:		
Retirements	\$5,015,697.20	
Survivor	146,310.08	
Family	92,352.61	
Disability	269,188.20	
		\$ 5,523,548.09
Refunds of Dues		482,525.67
Administrative Expenses:		
Actuarial, Auditing, Legal	\$ 16,103.75	
Data Processing	5,084.00	
Delegate Expense	5,573.00	
Investment Services	40,788.15	
Office Equipment	1,782.31	
Office Expense	13,107.84	
Salaries	75,028.75	
Taxes, Insurance, Affiliate Dues	7,879.45	
Accounts Payable - Withheld Taxes	(4,162.85)	
		\$ 161,184.40
Refund - Federal Programs		53,102.12
Investments Purchased		123,806,255.28
Cash Balance - December 31, 1978		\$ 9,309.24
TOTAL		<u>\$130,035,924.80</u>

Teachers' Retirement Fund Association
St. Paul, Minnesota

RECONCILIATION OF ASSET BALANCES
(December 31, 1978)

Asset Balance - December 31, 1977 \$61,492,281.95

Additions:

Employer Contributions	\$5,703,024.79	
Member Contributions	4,199,117.88	
Investment Income	4,552,021.29	
Net Gain on Sale of Stock	<u>278,345.17</u>	<u>14,732,509.13</u>

Sub-Total \$76,224,791.08

Deductions:

Benefit Payments	\$5,513,592.57	
Refunds	471,251.26	
Administrative Expenses	164,534.12	
Federal Programs Refund	51,232.68	
Loss on Sale of Equipment	<u>261.77</u>	<u>\$ 6,200,872.40</u>

Asset Balance, December 31, 1978 \$70,023,918.68

Teachers' Retirement Fund Association
St. Paul, Minnesota

ACTUARIAL REQUIREMENTS - 5%

Teachers' Retirement Fund Association
St. Paul, MinnesotaFINANCIAL BALANCE SHEET
(December 31, 1978)

Present Value of Benefits Expected to be Paid by Retirement Fund

To Active Teachers for

Retirement	\$167,230,926
Disability	15,357,018
Survivorship	11,747,910
Refund	<u>2,789,719</u>

Total \$197,125,573

To Vested Teachers 96,908

To Teachers on Leave 1,126,244

To Former Teachers without
Vested Rights 270,826

To Teachers and Beneficiaries
Now Receiving Benefits for

Retirement	\$ 46,885,440
Disability	2,507,664
Survivorship	<u>2,151,143</u>

Total \$ 51,544,247

Total Value of Benefits \$250,163,798

Less Value of Expected Future Contributions* 71,916,845

Accumulated Contribution Requirement
Assuming Full Funding During
Prior Service Period \$178,246,953

Assets on Hand 70,023,919

Accumulated Contribution Requirement
to be Amortized by 1997 \$108,223,034

* As Determined by the Entry Age Normal Cost Method.

Teachers' Retirement Fund Association
St. Paul, Minnesota

ACTUARIAL REQUIREMENTS
(December 31, 1978)

TOTAL REQUIREMENTS

Expected Future Contributions on Behalf of Active Teachers	\$ 71,916,845
Accumulated Contribution Assuming Full Funding During Prior Service Period	<u>178,246,953</u>
Total - Value of All Benefits Payable to Present Members	\$250,163,798

AMORTIZATION RATE REQUIREMENT

Accumulated Contribution Requirement	\$178,246,953	
Assets on Hand	<u>70,023,919</u>	
Amount to be Amortized	\$108,223,034	
Contribution Requirement for Amortization Period of 19 Years	\$ 8,954,916	
Current Payroll	\$ 53,370,977	
Amortization Rate Requirement		16.7786%

LEVEL CONTRIBUTION (ENTRY AGE NORMAL) RATE REQUIREMENT

Expected Future Contributions on Behalf of Active Teachers	\$ 71,916,845	
Expected Future Payroll	590,066,000	
Total Entry Age Normal Rate Requirement	12.1879%	
Teacher Contribution Rate*	<u>7.6340</u>	
Employer Entry Age Normal Rate Requirement		4.5539%

ACTUARIAL BALANCE

Employer Statutory Contribution Rate**		11.2412%
Rate Requirements		
Amortization Rate Requirement	16.7786%	
Entry Age Normal Rate Requirement	4.5539	
Expenses Rate Requirement	<u>0.3083</u>	
Total Rate Requirement		21.6408%
Deficit of Statutory Rate over Rate Requirement		(10.3996%)

* Weighted by Current Payroll 90.85% Basic and 9.15% Coordinated.

** Rate established by Minnesota Teachers' Retirement Association,
11.7948 Basic and 5.7448 Coordinated weighted by Current Payroll.

Teachers' Retirement Fund Association
St. Paul, MinnesotaACTUARIAL REQUIREMENTS
(December 31, 1978)TOTAL REQUIREMENTS

Expected Future Contributions on Behalf of Active Teachers	\$ 71,916,845
Accumulated Contribution Assuming Full Funding During Prior Service Period	<u>178,246,953</u>
Total - Value of All Benefits Payable to Present Members	\$250,163,798

AMORTIZATION RATE REQUIREMENT

Accumulated Contribution Requirement	\$178,246,953	
Assets on Hand	<u>70,023,919</u>	
Amount to be Amortized	\$108,223,034	
Contribution Requirement for Amortization Period of 30 Years	\$ 7,040,064	
Current Payroll	\$ 53,370,977	
Amortization Rate Requirement		13.1908%

LEVEL CONTRIBUTION (ENTRY AGE NORMAL) RATE REQUIREMENT

Expected Future Contributions on Behalf of Active Teachers	\$ 71,916,845	
Expected Future Payroll	590,066,000	
Total Entry Age Normal Rate Requirement	12.1879%	
Teacher Contribution Rate*	<u>7.6340</u>	
Employer Entry Age Normal Rate Requirement		4.5539%

ACTUARIAL BALANCE

Employer Statutory Contribution Rate**		11.2412%
Rate Requirements		
Amortization Rate Requirement	13.1908%	
Entry Age Normal Rate Requirement	4.5539	
Expenses Rate Requirement	<u>0.3083</u>	
Total Rate Requirement		18.0530%
Deficit of Statutory Rate over Rate Requirement		(6.8118%)

* Weighted by Current Payroll 90.85% Basic and 9.15% Coordinated.

** Rate established by Minnesota Teachers' Retirement Association,
11.7948 Basic and 5.7448 Coordinated weighted by Current Payroll.

Teachers' Retirement Fund Association
St. Paul, MinnesotaSTATEMENT OF REVENUE, EXPENDITURES, CHANGES IN
UNFUNDED ACCUMULATED CONTRIBUTION REQUIREMENT
(Year Ended December 31, 1978)Revenue:

Employer Contributions	\$ 5,703,024.79	
Employee Contributions	4,199,117.88	
Net Investment Income	<u>4,830,366.46</u>	
Total Revenue		\$14,732,509.13

Expenditure:

Benefits	\$ 5,513,592.57	
Refund of Dues	471,251.26	
Administrative Expense	164,534.12	
Federal Programs Refund	51,232.68	
Loss on Sale of Equipment	<u>261.77</u>	
Total Expenditures		<u>\$ 6,200,872.40</u>

Increase in Assets (1978)	\$ 8,531,636.73
Increase in Accumulated Contribution Requirement	<u>25,246,450.00</u>
Increase (Decrease) in Unfunded Accumulated Contribution Requirement	<u>\$16,714,813.27</u>

Teachers' Retirement Fund Association
St. Paul, Minnesota

INCREASE (DECREASE) IN UNFUNDED REQUIREMENTS

Unfunded	December 31, 1977	\$ 91,508,221
Unfunded	December 31, 1978	<u>108,223,034</u>
Increase (Decrease)		<u>\$ 16,714,813</u>

ALLOCATION OF INCREASE (DECREASE) IN UNFUNDED REQUIREMENT

Increase in Average Earnings and Amendment*		\$ 16,343,607
Principal of Unfunded Anticipated in Total Rate Requirement	\$2,767,445	
Deficiency in Total Rate Require- ment over Statutory Rate	<u>5,550,368</u>	
Increase Due to Amortization		2,782,923
Effect of Coordination (Decrease)		<u>\$ (872,183)</u>
Investment Income in excess of 5%: Loss (Gain)		\$ (1,542,461)
Experience Variation: Loss (Gain)		<u>2,927</u>
<u>Total Increase (Decrease)</u>		<u>\$ 16,714,813</u>

* Amendment to have Plan cover all Earnings.

EMPLOYEE STATISTICS

Teachers' Retirement Fund Association
St. Paul, Minnesota

RECONCILIATION OF MEMBERS

ACTIVE

Active (Including 78 on Leave)
December 31, 1977 2,685

Additions:

New Appointments 1978	230	
Reappointments	<u>24</u>	<u>254</u>

Total		2,939
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Separations:

Retirements	48	
Deaths	7	
Terminations	<u>92</u>	<u>147</u>

Active (Including 119 on Leave)
December 31, 1978 2,792

Substitutes		<u>381</u>
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Inactive Members		<u>10</u>
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RETIRED

Retired Members
December 31, 1977 857

Additions During 1978:

Retirement	40	
Disability	<u>8</u>	<u>48</u>

Total		905
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Separations - Deaths		<u>31</u>
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Retired Members
December 31, 1978 874

Beneficiaries:

Reversionary	14	
Survivor	34	
Children	<u>24</u>	

Total	<u>72</u>	
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Teachers' Retirement Fund Association
St. Paul, Minnesota

EXHIBIT 9

RETIRED ON SERVICE PENSION

<u>AGE</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>NUMBER</u>	<u>ANNUAL PENSION</u>	<u>NUMBER</u>	<u>ANNUAL PENSION</u>
55	-	\$ -	1	\$ 6,168
56	1	8,605	1	4,787
57	1	13,813	1	6,508
58	1	11,663	2	17,061
59	1	10,903	3	28,966
60	2	35,919	2	21,577
61	3	33,627	5	37,536
62	9	109,709	10	85,090
63	9	109,427	13	96,680
64	7	100,952	13	111,457
65	8	104,034	13	110,760
66	13	154,586	21	141,051
67	8	105,548	15	135,333
68	5	44,885	25	180,980
69	10	98,745	19	151,010
70	4	31,968	21	141,531
71	5	53,153	23	163,677
72	3	27,384	34	225,376
73	5	46,687	25	146,328
74	6	51,381	33	190,760
75	1	6,072	36	204,419
76	7	43,324	38	185,146
77	3	18,860	18	85,580
78	4	20,128	27	112,977
79	4	18,598	20	83,932
80	2	7,917	27	113,108
81	2	9,875	21	88,019
82	-	-	22	87,515
83	1	4,479	24	91,578
84	5	19,771	23	90,884
85	1	4,238	24	93,984
86	1	4,221	18	64,814
87	-	-	13	52,171
88	-	-	8	30,429
89	-	-	12	44,535
90	1	3,362	9	33,243
91	-	-	8	24,410
92	1	3,462	2	7,017
93	-	-	3	9,623
94	-	-	3	9,947
95	-	-	4	11,974
96	-	-	2	6,391
97	-	-	-	-
103	-	-	1	3,351
Total	<u>134</u>	<u>\$1,317,296</u>	<u>643</u>	<u>\$3,537,683</u>

Teachers' Retirement Fund Association
St. Paul, Minnesota

RETIRED ON LIMITED PENSION

AGE	MALE		FEMALE	
	NUMBER	ANNUAL PENSION	NUMBER	ANNUAL PENSION
65	2	\$16,253	6	\$ 39,177
66	2	7,122	5	21,219
67	1	3,538	8	22,346
68	1	470	3	8,263
69	-	-	4	16,661
70	-	-	1	2,925
72	-	-	3	14,328
73	1	3,132	1	3,912
74	-	-	1	2,256
75	1	3,180	3	11,016
76	-	-	1	2,460
78	-	-	2	4,476
80	-	-	4	10,136
81	1	2,312	-	-
83	-	-	2	5,056
84	1	2,544	1	2,458
85	-	-	1	2,546
87	-	-	1	2,294
91	-	-	2	4,110
<u>TOTALS</u>	<u>10</u>	<u>\$38,551</u>	<u>49</u>	<u>\$175,639</u>

Teachers' Retirement Fund Association
St. Paul, Minnesota

RETIRED WITH REVERSIONARY PENSIONS

<u>AGE</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>NUMBER</u>	<u>ANNUAL PENSION</u>	<u>NUMBER</u>	<u>ANNUAL PENSION</u>
79	1	\$ 4,403	1	\$3,758
82	1	4,355	1	4,129
87	<u>1</u>	<u>3,700</u>	<u>-</u>	<u>-</u>
<u>TOTALS</u>	<u>3</u>	<u>\$12,458</u>	<u>2</u>	<u>\$7,887</u>

Teachers' Retirement Fund Association
St. Paul, Minnesota

RETIRED ON DISABILITY PENSION

<u>AGE</u>	<u>MALE</u>		<u>FEMALE</u>	
	<u>NUMBER</u>	<u>ANNUAL PENSION</u>	<u>NUMBER</u>	<u>ANNUAL PENSION</u>
37	-	\$ -	1	\$ 9,709
43	1	16,490	1	9,870
45	-	-	1	14,929
49	1	13,548	-	-
50	1	11,268	-	-
51	-	-	4	40,502
56	2	17,952	1	13,809
57	2	20,696	-	-
58	2	33,000	1	14,748
59	1	14,739	1	7,803
61	1	17,594	1	4,716
62	2	33,719	1	11,616
64	-	-	1	16,569
65	2	15,918	-	-
66	1	4,188	-	-
69	-	-	1	3,744
72	-	-	1	3,239
75	-	-	1	3,099
77	-	-	1	3,482
<u>TOTALS</u>	<u>16</u>	<u>\$199,112</u>	<u>17</u>	<u>\$157,835</u>

SURVIVOR ANNUITIES

C H I L D R E N

<u>Number</u>	<u>Annual Pension</u>
<u>24</u>	<u>\$91,815</u>

M A L E

<u>Age</u>	<u>Reversionary Survivors</u>		<u>Regular Survivors</u>	
	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>
50	-	\$ -	1	\$ 3,477
54	-	-	1	3,900
61	-	-	1	6,431
67	-	-	1	8,641
70	-	-	1	1,548
73	-	-	1	7,404
74	-	-	1	2,964
78	-	-	1	6,228
83	<u>1</u>	<u>1,009</u>	-	-
<u>Totals</u>	<u>1</u>	<u>\$ 1,009</u>	<u>8</u>	<u>\$40,593</u>

F E M A L E

<u>Age</u>	<u>Reversionary Survivors</u>		<u>Regular Survivors</u>	
	<u>Number</u>	<u>Annual Pension</u>	<u>Number</u>	<u>Annual Pension</u>
42	-	\$ -	1	\$ 4,291
52	-	-	1	6,459
54	-	-	2	10,796
55	-	-	1	2,520
57	-	-	1	2,760
59	-	-	3	20,832
61	-	-	2	5,541
62	-	-	1	10,659
63	-	-	2	12,146
67	-	-	2	8,203
68	1	1,371	1	2,280
69	-	-	1	2,259
71	-	-	2	5,069
72	1	1,441	-	-
73	-	-	1	3,852
74	1	1,045	3	15,280
76	2	4,176	-	-
78	5	12,298	-	-
79	-	-	1	4,734
82	1	1,814	-	-
83	1	1,479	-	-
84	1	1,338	-	-
97	-	-	1	4,428
<u>TOTALS</u>	<u>13</u>	<u>\$24,962</u>	<u>26</u>	<u>\$122,109</u>

Teachers' Retirement Fund Association
St. Paul, Minnesota

EXHIBIT 14

CONSIDERED EARNINGS
(Year Ended December 31, 1978)

Basic Division - Active Male Employees
(Age and Credited Service as of December 31, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1 to 2		2 to 5		5 to 10	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	3	\$ 21,533	-	\$ -	-	\$ -	-	\$ -
25 to 30	10	122,517	11	131,231	17	228,896	23	330,696
30 to 35	4	59,643	10	163,022	23	445,931	115	1,981,073
35 to 40	3	62,787	6	119,429	7	142,996	73	1,527,980
40 to 45	-	-	1	13,750	5	96,288	34	773,507
45 to 50	-	-	1	17,296	-	-	25	595,577
50 to 55	1	17,750	-	-	2	46,088	11	315,808
55 to 60	-	-	-	-	-	-	5	116,285
60 to 65	-	-	-	-	1	19,975	2	42,826
65 & Up	-	-	-	-	-	-	-	-
TOTAL	21	\$ 284,230	29	\$ 444,728	55	\$ 980,174	288	\$ 5,683,752

AGE	YEARS OF SERVICE							
	10 to 15		15 to 20		20 to 25		25 to 30	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	-	-	-	-	-	-	-	-
30 to 35	26	551,603	-	-	-	-	-	-
35 to 40	76	1,734,892	13	299,534	-	-	-	-
40 to 45	55	1,308,281	62	1,480,791	12	314,335	-	-
45 to 50	28	663,746	40	945,752	77	1,941,126	15	420,322
50 to 55	15	330,375	18	403,592	35	851,739	59	1,556,937
55 to 60	9	211,389	12	285,548	12	284,844	35	887,344
60 to 65	2	49,135	3	74,644	2	53,236	10	235,547
65 & Up	-	-	1	17,750	2	43,093	-	-
TOTAL	211	\$4,809,421	149	\$3,507,611	140	\$3,488,373	119	\$ 3,100,150

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	3	\$ 21,533
25 to 30	-	-	-	-	-	-	61	813,340
30 to 35	-	-	-	-	-	-	178	3,161,272
35 to 40	-	-	-	-	-	-	178	3,887,618
40 to 45	-	-	-	-	-	-	169	3,986,952
45 to 50	-	-	-	-	-	-	186	4,583,819
50 to 55	22	604,989	-	-	-	-	163	4,127,278
55 to 60	43	1,205,903	3	78,420	-	-	119	3,069,733
60 to 65	6	156,904	7	204,698	1	17,750	34	854,715
65 & Up	2	61,078	2	45,182	-	-	7	167,103
TOTAL	73	\$2,028,874	12	\$ 328,300	1	\$ 17,750	1,098	\$24,673,363

Teachers' Retirement Fund Association
St. Paul, Minnesota

CONSIDERED EARNINGS
(Year Ended December 31, 1978)

Basic Division - Active Female Employees
(Age and Credited Service as of December 31, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1 to 2		2 to 5		5 to 10	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	15	\$ 157,267	21	\$ 262,799	3	\$ 36,217	-	\$ -
25 to 30	37	373,803	65	817,049	68	860,058	64	908,778
30 to 35	12	125,729	21	287,099	41	578,888	190	2,947,287
35 to 40	15	107,583	6	87,361	22	334,122	75	1,449,477
40 to 45	6	31,964	15	210,129	15	236,558	57	1,118,260
45 to 50	9	82,288	6	84,962	11	178,065	40	752,899
50 to 55	4	43,221	1	10,767	6	80,322	33	647,114
55 to 60	-	-	1	18,908	2	30,650	8	142,248
60 to 65	-	-	-	-	-	-	6	118,409
65 & Up	2	17,265	-	-	-	-	-	-
TOTAL	100	\$ 939,120	136	\$1,779,074	168	\$2,334,880	473	\$ 8,084,472

AGE	YEARS OF SERVICE							
	10 to 15		15 to 20		20 to 25		25 to 30	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	-	-	-	-	-	-	-	-
30 to 35	33	589,064	-	-	-	-	-	-
35 to 40	47	1,017,615	7	168,433	-	-	-	-
40 to 45	41	843,876	35	738,897	4	94,229	1	21,850
45 to 50	31	619,210	19	395,636	28	640,490	9	203,164
50 to 55	24	520,648	18	379,185	18	384,211	12	263,678
55 to 60	15	315,060	20	413,113	21	490,304	12	259,840
60 to 65	9	176,829	9	186,298	10	210,680	10	207,629
65 & up	2	51,406	6	122,228	3	71,065	1	21,100
TOTAL	202	\$4,133,708	114	\$2,403,790	84	\$1,890,979	45	\$ 977,261

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		All	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	39	\$ 456,283
25 to 30	-	-	-	-	-	-	234	2,959,688
30 to 35	-	-	-	-	-	-	297	4,528,067
35 to 40	-	-	-	-	-	-	172	3,164,591
40 to 45	-	-	-	-	-	-	174	3,295,763
45 to 50	1	22,597	-	-	-	-	154	2,979,311
50 to 55	5	115,842	-	-	-	-	121	2,444,988
55 to 60	20	448,164	6	148,710	-	-	105	2,266,997
60 to 65	15	329,106	9	180,960	-	-	68	1,409,911
65 & Up	1	22,920	-	-	-	-	15	305,984
TOTAL	42	\$ 938,629	15	\$ 329,670	-	\$ -	1,379	\$23,811,583

CONSIDERED EARNINGS
(Year Ended December 31, 1978)

Coordinated Division - Active Male Employees
(Age and Credited Service as of December 31, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1 to 2		2 to 5		5 to 10	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	19	\$ 77,465	-	\$ -	-	\$ -	-	\$ -
25 to 30	38	230,777	5	67,882	5	63,046	1	14,900
30 to 35	19	116,008	2	14,696	1	5,860	3	49,238
35 to 40	11	145,960	-	-	2	33,774	3	69,326
40 to 45	7	23,678	1	14,354	-	-	1	15,699
45 to 50	3	30,062	-	-	-	-	1	23,607
50 to 55	3	42,950	-	-	1	6,960	-	-
55 to 60	-	-	-	-	-	-	-	-
60 to 65	1	6,602	-	-	-	-	1	22,114
65 & UP	-	-	-	-	-	-	-	-
TOTAL	101	\$673,502	8	\$ 96,932	9	\$109,640	10	\$ 194,884

AGE	YEARS OF SERVICE							
	10 to 15		15 to 20		20 to 25		25 to 30	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	-	-	-	-	-	-	-	-
30 to 35	-	-	-	-	-	-	-	-
35 to 40	3	61,056	-	-	-	-	-	-
40 to 45	-	-	-	-	-	-	-	-
45 to 50	1	23,345	-	-	-	-	-	-
50 to 55	-	-	-	-	-	-	-	-
55 to 60	1	22,508	-	-	-	-	-	-
60 to 65	-	-	-	-	-	-	-	-
65 & Up	-	-	-	-	-	-	-	-
TOTAL	5	\$106,909	-	\$ -	-	\$ -	-	\$ -

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	19	\$ 77,465
25 to 30	-	-	-	-	-	-	49	376,445
30 to 35	-	-	-	-	-	-	25	185,802
35 to 40	-	-	-	-	-	-	19	310,116
40 to 45	-	-	-	-	-	-	9	53,731
45 to 50	-	-	-	-	-	-	5	77,014
50 to 55	-	-	-	-	-	-	4	49,910
55 to 60	-	-	-	-	-	-	1	22,508
60 to 65	-	-	-	-	-	-	2	28,716
65 & UP	-	-	-	-	-	-	-	-
TOTAL	-	\$ -	-	\$ -	-	\$ -	133	\$1,181,867

CONSIDERED EARNINGS
(Year Ended December 31, 1978)

Coordinated Division - Active Female Employees
(Age and Credited Service as of December 31, 1978)

AGE	YEARS OF SERVICE							
	Under 1		1 to 2		2 to 5		5 to 10	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	92	\$ 515,782	3	\$ 33,843	-	\$ -	-	\$ -
25 to 30	87	620,245	9	90,818	8	99,561	4	58,900
30 to 35	47	364,270	5	67,887	4	40,427	13	224,587
35 to 40	37	243,096	5	75,985	1	14,000	4	60,837
40 to 45	28	188,416	4	43,747	6	72,979	6	123,086
45 to 50	14	84,778	3	19,273	5	71,703	3	41,296
50 to 55	5	30,991	3	24,528	7	81,271	1	22,883
55 to 60	10	38,966	3	13,872	3	19,621	-	-
60 to 65	4	5,071	1	2,945	4	23,820	1	6,346
65 & UP	-	-	-	-	-	-	-	-
<u>TOTAL</u>	<u>324</u>	<u>\$2,091,615</u>	<u>36</u>	<u>\$372,898</u>	<u>38</u>	<u>\$423,382</u>	<u>32</u>	<u>\$ 537,935</u>

AGE	YEARS OF SERVICE							
	10 to 15		15 to 20		20 to 25		25 to 30	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 30	-	-	-	-	-	-	-	-
30 to 35	2	37,745	-	-	-	-	-	-
35 to 40	4	76,738	1	22,307	-	-	-	-
40 to 45	1	19,241	1	20,108	-	-	-	-
45 to 50	-	-	1	22,508	-	-	-	-
50 to 55	1	23,964	-	-	-	-	-	-
55 to 60	-	-	1	27,680	-	22,746	-	-
60 to 65	-	-	-	-	-	-	-	-
65 & Up	1	5,297	-	-	-	-	-	-
<u>TOTAL</u>	<u>9</u>	<u>\$ 162,985</u>	<u>4</u>	<u>\$ 92,603</u>	<u>1</u>	<u>\$ 22,746</u>	<u>-</u>	<u>\$ -</u>

AGE	YEARS OF SERVICE							
	30 to 35		35 to 40		40 & Up		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
Under 25	-	\$ -	-	\$ -	-	\$ -	95	\$ 549,625
25 to 30	-	-	-	-	-	-	108	869,524
30 to 35	-	-	-	-	-	-	71	734,916
35 to 40	-	-	-	-	-	-	52	492,963
40 to 45	-	-	-	-	-	-	46	467,577
45 to 50	-	-	-	-	-	-	26	239,558
50 to 55	-	-	-	-	-	-	17	183,637
55 to 60	-	-	-	-	-	-	17	100,139
60 to 65	-	-	-	-	-	-	1	60,928
65 & UP	-	-	-	\$ -	-	-	1	5,297
<u>TOTAL</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>444</u>	<u>\$3,704,164</u>

SUMMARY OF PLAN

Teachers' Retirement Fund Association
St. Paul, Minnesota

BASIC DIVISION

SUMMARY OF PLAN

(As Amended Effective July 1, 1978)

1. Name

Teachers' Retirement Fund Association, St. Paul, Minnesota.

2. Type of Plan

Self-insured, managed by a Board of Trustees consisting of the Chairman of the Board of Independent School District Number 625 and nine others elected by and from members of the Teachers' Association.

3. Employers Included

Board of Education - City of St. Paul.

4. Employees Included

All employees regularly appointed to the St. Paul Public Schools in a position covered by a certificate issued by the Minnesota State Department of Education and not covered under Section 218 of the Social Security Act.

5. Service Considered for Benefits

All periods of service for which salary deductions were made or for which payments in lieu of salary deductions were deposited including military, governmental, outside and previous St. Paul service, 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.

6. Earnings Considered

Annual total salary. Average salary based on the five years during the last 10 years of St. Paul Service which produces the highest average. For any member employed on a part-time basis during any of the 10 years, the average is computed on the basis of the amount earned in the time required to complete one full year of service.

7. Employer Contributions

Based on Contribution Requirements set by State Teachers Retirement Association including social security taxes.

8. Employee Contributions

8% of annual total salary including salary otherwise payable to a member on sabbatical leave.

If an employee elects to purchase eligible outside service, he may do so pursuant to Article IV, Section 2, Paragraph 2 (d) of the Articles of Incorporation and By-Laws as amended effective June 1, 1978.

9. Normal Retirement Benefit

On or after attainment of age 60 and completion of 25 years of service.

Pension equal to 2% of average salary multiplied by the number of years of accredited service; such accredited service limited to a maximum of 40 years.

10. Limited Service Benefit

Employees compelled to retire upon attainment of a specified age after completion of 10 years of service but less than 25 years of service. Annuity determined as for Normal Retirement considering service and earnings to actual retirement.

11. Early Retirement Benefit

After attainment of age 55 and completion of 25 years of service. Annuity determined as for Normal Retirement considering service and earnings to actual retirement and reduced by 1/2 of 1% for each month or major fraction thereof between actual retirement and attainment of age 60.

12. Disability Benefit

In the event of total and permanent disability after completion of five years of accredited St. Paul service.

Until age 65 the pension is equal to 75% of annual total salary for last full year of service minus any Social Security and/or Workmen's Compensation benefits being received.

At age 65 the benefit is recomputed as for Normal Retirement considering average salary and accredited service the disabled member would have had if he had continued to teach in his latest position during his period of disability.

13. Deferred Vested Benefit

In the event of termination after completion of ten years of service. Annuity determined as for Normal Retirement payable at age 65.

14. Death Benefit

Active

- (a) In the event of death prior to retirement and after completion of three years of service, an annuity is payable:
 - (i) For each dependent child, subject to a maximum of two at one time, equal to 25% of the maximum salary payable to a teacher holding a B.A. degree for the year in which the member died, and
 - (ii) To the surviving spouse, maintaining a home and having legal custody of the dependent child or children equal to 15% of the maximum salary in (i) above.

If the surviving spouse is also eligible for the benefits in (b) next following, such spouse may elect either benefits under (b) or the 15% benefit in (ii) above. All benefits attributable to one deceased member are limited to 90% of such member's final pay.

- (b) In the event of death after completion of 10 years of accredited service, the survivor, as defined in the plan, becomes entitled to a benefit based on the annuity earned to the date of the member's death and payable for life or until remarriage, equal to a joint-and-last survivorship annuity under which 100% of the reduced benefit is payable to the survivor.

Retired

In the event of death after retirement, the survivor receives a life annuity equal to the amount earned by the member to the date of his retirement after reduction to a 100% joint-and-last survivorship form of annuity.

15. Cash Refund of Dues

- (a) Upon termination or death of an active member prior to eligibility for any other pension, the full amount of his dues, without interest, paid since January 1, 1940, will be returned to him or to his beneficiary.
- (b) Upon the death of an active member eligible for a dependent children's benefit, but no other benefit under the Plan, the amount of the dues paid since January 1, 1940 which is in excess of the amount payable to the dependent children, without interest, shall be returned to his beneficiary.

- (c) Upon the death of a retired member, who was not survived by a survivor entitled to any other pension under the plan, the amount of dues paid since January 1, 1940, without interest, in excess of that amount already paid in pension, will be returned to his beneficiary.

In all cases above, if the member has completed the probationary employment period under the applicable teacher tenure law, all amounts payable are credited with interest in a manner to be determined by the Board of Trustees.

16. Savings Provision

Any member who retires after December 31, 1954 on a Normal Limited, Early, or Disability Pension, shall receive a pension not less than the maximum amount payable to any member who retired before January 1, 1955 for an equal period of service, including all increases of the pension of such previously retired member becoming effective after December 31, 1954.

17. Proportionate Annuity

At age 65 or earlier under a mandatory retirement statute or uniformly applied compulsory retirement policy. Annuity determined as for Normal Retirement based on service prior to termination.

18. Combined Service

Service totaling 10 or more years in any Minnesota funds with the same provision shall be entitled to an annuity from each fund based on their respective service in each fund.

19. Increases to Prior Retirees

Minnesota Statutes Law 1976, Chapter 326 provided increases to certain retirees based on service at retirement and years of retirement. The cost of these increases was provided by an appropriation from the general fund in the State Treasury.

Teachers' Retirement Fund Association
St. Paul, Minnesota

COORDINATED DIVISION

SUMMARY OF PLAN
(As Amended Effective July 1, 1978)

1. Name

Teachers' Retirement Fund Association St. Paul, Minnesota.

2. Type of Plan

Self-insured, managed by a Board of Trustees consisting of the Chairman of the Board of Independent School District Number 625 and nine others elected by and from members of the Teachers' Association.

3. Employers Included

Board of Education - City of St. Paul.

4. Employees Included

All employees regularly appointed to the St. Paul Public Schools in a position covered by a certificate issued by the Minnesota State Department of Education who either elected coverage under Section 218 of the Social Security Act, or were automatically so covered.

5. Service Considered for Benefits

All periods of service for which salary deductions were made or for which payments in lieu of salary deductions were deposited including military, governmental, outside, and previous St. Paul service, 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.

6. Earnings Considered

Annual total salary. Average salary based on the five successive years of St. Paul Service which produces the highest average. For any member employed on a part-time basis during any of the five years, the average is computed on the basis of the amount earned in the time required to complete one full year of service.

7. Employer Contributions

Based on Contribution Requirements set by State Teachers' Retirement Association excluding Social Security taxes.

8. Employee Contributions

Four percent of annual total salary including salary otherwise payable to a member on sabbatical leave.

If an employee elects to purchase eligible outside service, he may do so pursuant to Article IV, Section 2, Paragraph 2(d) of the Articles of Incorporation and By-Laws as amended effective June 1, 1978.

9. Normal Retirement Benefit

Age 65 or after attainment of age 62 and completion of 30 years of service.

Pension equal to 1% of average salary for each of the first 10 years of accredited service, plus 1½% of average salary for each year of accredited service in excess of 10 years; such accredited service limited to a maximum of 40 years.

10. Early Retirement Benefit

After completion of 30 years of service or attainment of age 55 and completion of 10 years of service. Annuity determined as for Normal Retirement considering service and earnings to actual retirement. For member with less than 30 years of service, annuities are reduced by ½% per month for each month under age 65 and by ¼% per month for each month under age 60. For member with 30 years of service, annuities are reduced by ½% per month for each month under age 62 and by ¼% per month for each month under age 60.

11. Disability Benefit

In the event of total and permanent disability after completion of 10 years of accredited St. Paul service or attainment of age 50 and completion of five years of service.

The benefit is computed as for Normal Retirement considering average salary and accredited service at time of disability.

Disability recipients automatically assume retirement status at age 65 with the right to choose a life annuity equal to their disability benefit or to choose an optional annuity plan with provisions for payment to beneficiaries.

12. Deferred Vested Benefit

In the event of termination after completion of 10 years of service. Annuity determined as for Normal Retirement payable at minimum retirement age.

13. Death Benefit

Active

After completion of 30 years of service or attainment of age 55 and completion of 20 years of service a member may elect a joint and survivor annuity payable to the beneficiary in the event of death prior to retirement.

Retired

Upon retirement a member may elect an optional annuity to provide a reduced pension payable for life and survivor benefit to a contingent annuitant.

14. Cash Refund of Dues

Upon termination or death of an active member prior to eligibility for any other pension, the full amount of his dues will be returned to him or to his beneficiary.

15. Proportionate Annuity

At age 65 or earlier under a mandatory retirement statute or uniformly applied compulsory retirement policy. Annuity determined as for Normal Retirement based on service prior to termination.

16. Combined Service

Service totaling 10 or more years in any Minnesota funds with the same provision shall be entitled to an annuity from each fund based on their respective service in each fund.

17. Optional Annuity Plans

In lieu of lifetime monthly annuity, a member may elect to convert his pension into an actuarially equivalent optional pension in the form of a 100% joint and survivor benefit, 50% joint and survivor benefit, 15 years' certain and life benefit or a guaranteed refund benefit.

Teachers' Retirement Fund Association
St. Paul, Minnesota

STATEMENT OF ACTUARIAL ASSUMPTIONS

Based on the experience analysis through December 31, 1975, the following assumptions have been used in determining the actuarial liabilities of the Fund:

Interest:	5% per annum, compounded annually.
Mortality:	Group Annuity Table for 1951 projected through 1965. See following tables.
Retirement Age:	Age 65.
Disability:	See following tables.
Separation:	See following tables.
Salary Scale:	3-1/2% per annum, compounded annually. See following tables.

A detailed statement of the mortality rates, disability rates, turnover rates and salary progression is set forth on the following pages.

Teachers' Retirement Fund Association
St. Paul, Minnesota

MORTALITY RATES

(Per 1,000 Employees)

Male Employees

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.517	45	3.002
21	.537	46	3.409
22	.558	47	3.856
23	.581	48	4.344
24	.607	49	4.869
25	.636	50	5.429
26	.667	51	6.027
27	.703	52	6.656
28	.742	53	7.321
29	.784	54	8.019
30	.831	55	8.751
31	.884	56	9.514
32	.941	57	10.312
33	1.005	58	11.154
34	1.074	59	12.057
35	1.152	60	13.043
36	1.237	61	14.143
37	1.331	62	15.390
38	1.435	63	16.828
39	1.550	64	18.504
40	1.677	65	20.475
41	1.838		
42	2.054		
43	2.322		
44	2.639		

Teachers' Retirement Fund Association
St. Paul, Minnesota

MORTALITY RATES

(Per 1,000 Employees)

Female Employees

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.311	45	1.672
21	.330	46	1.819
22	.349	47	1.980
23	.369	48	2.158
24	.392	49	2.355
25	.415	50	2.574
26	.439	51	2.783
27	.466	52	3.016
28	.496	53	3.277
29	.527	54	3.570
30	.561	55	3.898
31	.597	56	4.278
32	.637	57	4.727
33	.681	58	5.253
34	.728	59	5.867
35	.780	60	6.572
36	.836	61	7.369
37	.898	62	8.258
38	.966	63	9.232
39	1.040	64	10.284
40	1.122	65	11.402
41	1.213		
42	1.311		
43	1.420		
44	1.540		

Teachers' Retirement Fund Association
St. Paul, Minnesota

DISABILITY RATES

(Per 1,000 Employees)

All Employees

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.70	45	1.62
21	.71	46	1.76
22	.72	47	1.91
23	.73	48	2.07
24	.74	49	2.23
25	.75	50	2.40
26	.76	51	2.60
27	.78	52	2.86
28	.80	53	3.18
29	.82	54	3.56
30	.84	55	4.00
31	.86	56	4.59
32	.88	57	5.34
33	.90	58	6.10
34	.93	59	7.20
35	.96	60	8.43
36	.99	61	9.75
37	1.03	62	11.30
38	1.07	63	13.05
39	1.11	64	14.90
40	1.15		
41	1.20		
42	1.27		
43	1.36		
44	1.48		

Teachers' Retirement Fund Association
St. Paul, Minnesota

SEPARATION RATES

(Per 1,000 Employees)

Male Employees

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	191	40	25
21	177	41	23
22	163	42	21
23	149	43	19
24	135	44	17
25	122	45	16
26	112	46	16
27	102	47	15
28	92	48	14
29	83	49	13
30	74	50	12
31	67	51	12
32	61	52	11
33	55	53	11
34	49	54	10
35	43	55	9
36	39	56	7
37	35	57	5
38	31	58	3
39	28	59	1

Teachers' Retirement Fund Association
St. Paul, Minnesota

SEPARATION RATES

(Per 1,000 Employees)

Female Employees

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	275	40	80
21	271	41	72
22	267	42	64
23	263	43	56
24	259	44	49
25	255	45	42
26	247	46	37
27	239	47	32
28	231	48	27
29	222	49	23
30	213	50	19
31	199	51	16
32	185	52	14
33	171	53	12
34	157	54	10
35	142	55	8
36	129	56	6
37	116	57	4
38	104	58	2
39	92	59	1

Teachers' Retirement Fund Association
St. Paul, Minnesota

EARNINGS PROGRESSION

All Employees

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.2127	45	.5026
21	.2201	46	.5202
22	.2278	47	.5384
23	.2358	48	.5572
24	.2440	49	.5767
25	.2526	50	.5969
26	.2614	51	.6178
27	.2706	52	.6394
28	.2800	53	.6618
29	.2898	54	.6849
30	.3000	55	.7089
31	.3105	56	.7337
32	.3213	57	.7594
33	.3326	58	.7860
34	.3442	59	.8135
35	.3563	60	.8420
36	.3687	61	.8714
37	.3817	62	.9019
38	.3950	63	.9335
39	.4088	64	.9662
40	.4231	65	1.0000
41	.4380		
42	.4533		
43	.4692		
44	.4856		