

**ST. PAUL TEACHERS' RETIREMENT
FUND ASSOCIATION**

Actuarial Valuation Report

December 31, 1982

April 1, 1983

ST. PAUL TEACHERS' RETIREMENT FUND ASSOCIATION

BASIC AND COORDINATED PENSION PLANS

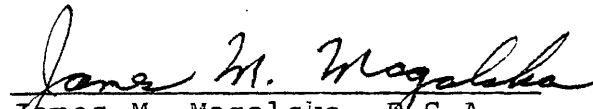
ACTUARIAL VALUATION CERTIFICATION

We present in this report the results of the actuarial valuation of the St. Paul Teachers' Retirement Fund Association Basic and Coordinated Pension Plans as of December 31, 1982.

The employee data and financial information used in this valuation were provided by the Association, and are assumed to be correct.

All costs, liabilities, and other factors under the Plans were determined in accordance with generally accepted actuarial principles and procedures, using the actuarial assumptions and methods described herein. In our opinion, the costs and actuarial exhibits presented in this report fully and fairly disclose the actuarial position of the Plans.

TOUCHE ROSS & CO.


James M. Magalska, F.S.A.
Enrolled Actuary No. 2648

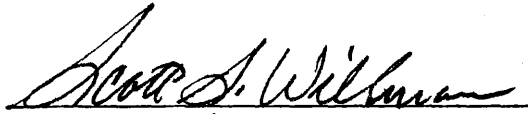

Scott S. Willman, F.S.A.
Senior Consultant

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COMMENTS

This report describes the actuarial valuation of the St. Paul Teachers' Retirement Fund Association Pension Plans as of December 31, 1982.

This valuation has been completed in accordance with Minnesota Law under the supervision of an approved actuary. These laws require the use of the Entry Age Normal cost method, as well as assumed salary increases of 3-1/2% and an assumed investment return of 5% per year.

The first section of this report presents a summary of the members participating in the Plan, followed by a summary of the Financial Statements of Plan Assets. The third section presents our determination of the actuarial status of the Plan, and a summary of Plan Provisions and actuarial assumptions concludes the report.

The statutory employer contribution rate of 11.1568% of payroll (weighted average for Basic and Coordinated Plans) is significantly below the actuarial requirement of 18.6881% of payroll. The actuarial requirement is the contribution rate that would pay the current cost under the Entry Age Normal cost method (the Normal Cost), and fund the past service liability by the year 2009. This actuarial requirement decreased very slightly from 18.6953% last year, but this deficit continues to erode the financial stability and security of the St. Paul Teachers' Retirement Plan.

REPORT HIGHLIGHTS

	<u>12/31/82</u> <u>Valuation</u>	<u>12/31/81*</u> <u>Valuation</u>	For details please see:
Section I. Plan Participation			Page 1
A. Active Members	2,331	2,636	
B. Members on Leave	303	164	
C. Substitutes and Part-time Currently Working	602	382	
D. Inactive Members	17	45	
E. Retired Members	899	890	
F. Beneficiaries	97	91	
	<u>4,231</u>	<u>4,208</u>	
Section II. Financial Exhibits			Page 13
A. Assets	\$117,983,021	\$105,071,870	
B. Members' Accumulated Contributions (without interest)	39,071,859	36,582,087	
C. Net Investment Return	9,661,880	10,343,207	
Section III. Actuarial Status of Plans			Page 18
A. Total Rate Requirement	26.0539%	26.0745%	
B. Teacher Contribution Rate (weighted average)	7.3658	7.3792	
C. Employer Statutory Contri- bution Rate (weighted average)	11.1568	11.1881	
D. Deficit	7.5313	7.5072	
Section IV. Summary of the Principal Provisions of the Plans			Page 32
Section V. Statement of Actuarial Assumptions			Page 41

*From prior actuary's report.

PLAN PARTICIPATION

I. PLAN PARTICIPATION

Employees are required to participate in the retirement program upon their appointment. The Association provided us with data for all participants as of December 31, 1982. Table 1 displays various data concerning the participant group.

Table 1 - Participant Data

	<u>12/31/82</u>	<u>12/31/81*</u>
Active members	2,331	2,636
Members on leave	303	164
Substitutes and part-time currently working	602	382
Terminated members with vested deferred benefits	17	45
Retired members	899	890
Beneficiaries	<u>97</u>	<u>91</u>
Total	4,249	4,208

Basic Plan

Active members, part-time, and substitutes	1,867	1,995
Payroll for all active members	\$50,515,993	\$49,640,477
Average salary	\$27,057	\$24,882
Average age	45.2	N/A
Average past service	16.1 years	N/A
Average future service	19.8 years	N/A

Coordinated Plan

Active members, part-time, and substitutes	1,066	1,023
Payroll for all active members	\$11,179,174	\$10,702,325
Average salary	\$10,487	\$10,462
Average age	36.3	N/A
Average past service	1.9 years	N/A
Average future service	28.7 years	N/A

* From prior actuary's report

Table 2 presents a reconciliation of members from December 31, 1981 to December 31, 1982.

Table 2 - Reconciliation of Members

ACTIVE

Active (Including 164 on Leave) 2,800*
as of December 31, 1981

Additions:

New Appointments 1982	16	
Reappointments	<u>2</u>	
TOTAL		18

Separations:

Retirements	61	
Deaths	2	
Terminations	<u>139</u>	
		(202)

Active (Including 303 On Leave) 2,616
as of December 31, 1982

Substitutes and Part-Time currently working 602

Inactive Members 1,358

Terminated Members with vested deferred benefits 17

RETIRED

Retired Members as of December 31, 1981 890*

Additions During 1982:

Retirement	58	
Disability	<u>3</u>	
TOTAL		61

Separations - Deaths (52)

Retired Members as of December 31, 1982 899

Beneficiaries:

Reversionary	11	
Survivor	63	
Children	<u>23</u>	
TOTAL		97

* From prior actuary's report.

The following tables indicate the distribution of members by age and, for actives, years of service. The total earnings are shown for each group of active members, while the annual pension benefits are shown for retired members and beneficiaries. The Basic Plan is displayed first in subsection A, followed by the Coordinated Plan in subsection B.

A. BASIC PLAN

CONSIDERED EARNINGS
(YEAR ENDED DECEMBER 31, 1982)

TABLE 3 - ACTIVE MALE MEMBERS
(AGE AND CREDITED SERVICE AS OF DECEMBER 31, 1982)

AGE	YEARS OF SERVICE							
	UNDER 1		1		2 TO 4		5 TO 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	0	0	6	98109
30 TO 34	0	0	0	0	0	0	37	712182
35 TO 39	0	0	0	0	2	41750	30	707296
40 TO 44	0	0	0	0	0	0	17	483554
45 TO 49	0	0	0	0	1	17292	10	271335
50 TO 54	0	0	0	0	0	0	2	45200
55 TO 59	0	0	0	0	1	24000	4	116600
60 TO 64	0	0	0	0	0	0	0	0
65 & UP	0	0	0	0	0	0	1	30500
TOTAL	0	\$ 0	0	\$ 0	4	\$ 83042	107	\$ 2464776

AGE	YEARS OF SERVICE							
	10 TO 14		15 TO 19		20 TO 24		25 TO 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	0	0	0	0
30 TO 34	28	653714	0	0	0	0	0	0
35 TO 39	103	2683305	28	817675	0	0	0	0
40 TO 44	60	1759603	69	2110722	13	391979	0	0
45 TO 49	38	1148710	46	1381491	55	1738220	15	523527
50 TO 54	23	687666	25	775522	39	1154877	72	2305284
55 TO 59	5	173221	15	421818	16	475506	21	678334
60 TO 64	1	29200	7	204400	9	256500	7	209350
65 & UP	0	0	1	24000	1	30500	1	29200
TOTAL	258	\$ 7135419	191	\$ 5735628	133	\$ 4047582	116	\$ 3745695

AGE	YEARS OF SERVICE							
	30 TO 34		35 TO 39		40 & UP		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	0	0	6	98109
30 TO 34	0	0	0	0	0	0	65	1365896
35 TO 39	0	0	0	0	0	0	163	4250026
40 TO 44	0	0	0	0	0	0	159	4745858
45 TO 49	0	0	0	0	0	0	165	5080575
50 TO 54	13	468784	0	0	0	0	174	5437333
55 TO 59	59	1873067	16	627376	0	0	137	4389922
60 TO 64	12	388115	7	263287	1	30500	44	1381352
65 & UP	1	30500	0	0	1	41883	6	186583
TOTAL	85	\$ 2760466	23	\$ 890663	2	\$ 72383	919	\$ 26935654

A. BASIC PLAN (CONTINUED)

CONSIDERED EARNINGS
(YEAR ENDED DECEMBER 31, 1982)

TABLE 4 - ACTIVE FEMALE MEMBERS
(AGE AND CREDITED SERVICE AS OF DECEMBER 31, 1982)

AGE	YEARS OF SERVICE							
	UNDER 1		1		2 TO 4		5 TO 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	5	63625	31	488300
30 TO 34	0	0	0	0	12	193374	72	1293425
35 TO 39	0	0	0	0	5	69384	47	970357
40 TO 44	0	0	0	0	4	73750	24	491368
45 TO 49	0	0	0	0	2	42600	25	580117
50 TO 54	0	0	0	0	3	57050	10	236529
55 TO 59	0	0	0	0	0	0	9	169650
60 TO 64	0	0	0	0	0	0	1	21900
65 & UP	0	0	0	0	0	0	1	24600
TOTAL	0	\$ 0	0	\$ 0	31	\$ 499783	220	\$ 4276246

AGE	YEARS OF SERVICE							
	10 TO 14		15 TO 19		20 TO 24		25 TO 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	0	0	0	0
30 TO 34	61	1293510	0	0	0	0	0	0
35 TO 39	135	3318606	27	767500	0	0	0	0
40 TO 44	64	1834720	32	941538	13	390439	0	0
45 TO 49	49	1300353	35	1006866	29	826557	7	191800
50 TO 54	42	1105943	20	565300	13	384353	16	507336
55 TO 59	19	502966	22	628150	15	443864	14	413523
60 TO 64	7	173160	9	253100	18	517707	8	241700
65 & UP	1	28100	3	85100	1	29200	1	25600
TOTAL	378	\$ 9557358	148	\$ 4247554	89	\$ 2592120	46	\$ 1379959

AGE	YEARS OF SERVICE							
	30 TO 34		35 TO 39		40 & UP		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	0	0	36	551925
30 TO 34	0	0	0	0	0	0	145	2780309
35 TO 39	0	0	0	0	0	0	214	5125847
40 TO 44	0	0	0	0	0	0	137	3731815
45 TO 49	0	0	0	0	0	0	147	3948293
50 TO 54	11	319450	0	0	0	0	115	3175961
55 TO 59	7	208114	4	104800	0	0	90	2471067
60 TO 64	3	85840	2	49700	1	37084	49	1380191
65 & UP	0	0	6	173731	2	48600	15	414931
TOTAL	21	\$ 613404	12	\$ 328231	3	\$ 85684	948	\$ 23580339

TABLE 5 - RETIRED ON SERVICE PENSION

AGE	MALE		FEMALE	
	NUMBER	ANNUAL PENSION	NUMBER	ANNUAL PENSION
55	2	\$ 23235	1	\$ 5150
56	4	44987	3	18000
57	3	38313	3	27639
58	3	38163	4	43590
59	5	52722	4	27063
60	9	159558	5	57951
61	9	188087	9	93837
62	17	245213	10	134000
63	9	112237	12	160071
64	6	100213	8	114388
65	8	122135	8	60458
66	13	185068	17	156604
67	10	132129	17	132464
68	7	93106	20	176706
69	8	129530	17	143943
70	14	156794	20	134343
71	8	105566	15	134432
72	5	45417	23	168193
73	8	83762	18	143895
74	3	25416	20	135580
75	5	53153	22	155877
76	3	27384	30	201809
77	4	40223	23	140299
78	6	51053	26	148425
79	1	6072	32	169108
80	6	39603	34	163921
81	1	6274	14	67018
82	3	14650	22	89875
83	4	18598	19	79490
84	0	0	19	81568
85	2	9874	16	63942
86	0	0	16	56884
87	1	4479	15	53314
88	3	12893	14	55938
89	1	4238	13	52975
90	1	4221	13	44762
92	0	0	8	30866
92	0	0	5	14880
93	0	0	7	25739
94	0	0	7	25902
95	0	0	2	6292
99	0	0	3	8844
TOTAL	192	\$2,374,366	594	\$3,806,035

TABLE 6 - RETIRED ON LIMITED PENSION

AGE	MALE		FEMALE	
	NUMBER	ANNUAL PENSION	NUMBER	ANNUAL PENSION
55	0	\$ 0	1	\$ 2087
56	0	0	2	8219
58	0	0	2	8535
60	0	0	2	7741
61	0	0	1	4324
63	0	0	3	22848
64	0	0	1	7730
65	2	21525	1	3249
66	0	0	4	41879
67	0	0	1	7984
69	2	16252	5	33427
70	2	7122	5	21220
71	1	3538	8	22345
72	1	470	3	8263
73	0	0	4	16662
74	0	0	1	2925
76	0	0	3	14328
77	1	3132	0	0
78	0	0	1	2256
79	1	3180	3	11016
80	0	0	1	2460
82	0	0	1	2700
85	0	0	1	2738
86	1	2312	0	0
87	0	0	2	5055
89	0	0	1	2546
91	0	0	1	2294
95	0	0	2	4110
TOTAL	11	\$ 57,531	60	\$268,941

A. BASIC PLAN (CONTINUED)

TABLE 7 - 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>
41	0	\$ 0	1	\$ 9709
49	0	0	1	14929
50	1	15216	0	0
52	0	0	1	5375
53	2	31248	0	0
54	1	11268	0	0
55	0	0	3	39134
58	1	17030	0	0
59	0	0	0	0
60	2	19116	2	30271
62	2	33001	1	14748
63	1	620	3	44187
64	0	0	1	14446
65	0	0	1	4716
66	0	0	1	10590
67	0	0	0	0
68	0	0	1	12951
69	1	6228	0	0
70	1	4188	0	0
73	0	0	1	4400
76	0	0	1	3239
77	0	0	1	2387
79	0	0	1	3099
81	0	0	2	5599
TOTAL	12	\$137,915	22	\$219,780

TABLE 8 - 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>
83	1	\$ 4403	1	\$ 3758
86	0	0	1	4129
TOTAL	1	\$ 4,403	2	\$ 7,887

TABLE 9 - SURVIVOR ANNUITIES

C H I L D R E N				
ANNUAL				
NUMBER				
23				
\$98,851				
REVERSIONARY SURVIVORS				
ANNUAL				
NUMBER				
PENSION				
REGULAR SURVIVORS				
ANNUAL				
NUMBER				
PENSION				
M A L E				
AGE	NUMBER	PENSION	NUMBER	PENSION
54	0	\$ 0	1	\$ 3477
57	0	0	1	1248
58	0	0	1	3900
65	0	0	1	6431
66	0	0	3	22250
69	0	0	1	6395
71	0	0	1	8641
74	0	0	1	1839
77	0	0	2	7113
78	0	0	1	3407
82	0	0	1	6228
83	0	0	1	2610
TOTAL	0	\$ 0	15	\$73,539
F E M A L E				
44	0	\$ 0	1	\$ 5155
45	0	0	2	18449
46	0	0	1	4291
52	0	0	2	13321
56	0	0	2	9595
57	0	0	1	10201
58	0	0	2	10796
59	0	0	1	2520
60	0	0	2	16719
61	0	0	1	2760
63	0	0	4	30415
64	0	0	1	8192
65	0	0	2	5541
66	0	0	1	10659
67	0	0	3	38759
69	0	0	2	9546
70	0	0	2	10174
71	0	0	2	8203
72	1	1371	2	9888
73	0	0	2	11979
75	0	0	2	5069
76	1	1441	2	9744
77	0	0	2	7641
78	1	1045	2	15280
80	1	2685	0	0
82	4	9070	0	0
83	0	0	1	4734
86	1	1814	0	0
87	1	1479	0	0
90	1	3228	0	0
TOTAL	11	\$ 22,133	45	\$279,631

A. COORDINATED PLAN

CONSIDERED EARNINGS
(YEAR ENDED DECEMBER 31, 1982)

TABLE 10 - ACTIVE MALE MEMBERS
(AGE AND CREDITED SERVICE AS OF DECEMBER 31, 1982)

AGE	YEARS OF SERVICE							
	UNDER 1		1		2 TO 4		5 TO 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	19	\$ 42355	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	32	121271	4	49310	16	246100	0	0
30 TO 34	34	143591	7	97116	35	605884	0	0
35 TO 39	17	74123	7	98955	23	475232	0	0
40 TO 44	14	67840	3	58900	20	488370	1	29200
45 TO 49	8	26428	1	2262	9	189950	0	0
50 TO 54	8	8540	2	38716	4	106700	0	0
55 TO 59	3	1310	0	0	3	51217	0	0
60 TO 64	9	22931	1	6272	1	22350	0	0
65 & UP	11	12860	0	0	1	3584	0	0
TOTAL	155	\$ 521249	25	\$ 351531	112	\$ 2189387	1	\$ 29200

AGE	YEARS OF SERVICE							
	10 TO 14		15 TO 19		20 TO 24		25 TO 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	0	0	0	0
30 TO 34	0	0	0	0	0	0	0	0
35 TO 39	0	0	0	0	0	0	0	0
40 TO 44	0	0	0	0	0	0	0	0
45 TO 49	1	22900	0	0	0	0	0	0
50 TO 54	0	0	0	0	0	0	0	0
55 TO 59	1	31568	0	0	0	0	0	0
60 TO 64	0	0	0	0	0	0	0	0
65 & UP	0	0	0	0	0	0	0	0
TOTAL	2	\$ 54468	0	\$ 0	0	\$ 0	0	\$ 0

AGE	YEARS OF SERVICE							
	30 TO 34		35 TO 39		40 & UP		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	19	\$ 42355
25 TO 29	0	0	0	0	0	0	52	416681
30 TO 34	0	0	0	0	0	0	76	846591
35 TO 39	0	0	0	0	0	0	47	648310
40 TO 44	0	0	0	0	0	0	38	644310
45 TO 49	0	0	0	0	0	0	19	241540
50 TO 54	0	0	0	0	0	0	14	153956
55 TO 59	0	0	0	0	0	0	7	84095
60 TO 64	0	0	0	0	0	0	11	51553
65 & UP	0	0	0	0	0	0	12	16444
TOTAL	0	\$ 0	0	\$ 0	0	\$ 0	295	\$ 3145835

A. COORDINATED PLAN (CONTINUED)

CONSIDERED EARNINGS
(YEAR ENDED DECEMBER 31, 1982)

TABLE 11 - ACTIVE FEMALE MEMBERS
(AGE AND CREDITED SERVICE AS OF DECEMBER 31, 1982)

AGE	YEARS OF SERVICE							
	UNDER 1		1		2 TO 4		5 TO 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	41	\$ 77961	6	\$ 63236	2	\$ 23168	0	\$ 0
25 TO 29	90	264847	18	203904	89	1359000	0	0
30 TO 34	61	268743	16	185082	76	1344586	0	0
35 TO 39	42	71156	9	93239	65	1287639	1	17300
40 TO 44	33	77195	12	107122	44	886338	0	0
45 TO 49	24	89721	11	53750	33	683668	0	0
50 TO 54	21	45652	5	49495	21	385966	1	29200
55 TO 59	11	27657	2	3960	13	169167	1	2190
60 TO 64	4	12716	3	5457	5	59542	0	0
65 & UP	8	14798	0	0	2	23645	0	0
TOTAL	335	\$ 950446	82	\$ 765245	350	\$ 6222719	3	\$ 48690

AGE	YEARS OF SERVICE							
	10 TO 14		15 TO 19		20 TO 24		25 TO 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	0	\$ 0
25 TO 29	0	0	0	0	0	0	0	0
30 TO 34	0	0	0	0	0	0	0	0
35 TO 39	0	0	0	0	0	0	0	0
40 TO 44	0	0	0	0	0	0	0	0
45 TO 49	0	0	0	0	0	0	0	0
50 TO 54	0	0	0	0	0	0	0	0
55 TO 59	1	46239	0	0	0	0	0	0
60 TO 64	0	0	0	0	0	0	0	0
65 & UP	0	0	0	0	0	0	0	0
TOTAL	1	\$ 46239	0	\$ 0	0	\$ 0	0	\$ 0

AGE	YEARS OF SERVICE							
	30 TO 34		35 TO 39		40 & UP		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
UNDER 25	0	\$ 0	0	\$ 0	0	\$ 0	49	\$ 164365
25 TO 29	0	0	0	0	0	0	197	1827751
30 TO 34	0	0	0	0	0	0	153	1798411
35 TO 39	0	0	0	0	0	0	117	1469334
40 TO 44	0	0	0	0	0	0	89	1070655
45 TO 49	0	0	0	0	0	0	68	827139
50 TO 54	0	0	0	0	0	0	48	510313
55 TO 59	0	0	0	0	0	0	28	249213
60 TO 64	0	0	0	0	0	0	12	77715
65 & UP	0	0	0	0	0	0	10	38443
TOTAL	0	\$ 0	0	\$ 0	0	\$ 0	771	\$ 8033339

A. COORDINATED PLAN (CONTINUED)

TABLE 12 - 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>
59	0	\$ 0	1	\$ 4766
60	0	0	0	0
61	1	7592	0	0
62	0	0	0	0
63	0	0	1	12053
64	0	0	0	0
65	0	0	1	4901
66	0	0	1	932
67	0	0	2	11938
68	0	0	1	574
69	0	0	1	1322
TOTAL	1	\$ 7,592	8	\$ 36,486

FINANCIAL EXHIBITS

II. FINANCIAL EXHIBITS

Table 13 - Financial Balance Sheet
(December 31, 1982)

A s s e t s

Cash	\$ 59,922.48
Receivables:	
Interest	1,467,753.16
Dividends	195,675.00
Employer Contribution	701,001.82
Repaid Principal	22,106.99
Short-term Notes, at Discounted Value	15,273,546.85
Bonds at Amortized Cost	49,329,919.07
Mortgages at Amortized Cost	3,286,780.59
Real Estate at Amortized Cost	729,018.08
Stocks at Cost	41,115,829.21
Deferred Yield Adjustment Account	5,801,576.09
Equipment Less Depreciation	8,906.11
Administrative Expenses Payable	(<u>9,014.48</u>)
TOTAL ASSETS	\$117,983,020.97
Members Accumulated Contributions (without interest)	\$ 39,071,858.99
Administration Expenses - 1982	\$ 222,035.24

Table 14 - Sources and Uses of Funds

S o u r c e s

Cash Balance January 1, 1982		\$ 33,181.27
Income from Employer Contribution:		
State of Minnesota - Basic	\$6,336,001.74	
- Coordinated	523,385.91	
Federal Programs - Basic	329,094.59	
- Coordinated	<u>37,222.70</u>	
		7,225,704.94
Income from Members:		
Payroll Deductions - Basic	\$4,242,472.16	
- Coordinated	558,222.11	
Prior Service	1,811.58	
Return of Refunds	<u>15,592.29</u>	
		4,818,098.14
Income from Investments:		
Interest	\$7,736,924.74	
Dividends	2,093,615.38	
Requests	4,974.89	
Miscellaneous	<u>5,051.18</u>	
		9,840,566.19
Investments Sold		<u>210,788,854.32</u>
Total		<u>\$232,706,404.86</u>

U s e s

Pension Paid:		
Retirements	\$6,919,952.26	
Survivor	358,823.05	
Family	106,421.32	
Disability	<u>340,419.99</u>	
		\$ 7,725,616.62
Refunds of Dues		887,313.73
Administrative Expenses:		
Actuarial, Auditing, Legal	\$ 17,200.00	
Data Processing	1,497.83	
Delegate Expense	6,447.00	
Investment Services	57,972.14	
Office Equipment	165.00	
Office Expense	20,115.50	
Salaries	101,480.16	
Taxes, Insurance, Affiliate Dues	12,455.72	
Accounts Payable - Withheld Taxes (<u>2,839.48)</u>	
		214,493.87
Refund - Dividend/Interest Not Due		66,963.55
Investments Purchased		223,752,094.62
Cash Balance - December 31, 1982		<u>59,922.47</u>
Total		<u>\$232,706,404.86</u>

Table 15 - Reconciliation of Asset Balances
(December 31, 1982)

Asset Balance - December 31, 1981		\$105,071,869.51
Additions:		
Employer Contributions	\$7,256,112.43	
Member Contributions	4,818,098.14	
Investment Income	<u>9,995,800.12</u>	<u>22,070,010.69</u>
Sub-Total		\$127,141,880.20
Deductions:		
Benefit Payments	\$7,720,712.54	
Refunds	887,292.81	
Administrative Expenses	222,035.24	
Net Loss on Sale of Stock	<u>328,818.64</u>	<u>9,158,859.23</u>
Asset Balance, December 31, 1982		<u>\$117,983,020.97</u>

Table 16 - Asset Allocation
(December 31, 1982)

	<u>Basic Division</u>	<u>Coordinated Division</u>	<u>Total</u>
Asset Balance, 12/31/81	\$102,484,984.57	\$2,586,884.94	\$105,071,869.51
a) Employer Con- tributions	6,693,144.64	562,967.79	7,256,112.43
b) Employee Con- tributions	4,258,063.65	560,034.49	4,818,098.14
c) Benefits Paid	(7,684,954.45	(35,758.09)	(7,720,712.54)
d) Refunds	(699,897.61)	(187,395.20	(887,292.81)
e) Net	<u>2,566,356.23</u>	<u>899,848.99</u>	<u>\$ 3,466,205.22</u>
f) Investment Income	9,392,118.06	274,863.42	\$ 9,666,981.48
g) Adminis- trative Expenses	(181,802.42)	(40,232.82)	(222,035.24)
h) Net: (f) + (g)	<u>9,210,315.64</u>	<u>234,630.60</u>	<u>\$ 9,444,946.24</u>
i) Increase for Year	11,776,671.87	1,134,479.59	\$ 12,911,151.46
Asset Balance, 12/31/82	<u>\$114,261,656.44</u>	<u>\$3,721,364.53</u>	<u>\$117,983,020.97</u>

ACTUARIAL STATUS OF PLAN

III. ACTUARIAL STATUS OF PLAN

The actuarial cost method used to determine the funding pattern for these plans is called the "Entry Age Normal" cost method. Under this method, the Accrued Liability is determined by taking the excess of the present value of projected benefits over the present value of future normal costs. The Accrued Liability is a measure of the assets that would be accumulated in the Plans if all past contribution requirements had been fully funded and all actuarial assumptions had been realized. The Unfunded Liability is defined as the difference between the Accrued Liability and the assets at the valuation date.

We will determine the Present Value of Plan Benefits, the Accrued Liability, the Entry Age Normal level contribution requirement (Normal Cost), and the contribution required to amortize the Unfunded Liability by the year 2009. We will then compare those contribution requirements with the Statutory Contribution Rate to determine the sufficiency of current contributions. We will also analyze the change in the Unfunded Liability over the last year. These calculations will be presented for the Basic Plan and Coordinated Plan combined in subsection A, followed by computations for each Plan separately in subsections B and C.

A. BASIC AND COORDINATED PLANS COMBINED

Table 17 - Present Value of Future Benefits
(December 31, 1982)

Present Value of Benefits Expected to be Paid by Retirement Fund to:

(a) Active Teachers:

Retirement	\$213,220,731	
Disability	16,576,802	
Survivorship	17,171,490	
Refund	<u>13,124,572</u>	
Total		\$260,093,595

(b) Vested Teachers 775,770

(c) Teachers on Leave 4,210,226

(d) Former Teachers without Vested Rights 350,707

(e) Teachers and Beneficiaries
Now Receiving Benefits:

Retirement	\$ 57,140,047	
Disability	2,256,264	
Survivorship	<u>4,030,763</u>	
Total		<u>63,427,074</u>

Total Present Value of Benefits \$328,857,372

Table 18 - Unfunded Liability

(a) Present Value of Benefits \$328,857,372

(b) Present Value of Future Normal Costs 72,390,352

(c) Accrued Liability
(a) - (b) 256,467,020

(d) Assets 117,983,021

(e) Unfunded Liability
(c) - (d) 138,483,999

A. BASIC AND COORDINATED PLANS COMBINED (continued)

Table 19 - Rate Requirement for Amortization
of Unfunded Liability

Amount to be Amortized	\$138,483,999
Contribution Requirement for Amortization Period of 27 Years	9,457,330
Current Payroll	61,695,167
Amortization Rate Requirement	15.3291%

Table 20 - Level Contribution (Entry Age Normal)
Rate Requirement

Expected Future Contributions on Behalf of Active Teachers	\$ 72,390,352
Expected Future Payroll	698,420,540
Entry Age Normal Rate Requirement	10.3649%
Teacher Contribution Rate*	<u>7.3658%</u>
Employer Entry Age Normal Rate Requirement	2.9991%

Table 21 - Actuarial Balance

Employer Statutory Contribution Rate**	11.1568%
Rate Requirements	
Amortization Rate Requirement	15.3291%
Entry Age Normal Rate Requirement	2.9991
Expenses Rate Requirement	<u>.3599</u>
Total Rate Requirement	<u>18.6881%</u>
Deficit of Statutory Rate over Rate Requirement	<u>7.5313%</u>

* Weighted by Current Payroll, 81.88% Basic and 18.12% Coordinated.

** Rate established by Minnesota Statute, 12.63% Basic and 4.5% Coordinated, weighted by Current Payroll.

A. BASIC AND COORDINATED PLANS COMBINED (continued)

Table 22 - Statement of Revenue, Expenditures, and
Changes in Unfunded Liability
(Year Ended December 31, 1982)

(a) Revenue:		
Employer Contributions	\$ 7,256,112.43	
Employee Contributions	4,818,098.14	
Net Investment Income	<u>9,666,981.48</u>	
Total Revenue		\$21,741,192.05
(b) Expenditures:		
Benefits	7,720,712.54	
Refund of Dues	887,292.81	
Administrative Expenditures	<u>222,035.24</u>	
Total Expenditures		<u>8,830,040.59</u>
(c) Increase in Assets (1982): (a) - (b)		12,911,151.46
(d) Increase in Accrued Liability		
(i) Accrued liability		
at 12/31/82	256,467,020.00	
(ii) Accrued liability		
at 12/31/81	<u>232,389,470.00</u>	
(iii) Increase		24,077,550.00
(e) Increase (Decrease) in Unfunded Liability		<u>\$11,166,398.54</u>

A. BASIC AND COORDINATED PLANS COMBINED (continued)

Table 23 - Analysis of Increase (Decrease) in
Unfunded Liability

(Year Ended December 31, 1982)

(a) Change in Average Earnings	\$ 8,896,575
(b) Principal of Unfunded Anticipated in Total Rate Requirement	(2,180,000)
(c) Deficiency in Total Rate Require- ment over Statutory Rate	<u>4,561,696</u>
(d) Increase Due to Amortization	2,381,696
(e) Investment Income in Excess of 5%: Loss (Gain)	(4,333,273)
(f) Increase Due to Change in Valuation Method	3,158,097
(g) Experience Variation: Loss (Gain)	<u>1,063,303</u>
(h) Total Increase (Decrease)	<u>\$11,166 398</u>

B. BASIC PLAN

Table 24 - Present Value of Future Benefits
(December 31, 1982)

Present Value of Benefits Expected to be Paid by Retirement Fund to:

(a) Active Teachers:

Retirement	\$204,173,817
Disability	15,890,989
Survivorship	16,803,241
Refund	<u>11,398,769</u>

Total	\$248,266,816
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(b) Vested Teachers	775,770
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(c) Teachers on Leave	3,984,000
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(d) Former Teachers without Vested Rights	199,621
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(e) Teachers and Beneficiaries
Now Receiving Benefits:

Retirement	56,637,679
Disability	2,256,264
Survivorship	<u>4,030,763</u>

Total	<u>62,924,706</u>
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Total Present Value of Benefits	\$316,150,913
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Table 25 - Unfunded Liability

(a) Present Value of Benefits	\$316,150,913
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(b) Present Value of Future Normal Costs	64,804,844
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(c) Accrued Liability (a) - (b).	251,346,069
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(d) Assets	114,261,656
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(e) Unfunded Liability (c) - (d)	137,084,413
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B. BASIC PLAN (continued)

Table 26 - Rate Requirement for Amortization
of Unfunded Liability

Amount to be Amortized	\$137,084,413
Contribution Requirement for Amortization Period of 27 Years	9,361,750
Current Payroll	50,515,993
Amortization Rate Requirement	18.5322%

Table 27 - Level Contribution (Entry Age Normal)
Rate Requirement

Expected Future Contributions on Behalf of Active Teachers	\$ 64,804,844	
Expected Future Payroll	562,713,012	
Entry Age Normal Rate Requirement	11.5165%	
Teacher Contribution Rate	<u>8.0000</u>	
Employer Entry Age Normal Rate Requirement		<u><u>3.5165%</u></u>

Table 28 - Actuarial Balance

Employer Statutory Contribution Rate*	12.6300%
Rate Requirements	
Amortization Rate Requirement	18.5322%
Entry Age Normal Rate Requirement	3.5165
Expenses Rate Requirement	<u>.3599</u>
Total Rate Requirement	22.4086%
Deficit of Statutory Rate over Rate Requirement	9.7786%

* Rate established by Minnesota Statute.

B. BASIC PLAN (continued)

Table 29 - Statement of Revenue, Expenditures, and
Changes in Unfunded Liability
(Year Ended December 31, 1982)

a) Revenue:		
(i) Employer Contributions	\$6,693,144.64	
(ii) Employee Contributions	4,258,063.65	
(iii) Net Investment Income	<u>9,392,118.06</u>	
(iv) Total Revenue		\$20,343,326.35
b) Expenditure:		
(i) Benefits	\$7,684,954.45	
(ii) Refund of Dues	699,897.61	
(iii) Administrative Expense	<u>181,802.42</u>	
(iv) Total Expenditures		<u>8,566,654.48</u>
c) Increase in Assets (1982)		11,776,671.87
d) Increase in Accrued Liability		
(i) Accrued liability at 12/31/82	251,346,069.00	
(ii) Accrued liability at 12/31/81	<u>228,472,070.00</u>	
(iii) Increase		22,873,999.00
e) Increase (Decrease) in Unfunded Liability		<u>\$11,097,327.13</u>

B. BASIC PLAN (continued)

Table 30 - Analysis of Increase (Decrease) in
Unfunded Liability

(Year Ended December 31, 1982)

a) Change in Average Earnings	\$9,034,745
b) Principal of Unfunded Anticipated in Total Rate Requirement	(2,157,218)
c) Deficiency in Total Rate Require- ment over Statutory Rate	<u>4,556,152</u>
d) Increase Due to Amortization	2,398,934
e) Investment Income in Excess of 5%: Loss (Gain)	(4,208,982)
f) Increase due to Change in Valuation	2,895,505
g) Experience Variation: Loss (Gain)	<u>977,125</u>
h) Total Increase (Decrease)	<u>\$11,097,327</u>

C. COORDINATED PLAN

Table 31 - Present Value of Future Benefits
(December 31, 1982)

Present Value of Benefits Expected to be Paid by Retirement Fund to:

(a) Active Teachers:

Retirement	\$9,046,914
Disability	685,813
Survivorship	368,249
Refund	<u>1,725,803</u>

Total	\$11,826,779
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(b) Vested Teachers	0
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(c) Teachers on Leave	226,226
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(d) Former Teachers without Vested Rights	151,086
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(e) Teachers and Beneficiaries
Now Receiving Benefits:

Retirement	\$ 502,368
Disability	0
Survivorship	<u>0</u>

Total	<u>502,368</u>
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Total Present Value of Benefits	<u><u>\$12,706,459</u></u>
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Table 32 - Unfunded Liability

(a) Present Value of Benefits	\$12,706,459
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(b) Present Value of Future Normal Costs	7,585,508
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(c) Accrued Liability (a) - (b)	5,120,951
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(d) Assets	3,721,365
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(e) Unfunded Liability (c) - (d)	1,399,586
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C. COORDINATED PLAN (continued)

Table 33 - Rate Requirement for Amortization
of Unfunded Liability

Amount to be Amortized	\$1,399,586
Contribution Requirement for Amortization Period of 27 Years	95,580
Current Payroll	11,179,174
Amortization Rate Requirement	.8550%

Table 34 - Level Contribution (Entry Age Normal)
Rate Requirement

Expected Future Contributions on Behalf of Active Teachers	7,585,508	
Expected Future Payroll	135,707,528	
Entry Age Normal Rate Requirement		
Teacher Contribution Rate*	6.1269%	
Employer Entry Age Normal Rate Requirement	<u>4.5000</u>	1.6269%

Table 35 - Actuarial Balance

Employer Statutory Contribution Rate*	4.5000%
Rate Requirements	
Amortization Rate Requirement	.8550%
Entry Age Normal Rate Requirement	1.6269
Expenses Rate Requirement	<u>.3599</u>
Total Rate Requirement	<u>2.8418%</u>
Deficit of Statutory Rate over Rate Requirement	(1.6582%)

* Rate established by Minnesota Statute.

C. COORDINATED PLAN (continued)

Table 36 - Statement of Revenue, Expenditures, and
Changes in Unfunded Liability
(Year Ended December 31, 1982)

(a) Revenue:		
(i)	Employer Contributions	\$562,967.79
(ii)	Employee Contributions	560,034.49
(iii)	Net Investment Income	<u>274,863.42</u>
(iv)	Total Revenue	\$1,397,865.70
(b) Expenditure:		
(i)	Benefits	35,758.09
(ii)	Refund of Dues	187,395.20
(iii)	Administrative Expense	<u>40,232.82</u>
(iv)	Total Expenditures	<u>263,386.11</u>
(c)	Increase in Assets (1982)	1,134,479.59
(d) Increase in Accrued Liability		
(i)	Accrued liability at 12/31/82	5,120,951.00
(ii)	Accrued liability at 12/31/81	<u>3,917,400.00</u>
(iii)	Increase	1,203,551.00
(e)	Increase (Decrease) in Unfunded Liability	69,071.41

C. COORDINATED PLAN (continued)

Table 37 - Analysis of Increase (Decrease) in
Unfunded Liability

(Year Ended December 31, 1982)

(a) Change in Average Earnings		(\$138,170)
(b) Principal of Unfunded Anticipated in Total Rate Requirement	(22,782)	
(c) Deficiency in Total Rate Require- ment over Statutory Rate	<u>5,544</u>	
(d) Increase Due to Amortization		(17,238)
(e) Investment Income in Excess of 5%: Loss (Gain)		(124,291)
(f) Increase due to change in Valuation Method		262,592
(g) Experience Variation: Loss (Gain)		<u>86,178</u>
(h) Total Increase (Decrease)		<u>\$ 69,071</u>

SUMMARY OF PLANS

IV. SUMMARY OF PLANS
(As Amended Effective July 1, 1978)

BASIC DIVISION

1. Name

St. Paul Teachers' Retirement Fund Association.

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 in 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 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 produced 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

12.63% of payroll.

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

Upon attainment of age 55 and 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 and reduced (i) by 1/2 of 1% for each of the first 60 months and (ii) by 1/4 of 1% for each additional month or major fraction thereof between date upon which payment begins and attainment of age 65.

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 date upon which payment begins 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 Limited Service Benefit above, augmented by interest compounded annually at the rate of 5% until January 1, 1981 and thereafter at the rate of 3%.

14. Death Benefit

Active

- (a) In the event of death prior to retirement and after completion of three years of service, a benefit 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, 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% join-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 (a) above, if the member terminates and has completed the probationary employment period under the applicable teacher tenure law, all amounts payable after the probationary period 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 under a mandatory retirement statute. 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. State Funded Retiree Increases

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.

20. Bonus Payment

For each year during which investment income of the fund exceeds 5-1/2% of the asset value at the end of the year, a lump sum payment to each retired member and survivor who has received an annuity for at least three years. Amount determined by prorating 1/2% of the asset value by total years of service of eligible annuitants.

COORDINATED DIVISION

1. Name

St. Paul Teachers' Retirement Fund Association.

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 in 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 who were automatically so covered.

5. Service Considered for Benefits

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.

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

Four and one half percent of pay excluding Social Security taxes.

8. Employee Contributions

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

9. Normal Retirement Benefit

Age 65 and completion of 10 years of service 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 1-1/2% 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 1/2% per month for each month under age 65 and by 1/4% per month for each month under age 60. For member with 30 years of service, annuities are reduced by 1/2% per month for each month under age 62 and by 1/4% 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 service or attainment of age 50 and completion of five years service, with average salary of at least \$75 per month.

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, augmented by interest compounded annually at the rate of 5% until January 1, 1981 and thereafter at the rate of 3%.

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 under a mandatory retirement statute. 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.

18. Bonus Payment

For each year during which investment income of the fund exceeds 5-1/2% of the asset value at the end of the year, a lump sum payment to each retired member and survivor who has received an annuity for at least three years. Amount determined by prorating 1/2% of the asset value by total years of service ad eligible annuitants.

ACTUARIAL ASSUMPTIONS

V. 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.

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

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		
53	2.322		
44	2.639		

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		
53	1.420		
44	1.540		

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		
53	1.36		
44	1.48		

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

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