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Public Employees Retirement Assn.

Public Employees Retirement Association
State of Minnesota

ACTUARIAL VALUATION REPORT

November 28, 1966

ARTHUR STEDRY HANSEN CONSULTING ACTUARIES

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ARTHUR STEDRY HANSEN CONSULTING ACTUARIES

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GENERAL OFFICES
1080 GREEN BAY ROAD
LAKE BLUFF, ILL. 60044
CE 4-3400
FROM CHICAGO: BR 3-2345

ONE N. LA SALLE STREET
SUITE 1525
CHICAGO, ILL. 60602
FI 6-0101

November 28, 1966

Board of Trustees
Public Employees Retirement
Association of Minnesota
Centennial Office Building
St. Paul, Minnesota

Gentlemen:

In accordance with your request, we have made an actuarial valuation of the Public Employees Retirement Association of the State of Minnesota for the year ended June 30, 1966, 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. A copy of this report will supply the data required by the legislative commission for the year ended June 30, 1966.

Respectfully submitted,
ARTHUR STEDRY HANSEN
CONSULTING ACTUARIES

Davis H. Roenisch
Davis H. Roenisch
Fellow, Society of Actuaries

DHR:rv
1366-81

Public Employees Retirement Association
State of Minnesota

ACTUARIAL VALUATION REPORT AND FINANCIAL EXHIBITS

General Fund

The following exhibits set forth the information required by law for the legislature as a result of the annual actuarial valuation. They are accompanied by financial exhibits which combine the audited financial reports of the system with the results of the actuarial valuation.

These figures have been prepared in accordance with the requirements of the law under the supervision of an approved actuary. Chief among these requirements are the use of the entry age normal cost method and 3% interest, both of which are reflected in the first series of exhibits. The other assumptions as to mortality, disability, withdrawal, and salary scales are the same as were used in the valuation for the year ending June 30, 1965.

The actuarial valuation for the current year measures all aspects of the general fund in accordance with the benefit program described in the Summary of the Plan section.

It is the conclusion of this report that the general fund continues to be in reasonable actuarial balance on a 3% interest basis. This is true despite a shift of part of the obligation into the value of the benefits expected to be earned in the future, discussed in detail below, and inclusion of a specific allowance for administrative expense.

Exhibit 6 sets forth a reconciliation of the change in the unfunded obligation from one year to the next, including the assignment of the major

reasons for variation between the actual and expected results. The changes in the present report are primarily attributable to experience reasons, since there have been no amendments to the Plan during the year, nor have there been any changes in actuarial assumptions.

As shown in Exhibit 5, there was a decrease in the unfunded obligation of \$14,476,322. This is primarily attributable to a shift of the obligation into the value of benefits expected to be earned in the future, primarily by way of an increase in the normal cost rate requirement. The basic reason for this shift was the fact that for the first time exact information on earnings up to \$6,000 was available, reflecting the first year of operation of the system under the law which credited benefits on earnings up to this amount.

In the prior year's report we had estimated the earnings that would be covered above \$4,800. While our estimate was reasonably accurate for the system as a whole, it turns out that those employees who were earning in excess of \$6,000 were concentrated in the younger ages as against our expectancy that they would be the older members. This increased the proportion of the benefits which would be earned in the future, and this led to a different division of the total obligation between past and future service.

Despite this, the results between the current and prior year are quite consistent. The total obligation to members still working was 1.91 times the covered payroll in 1965, and 1.88 times the larger covered payroll in 1966. Since there is evidence of only a modest inflationary increase, most the increase in payroll was attributed to new entrants with little or no effect on the past service obligation. This, in turn, accounts for the fact that the total obligation did not increase as fast as the covered payroll.

Exhibit 6 presents a reconciliation of the current year's figures to those given in the prior year. Rather than deal with the change in the unfunded obligation, the exhibit derives the expected change in the actuarial reserve requirements for benefits earned to date and compares it to the actual change. Thus the expected increase in the reserve requirement for benefits earned to date should, if all experience assumptions are realized, be equal to the increase in the assets after allowing for the expected amortization of the unfunded obligation, the excess interest, and the deficit in the contribution requirements. To the extent that the actuarial reserves increased more than expected, the possibility of an experience loss exists. If the reserve requirement increases less than expected, an experience gain would be looked for.

In the case of the general fund the actual increase in the reserve requirements for benefits earned to date was much smaller than expected. Even so, analysis of the reasons for this result indicated that it came about primarily because of a redistribution of the obligation between past and future based on the actual earnings up to \$6,000 of the members, rather than an experience gain. As noted in the exhibit, there is reason to believe that there would have been an over-all experience loss due to increases in compensation outstripping other experience gains. In future years, the division of the obligation between benefits earned in the past and in the future should become much more stable and the statement of gains and losses will become more meaningful.

CONCLUSIONS

It is our conclusion that the General Fund is in reasonable actuarial balance and that the benefits earned during the year 1966-1967 could be provided by the combined employer-employee 14-1/2% contribution rate. To

remain actuarially sound and to meet the statutory requirement of full funding by 1997, however, the Employers must continue to not only match the current employee contribution, but also levy an additional 2-1/2% to finance the benefits earned prior to 1957.

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1966)

(General Fund)

LIABILITIES

Accounts Payable	\$	28,773.45		
Retirement				
Survivor				
Refunds		98,587.30		
Expenses				
Suspense Items		<u>72,463.99</u>	\$	199,824.74
Less Offset Against Current Assets			<u>199,824.74</u>	0

RESERVES

Entry Age Normal Reserves at 3% — Active Members				
Retirement	\$256,280,696.00			
Disability	15,669,982.00			
Survivors	25,003,798.00			
Refund	<u>21,217,823.00</u>			
	\$318,172,299.00			
Less Value of Benefits to be Earned in the Future	<u>\$137,741,808.00</u>	\$180,430,491.00		
Vested Members		\$ 3,327,458.00		
Retired Members				
Retirement	\$ 68,474,665.00			
Disability	1,382,269.00			
Survivors	<u>22,187,110.00</u>	<u>\$ 92,044,044.00</u>	<u>\$275,801,993.00</u>	
Unfunded Obligation			133,464,435.89	
Funded Obligation			<u>\$142,337,557.11</u>	

Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1966)

June 30, 1966 Census and Valuation — 3% Interest

(General Fund)

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$413,543,801
Obligation For Service		
Rendered to Date	\$ 275,801,993	
Net Assets	142,337,557	
Accrued Unfunded Obligation	133,464,436	
Funding Ratio		52%
Amortization (31 Year) Requirement	6,673,222	
Covered Payroll	169,623,104	
Amortization (31 Year) Rate Requirement		<u>3.93%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	137,741,808	
Present Value of Future Payroll	1,280,752,200	
Normal Cost Rate Requirement	10.75%	
Employee Contribution Rate	6.00*	
Employer Normal Cost Rate Requirement		<u>4.75%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		8.50%*
Amortization (31 Year) Rate Requirement	3.93%	
Normal Cost Rate Requirement	4.75	
Allowance for Expenses	0.22	
Total Requirement		8.90
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>(0.40%)</u>

*Smaller Hospital rate would have an insignificant effect.

Public Employees Retirement Association
State of Minnesota

(General Fund)

SOURCES AND USES OF FUNDS

<u>Sources</u>		<u>Uses</u>	
<u>Employee Contributions</u>	\$ 9,633,636.20	<u>Refunds</u>	
		Employee Contributions	\$ 2,813,037.37
		Employer Contributions	8,758.17
<u>Employer Contributions</u>		<u>Penalties Refunded</u>	1,636.92
Regular	11,578,749.59	<u>Donations Refunded</u>	984.77
Advance	390,472.09		
<u>Investment Income</u>	4,577,091.01	<u>Benefits Paid</u>	
Transfer from the		Retirement	6,488,761.88
<u>Police and Fire Fund</u>	37,762.93	Survivor	1,706,690.79
		Disability	205,411.58
<u>Investment Sales</u>		<u>Direct Expense</u>	379,402.85
Bonds	32,833,757.87	<u>Social Security</u>	44,403.09
Stocks	268,524.35	<u>Investment Purchases</u>	
<u>Miscellaneous Income</u>	77,429.74	Bonds	39,759,250.00
<u>Cancelled Warrants</u>	70,692.89	Stocks	7,997,003.59
<u>Decrease in Cash Account</u>	13,847.86	Premium and Interest	18,393.71
		<u>Transfers to Police and Fire Fund</u>	58,229.81
	<u>\$59,481,964.53</u>		<u>\$59,481,964.53</u>
Cash Balance 6/30/66	<u>507,200.07</u>		
Total (Statement of Receipts and Disbursements)	<u>\$59,989,164.60</u>		

Public Employees Retirement Association
State of Minnesota

(General Fund)

RECONCILIATION OF ASSET BALANCES

Asset Balance — July 1, 1965			\$126,333,964.44
Add:			
Employer Contributions		\$13,595,502.95	
Employee Contributions		9,717,033.98	
Investment Income		4,727,849.53	
Miscellaneous Income		77,293.58	
Unit Matching Contributions		<u>50,205.59</u>	
Total Additions			<u>28,167,885.63</u>
			\$154,501,850.07
Deduct:			
Benefits Paid			
Retirement	\$6,499,451.80		
Survivor	1,701,645.92		
Disability	<u>206,160.58</u>	\$ 8,407,258.30	
Refunds		2,815,659.06	
Social Security		44,403.09	
Expense Administrative		385,520.92	
Capital Adjustment		<u>311,626.85</u>	
Total Deductions			<u>11,964,468.22</u>
Asset Balance — June 30, 1966			<u>\$142,537,381.85</u>

Public Employees Retirement Association
State of Minnesota

(General Fund)

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
(Year Ending June 30, 1966)

Revenue:

Employee Contributions	\$ 9,717,033.98	
Employer Contributions	13,595,502.95	
Investment Income	4,727,849.53	
Miscellaneous Income	77,293.58	
Unit Matching Contributions	<u>50,205.59</u>	
Total Revenue		\$28,167,885.63

Expenditure:

Benefits	8,407,258.30	
Refund of Contributions	2,815,659.06	
Social Security	44,403.09	
Administrative Expense	385,520.92	
Capital Adjustment	<u>311,626.85</u>	
Total Expenditures		<u>11,964,468.22</u>

Increase in Assets (1965)	\$16,203,417.41
Estimated Increase in Actuarial Reserves	<u>1,727,095.00</u>
Decrease (Increase) in Unfunded Obligation	<u>\$14,476,322.41</u>

Public Employees Retirement Association
State of Minnesota

(General Fund)

RECONCILIATION OF DECREASE IN UNFUNDED OBLIGATION

Expected Decrease in Unfunded Obligation

Amortization Payment	\$ 2,900,218	
Excess Interest (1.17 x Average Invested Assets)	1,306,583	
Estimated Deficit in Rate	<u>(627,605)</u>	
Expected Decrease		\$ 3,579,196

Expected Increase in Actuarial Reserves

Increase in Assets	\$16,203,417	
Decrease in Unfunded	<u>3,579,196</u>	
		\$12,624,221

Reconciliation of Change in Actuarial Reserves

Expected Increase in Reserves	\$12,624,221	
Actual Increase in Reserves	<u>1,727,095</u>	
Experience Variation Gain		(<u>\$10,897,126</u>)
Change in Reserves Attributable to Changes in the Division between Past and Future Service	(\$13,699,772)	
Change in Reserves Attributable to Increases in Compensation	6,565,095	
Other Experience Gains	<u>(\$ 3,762,449)</u>	
Total		(<u>\$10,897,126</u>)

Public Employees Retirement Association
State of Minnesota

RECONCILIATION OF ACTIVE MEMBERS AND ANNUITANTS

(General Fund)

1. Active Members

As of July 1, 1965	42,025
New Entrants (Estimated)	<u>11,620</u>
<u>Total</u>	<u>53,645</u>

Separations:

(a) With Refund of Contributions (Estimated)	8,351
(b) With Deferred Annuity	0
(c) With Disability Annuity	30
(d) Deceased with Survivor Annuity	281
(e) With Normal Retirement Annuity	<u>523</u>
<u>Total</u>	<u>9,185</u>

As of July 1, 1966	44,460
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2. Annuitants

a. Normal Retirement Annuitants

As of July 1, 1965	4,344
Additions During Year	523
Deletions During Year	279
As of July 1, 1966	4,588

b. Survivor Annuitants

As of July 1, 1965	1,780
Additions During Year	281
Deletions During Year	89
As of July 1, 1966	1,972

c. Disability Annuitants

As of July 1, 1965	133
Additions During Year	30
Deletions During Year	18
As of July 1, 1966	145

d. Deferred Annuitants

As of July 1, 1965	352
Additions During Year	0
Deletions During Year	95
As of July 1, 1966	257

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1966)

(General Fund)

LIABILITIES

Accounts Payable	\$	28,773.45		
Retirement				
Survivor				
Refunds		98,587.30		
Expenses				
Suspense Items		<u>72,463.99</u>	\$	199,824.74
Less Offset Against Current Assets			<u>199,824.74</u>	0

RESERVES

Entry Age Normal Reserves at 3-1/2% — Active Members				
Retirement	\$228,089,820.00			
Disability	13,946,284.00			
Survivors	22,253,380.00			
Refund	<u>18,883,862.00</u>			
	\$283,173,346.00			
Less Value of Benefits to be Earned in the Future	<u>\$116,312,791.00</u>	\$166,860,555.00		
Vested Members		\$ 3,282,208.00		
Retired Members				
Retirement	\$ 66,420,425.00			
Disability	1,340,801.00			
Survivors	<u>21,521,497.00</u>	<u>\$ 89,282,723.00</u>	<u>\$259,425,486.00</u>	
Unfunded Obligation			117,087,928.89	
Funded Obligation			<u>\$142,337,557.11</u>	

Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1966)

June 30, 1966 Census and Valuation — 3-1/2% Interest
(General Fund)

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$375,738,277
Obligation For Service		
Rendered to Date	\$ 259,425,486	
Net Assets	142,337,557	
Accrued Unfunded Obligation	117,087,929	
Funding Ratio		55%
Amortization (31 Year) Requirement	6,248,983	
Covered Payroll	169,623,104	
Amortization (31 Year) Rate Requirement		<u>3.68%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be		
Earned in the Future	116,312,791	
Present Value of Future Payroll	1,229,522,100	
Normal Cost Rate Requirement	9.46%	
Employee Contribution Rate	6.00*	
Employer Normal Cost Rate Requirement		<u>3.46%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		8.50%*
Amortization (31 Year) Rate Requirement	3.68%	
Normal Cost Rate Requirement	3.46	
Allowance for Expenses	0.22	
Total Requirement		7.36
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>1.14%</u>

*Smaller Hospital rate would have an insignificant effect.

Public Employees Retirement Association
State of Minnesota

General Fund

ACTUARIAL ASSUMPTIONS

While ample statistics were available, it did not appear desirable to process these for an experience analysis since an Actuarial Survey will be required by law in 1967. Consequently, the following experience factors based on public retirement systems closely resembling the Public Employees Retirement Association were adopted for purposes of making this valuation.

Interest:	3.0%
Mortality Before Retirement:	1951 Group Annuity
After Retirement:	1965 Group Annuity
Retirement Age:	65
Disability:	Illinois Municipal Experience
Turnover:	PERA Experience
Salary Scale:	Experience Rates
1952-57 Wage Base:	Estimate based on 1952-57 contribu- tions

Age 65 was used as the average age at retirement since it both reflected the retirement rates developed in earlier studies, and the prior calculations of the legislative commission.

A detailed statement of the mortality rates, disability rates, turnover factors and salary scale is set out in the following pages.

Public Employees' Retirement Association
State of Minnesota

General Fund

Male Employees

MORTALITY RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.616	45	3.580
21	.640	46	4.065
22	.666	47	4.599
23	.693	48	5.180
24	.724	49	5.807
25	.758	50	6.475
26	.796	51	7.187
27	.838	52	7.938
28	.885	53	8.731
29	.935	54	9.563
30	.991	55	10.436
31	1.054	56	11.346
32	1.122	57	12.298
33	1.198	58	13.302
34	1.281	59	14.379
35	1.374	60	15.555
36	1.475	61	16.866
37	1.587	62	18.353
38	1.711	63	20.068
39	1.849	64	22.067
40	2.000	65	24.418
41	2.192		
42	2.450		
43	2.769		
44	3.147		

Public Employees' Retirement Association
State of Minnesota

General Fund
Female Employees
MORTALITY RATES
(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.371	45	1.994
21	.393	46	2.169
22	.416	47	2.361
23	.440	48	2.573
24	.467	49	2.809
25	.495	50	3.070
26	.524	51	3.319
27	.556	52	3.597
28	.591	53	3.908
29	.628	54	4.257
30	.669	55	4.648
31	.712	56	5.102
32	.760	57	5.637
33	.812	58	6.265
34	.868	59	6.997
35	.930	60	7.837
36	.997	61	8.788
37	1.071	62	9.848
38	1.152	63	11.010
39	1.240	64	12.264
40	1.338	65	13.597
41	1.446		
42	1.563		
43	1.694		
44	1.836		

Public Employees' Retirement Association
State of Minnesota

General Fund

All Employees

DISABILITY RATES

(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.69	45	3.17
21	.73	46	3.41
22	.77	47	3.67
23	.81	48	3.94
24	.86	49	4.25
25	.91	50	4.61
26	.96	51	5.01
27	1.02	52	5.48
28	1.08	53	6.00
29	1.15	54	6.53
30	1.22	55	7.12
31	1.29	56	7.76
32	1.37	57	8.45
33	1.45	58	9.17
34	1.54	59	9.91
35	1.63	60	10.69
36	1.73	61	11.53
37	1.84	62	12.38
38	1.96	63	13.25
39	2.09	64	14.15
40	2.23		
41	2.38		
42	2.55		
43	2.74		
44	2.94		

Public Employees' Retirement Association
State of Minnesota

General Fund

Male Employees

SEPARATION RATES

(Per 1,000 Employees)

<u>Age</u>	<u>Separation</u>	<u>Age</u>	<u>Separation</u>
20	275.0	40	81.8
21	263.8	41	76.2
22	250.5	42	71.5
23	239.0	43	67.0
24	226.5	44	62.2
25	216.0	45	58.0
26	204.5	46	53.9
27	192.5	47	49.7
28	182.0	48	45.0
29	171.5	49	42.0
30	161.0	50	38.5
31	152.8	51	34.5
32	143.5	52	31.0
33	133.0	53	27.0
34	124.5	54	23.0
35	117.0	55	19.5
36	109.2	56	15.0
37	101.0	57	10.0
38	94.0	58	5.0
39	88.0		

Public Employees' Retirement Association
State of Minnesota

General Fund

Female Employees

SEPARATION RATES

(Per 1,000 Employees)

<u>Age</u>	<u>Separation</u>	<u>Age</u>	<u>Separation</u>
20	383.2	40	134.0
21	377.7	41	123.0
22	371.2	42	113.0
23	363.1	43	104.5
24	351.6	44	97.2
25	335.6	45	90.0
26	322.6	46	83.0
27	310.3	47	78.7
28	299.7	48	74.5
29	289.1	49	70.4
30	280.5	50	66.3
31	269.4	51	62.8
32	259.0	52	59.5
33	246.3	53	55.5
34	232.5	54	52.2
35	216.0	55	47.8
36	199.0	56	41.0
37	183.0	57	36.2
38	165.0	58	21.0
39	148.5	59	5.0

Public Employees' Retirement Association
State of Minnesota

General Fund

All Employees

EARNINGS PROGRESSION

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.4102	45	.6730
21	.4184	46	.6864
22	.4268	47	.7002
23	.4353	48	.7142
24	.4440	49	.7284
25	.4529	50	.7430
26	.4619	51	.7579
27	.4712	52	.7730
28	.4806	53	.7885
29	.4902	54	.8043
30	.5000	55	.8203
31	.5100	56	.8368
32	.5202	57	.8535
33	.5306	58	.8706
34	.5412	59	.8880
35	.5521	60	.9057
36	.5631	61	.9238
37	.5744	62	.9423
38	.5859	63	.9612
39	.5976	64	.9804
40	.6095	65	1.0000
41	.6217		
42	.6342		
43	.6468		
44	.6598		

Public Employees Retirement Association
State of Minnesota

General Fund

SUMMARY OF PLAN

1. Name

Public Employees Retirement Association.

2. Type of Plan

Self-insured, managed by a 12 member Board of Trustees consisting of the State Auditor, State Insurance Commissioner, State Treasurer, and nine others elected from the membership of the Association.

3. Employers Included

Any county, city, village, borough, town, school district within the State, or a department or unit of the State or any other public body employing any person who is a public employee as defined by the Law.

4. Employees Included

All full-time employees, except those on a per diem basis, of an eligible employer who are not contributing to another plan.

5. Service Considered

All periods of service in which salary deductions were made or for which payments in lieu of salary deduction were deposited, including seasonal layoff and authorized sick leaves.

6. Earnings Considered

(a) For service prior to July 1, 1957, average of highest consecutive 5 years prior to such date, not to exceed \$4,800.

(b) For service during the period July 1, 1957 to July 1, 1965, all earnings not to exceed \$4,800 in any calendar year.

(c) After July 1, 1965, all earnings not to exceed \$6,000 in any calendar year.

(d) Earnings considered for determining benefit under the law in force prior to 1957 shall be the average annual earnings during the 10-year period immediately preceding retirement limited to a maximum of \$4,800.

7. Employer Contributions

Municipal — Amount equal to 6% of total considered earnings for current service plus 2-1/2% of total considered earnings to amortize past service cost.

Hospital — Amount equal to 3% of total considered earnings for current service plus 2% of total considered earnings through calendar year 1965 and 1-1/2% thereafter to amortize past service costs.

8. Employee Contributions

- (a) For service prior to July 1, 1957, 4% of considered earnings.
- (b) After July 1, 1957, 6% of considered earnings, except Hospital employees, 3% of considered earnings.

9. Normal Retirement Benefit

After attainment of age 65 and completion of 10 years of service.

Municipal — Annuity equal to the sum of:

- 1)
 - (a) 1% of considered earnings for each of the first ten years plus;
 - (b) 2% of considered earnings for each of the second ten years plus;
 - (c) 2-1/2% of considered earnings for each of the third ten years plus;
 - (d) 3% of considered earnings for each year over thirty.
- plus 2) 10% per year of service prior to July 1, 1957 (maximum 100%) of the difference (if any) between an annuity computed under item 1 and an annuity computed entirely under the old law formula.
- plus 3) An increment for considered earnings after July 1, 1965 in excess of \$4,800 (if any).

Hospital — Annuity equal to the sum of:

- 1)
 - (a) 5/8% of considered earnings for each of the first ten years plus;
 - (b) 7/8% of considered earnings for each of the second ten years plus;
 - (c) 1.66% of considered earnings for each of the third ten years plus;
 - (d) 1.75% of considered earnings for each year over thirty.

10. Late Retirement Benefit

Annual annuity determined as for Normal Retirement, considering Service and Earnings to actual retirement.

11. Early Retirement Benefit

After attainment of age 58 and completion of 20 years of service.

Annual annuity determined as for Normal Retirement considering Service and Earnings to actual retirement and reduced by 1/2 of 1% for each month between actual retirement and attainment of age 65.

12. Disability Benefit

In event of total and permanent disability after completion of 10 years of service or attainment of age 50 and completion of 5 years of service.

Annual Annuity determined as for Normal Retirement, considering Service and Earnings to date of disablement, plus a supplement equal to \$5 for each year which age at disablement is less than 65, maximum \$50.

13. Death Benefit — Not applicable to Hospital Employees

Active - In event of death after 18 months of service.

Annual Annuity to dependent spouse of 30% of average salary not to exceed \$65 per month, plus for each dependent child under age 18, 20% of average salary not to exceed \$45 per month, plus 10% of average salary not to exceed \$20 per month to be divided among dependent children. Maximum family benefit equal to lesser of \$250 per month or 100% of average salary.

In lieu of above benefit, if employee has attained age 58 and completed 20 years of service, a 75% survivor benefit for spouse payable at age 62. Maximum benefit \$150 per month.

Any employee (including Hospital employees) not eligible for above benefits, his contributions with interest at 2% shall be paid to his beneficiary.

Retired

(a) Under law in force July 1, 1957 and prior, 50% of his annuity continued to his beneficiary provided his beneficiary is his surviving spouse and has attained age 60, and has not remarried; or is the parent of the retired member.

(b) Under law in effect July 1, 1957 and subsequent, refund of contributions less benefit paid to date of death.

14. Separation Benefit

In event of termination after 10 years of service, a deferred vested benefit payable at age 65, provided participant does not withdraw contribution.

Annual Annuity determined as for Normal Retirement considering Service and Earnings to date of termination. In lieu of annuity, participant shall receive a refund of contributions without interest.

15. Optional Benefits

A participant may elect to receive an equivalent actuarially reduced annuity in the form of a joint and survivor annuity or a period certain and life thereafter annuity.

16. Expenses

Paid by Association from retirement fund.

17. Actuarial Method

For purpose of reports to the Legislative Commission, costs for the Plan shall be determined on an "entry-age level normal cost" basis amortizing the unfunded accrued liability over 40 years from 1957, 3% interest.

**Public Employees Retirement Association
State of Minnesota**

General Fund — Municipal Employees

CONSIDERED EARNINGS

Maximum \$6,000 Per Employee

Active Male Employees

(Age and Service as of July 1, 1966)

AGE	YEARS OF SERVICE							
	UNDER 1		1		2 - 4		5 - 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	354	1,191,095	365	1,290,761	237	950,599	72	108,142
25-29	202	828,772	412	1,715,237	664	3,191,666	322	1,649,873
30-34	149	608,947	301	1,225,484	674	3,232,297	729	3,758,166
35-39	121	507,052	330	1,207,365	647	2,905,365	765	3,774,064
40-44	145	554,091	294	1,090,074	693	3,074,442	908	4,325,160
45-49	139	537,450	313	1,178,322	665	2,850,111	960	4,490,593
50-54	123	458,618	300	1,128,449	604	2,457,196	1004	4,625,039
55-59	85	301,961	204	703,620	459	1,819,601	866	3,868,322
60-64	49	178,911	118	373,296	275	931,466	568	2,356,508
65-69	28	83,869	58	143,893	88	243,589	210	832,256
70&UP	15	34,385	45	94,555	60	135,294	98	258,783
	1410	5,285,151	2740	10,151,056	5066	21,791,626	6452	30,046,906

AGE	YEARS OF SERVICE							
	10 - 14		15 - 19		20 - 24		25 - 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	-	-
25-29	13	74,120	-	-	-	-	-	-
30-34	208	1,161,562	14	79,701	-	-	-	-
35-39	514	2,789,748	135	776,050	2	9,321	-	-
40-44	618	3,236,620	409	2,304,516	25	140,724	1	6,000
45-49	605	3,101,149	487	2,684,060	80	456,933	12	70,232
50-54	694	3,407,564	517	2,758,825	158	888,694	64	372,374
55-59	633	3,025,906	609	3,218,380	169	923,501	78	536,014
60-64	470	2,130,346	526	2,684,309	190	1,031,325	99	556,276
65-69	192	857,188	228	1,154,571	130	725,772	66	367,452
70&UP	78	258,292	84	377,973	27	134,891	42	223,025
	4025	20,042,495	3009	16,038,385	781	4,311,161	382	2,131,373

AGE	YEARS OF SERVICE							
	30 - 34		35 - 39		40 & OVER		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	978	3,540,597
25-29	-	-	-	-	-	-	1613	7,459,668
30-34	-	-	-	-	-	-	2075	10,066,157
35-39	-	-	-	-	-	-	2514	11,968,965
40-44	-	-	-	-	-	-	3093	14,731,627
45-49	1	6,000	-	-	-	-	3262	15,374,850
50-54	5	30,000	2	7,260	-	-	3471	16,134,019
55-59	44	253,572	11	63,674	-	-	3178	14,714,551
60-64	38	220,443	34	199,706	2	11,604	2369	10,674,190
65-69	32	190,185	22	126,012	3	17,936	1057	4,742,723
70&UP	10	46,865	15	82,188	4	20,990	478	1,667,241
	130	747,065	84	478,840	9	50,530	2408	11,074,588

Average Age 47.06

Average Service 8.71

Average Entry Age 38.35

**Public Employees Retirement Association
State of Minnesota**

General Fund — Municipal Employees

CONSIDERED EARNINGS

Maximum \$6,000 Per Employee

Active Female Employees

(Age and Service as of July 1, 1966)

AGE	YEARS OF SERVICE							
	UNDER 1		1		2 - 4		5 - 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	508	1,329,452	740	2,322,778	662	2,334,666	90	355,647
25-29	148	422,301	272	918,805	433	1,734,170	223	859,727
30-34	128	281,465	260	648,534	327	905,039	188	743,955
35-39	188	407,078	387	866,368	600	1,582,702	316	1,069,648
40-44	187	454,292	475	1,081,799	806	2,084,003	597	2,019,221
45-49	182	409,684	425	959,450	783	2,096,976	818	2,585,712
50-54	139	319,819	322	745,674	625	1,632,107	868	2,695,590
55-59	91	231,891	197	420,072	417	1,053,014	726	2,075,007
60-64	39	92,957	69	144,805	192	381,586	414	1,073,749
65-69	11	18,885	21	37,252	56	111,131	141	278,773
70&UP	5	8,499	11	16,599	20	31,221	38	61,542
	1626	3,976,323	3179	8,162,136	4921	13,946,615	4419	13,818,571

AGE	YEARS OF SERVICE							
	10 - 14		15 - 19		20 - 24		25 - 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	-	-
25-29	24	101,410	-	-	-	-	-	-
30-34	60	269,926	13	60,969	-	-	-	-
35-39	80	355,283	47	233,450	6	29,889	-	-
40-44	134	589,691	70	348,211	23	124,074	1	3,990
45-49	247	987,814	92	440,219	35	189,002	20	111,520
50-54	392	1,465,673	175	816,658	46	248,968	32	171,866
55-59	401	1,441,754	227	1,058,777	75	384,656	27	147,205
60-64	317	1,048,412	202	824,987	86	429,850	42	227,204
65-69	102	292,030	93	354,299	46	226,018	23	118,538
70&UP	40	79,154	29	84,389	9	30,560	11	61,120
	1797	6,631,147	948	4,221,959	326	1,663,017	156	841,443

AGE	YEARS OF SERVICE							
	30 - 34		35 - 39		40 & OVER		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	2000	6,342,543
25-29	-	-	-	-	-	-	1100	4,036,413
30-34	-	-	-	-	-	-	976	2,909,888
35-39	-	-	-	-	-	-	1624	4,544,418
40-44	-	-	-	-	-	-	2293	6,705,281
45-49	-	-	-	-	-	-	2602	7,780,377
50-54	13	73,594	2	12,000	-	-	2614	8,181,949
55-59	24	137,633	11	59,542	-	-	2196	7,009,551
60-64	17	95,466	20	107,570	2	10,442	1400	4,437,028
65-69	13	74,131	15	86,403	1	4,260	522	1,601,720
70&UP	9	44,091	1	6,000	-	-	173	423,175
	76	424,915	49	271,515	3	14,702	17500	53,972,343

Average Age 45.01

Average Service 6.35

Average Entry Age 38.66

**Public Employees Retirement Association
State of Minnesota**

General Fund — Hospital Employees

CONSIDERED EARNINGS

Maximum \$6,000 Per Employee

Active Male Employees

(Age and Service as of July 1, 1966)

AGE	UNDER 1		YEARS OF SERVICE		2 - 4		5 - 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	92	103,098	52	98,307	11	19,822	-	-
25-29	31	41,752	20	62,436	7	32,480	-	-
30-34	11	22,785	21	92,026	10	47,990	-	-
35-39	10	15,457	7	28,645	14	70,646	-	-
40-44	14	30,712	6	21,002	12	53,284	-	-
45-49	8	19,161	8	34,424	9	38,832	-	-
50-54	6	10,267	4	14,086	11	56,158	-	-
55-59	8	13,938	6	19,403	7	34,200	-	-
60-64	2	2,825	4	12,109	7	31,488	-	-
65-69	1	620	-	-	3	10,087	-	-
70&UP	-	-	-	-	1	4,292	-	-
	183	260,615	128	382,438	92	399,279		

AGE	10 - 14		YEARS OF SERVICE		20 - 24		25 - 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-
70&UP	-	-	-	-	-	-	-	-

AGE	30 - 34		YEARS OF SERVICE		40 & OVER		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	155	221,227
25-29	-	-	-	-	-	-	58	136,668
30-34	-	-	-	-	-	-	42	162,801
35-39	-	-	-	-	-	-	31	114,748
40-44	-	-	-	-	-	-	32	104,998
45-49	-	-	-	-	-	-	25	92,417
50-54	-	-	-	-	-	-	21	80,511
55-59	-	-	-	-	-	-	21	67,541
60-64	-	-	-	-	-	-	13	46,422
65-69	-	-	-	-	-	-	4	10,707
70&UP	-	-	-	-	-	-	1	4,292
							403	1,042,332

Average Age 33.80

Average Service 1.50

Average Entry Age 32.30

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Public Employees Retirement Association
State of Minnesota

General Fund — Hospital Employees

CONSIDERED EARNINGS

Maximum \$6,000 Per Employee

Active Female Employees

(Age and Service as of July 1, 1966)

AGE	UNDER 1		YEARS OF SERVICE				5 - 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	476	495,241	243	590,582	59	203,043	-	-
25-29	147	179,731	108	241,746	35	121,760	-	-
30-34	68	71,400	49	103,849	25	90,540	-	-
35-39	69	63,291	52	94,934	25	78,611	-	-
40-44	70	80,651	52	89,468	27	85,712	-	-
45-49	63	62,905	58	113,429	33	105,877	-	-
50-54	63	65,767	53	94,719	44	150,291	-	-
55-59	35	36,311	23	37,888	31	103,027	-	-
60-64	22	19,203	8	14,185	29	97,493	-	-
65-69	8	10,453	5	7,652	6	19,545	-	-
70&UP	-	-	1	614	1	1,963	-	-
	1021	1,084,953	652	1,389,066	315	1,057,862		

AGE	10 - 14		15 - 19		20 - 24		25 - 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-
40-44	-	-	-	-	-	-	-	-
45-49	-	-	-	-	-	-	-	-
50-54	-	-	-	-	-	-	-	-
55-59	-	-	-	-	-	-	-	-
60-64	-	-	-	-	-	-	-	-
65-69	-	-	-	-	-	-	-	-
70&UP	-	-	1	1,960	-	-	-	-
			1	1,960				

AGE	30 - 34		35 - 39		40 & OVER		ALL	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	778	1,288,866
25-29	-	-	-	-	-	-	290	543,237
30-34	-	-	-	-	-	-	142	265,789
35-39	-	-	-	-	-	-	146	236,836
40-44	-	-	-	-	-	-	149	255,831
45-49	-	-	-	-	-	-	154	282,211
50-54	-	-	-	-	-	-	160	310,777
55-59	-	-	-	-	-	-	89	177,226
60-64	-	-	-	-	-	-	59	130,881
65-69	-	-	-	-	-	-	19	37,650
70&UP	-	-	-	-	-	-	3	4,537
							1989	3,533,841

Average Age 34.15

Average Service 1.30

Average Entry Age 32.85

Public Employees Retirement Association
State of Minnesota

General Fund

Municipal Employees Only

Disability Retirements

Age	Male		Female	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
40	1	\$ 97.58		
41				
42				
43				
44	2	187.43		
45	1	87.84		
46				
47	1	86.51		
48				
49				
50	1	101.23	1	\$ 103.23
51	1	98.96		
52	2	168.83	1	91.48
53	1	102.53		
54	4	443.92		
55	5	688.68	1	70.06
56	4	456.59		
57	10	1,264.48	3	284.24
58	4	506.33	6	681.55
59	4	517.25	1	107.32
60	10	982.65	5	631.13
61	5	596.66	1	59.84
62	5	559.34	1	41.30
63	5	578.27	3	303.49
64	4	282.02	6	451.23
65	8	466.58	4	313.95
66	7	435.97	5	376.60
67	6	371.01	2	112.40
68	2	67.52	3	93.74
69	2	64.58	1	31.84
70			2	136.17
71	1	36.69	1	82.49
72				
73				
74				
75				
<u>Totals</u>	<u>96</u>	<u>\$9,249.45</u>	<u>47</u>	<u>\$3,972.06</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Municipal Employees Only

Retired Under Law in Force Prior to July 1, 1957

Age	Male		Female	
	Number	Monthly Annuity	Number	Monthly Annuity
60	1	\$ 209.72		
61	6	851.59		
62	10	1,407.32	9	\$ 677.34
63	9	1,315.70	10	1,311.29
64	20	3,181.54	13	1,907.43
65	37	6,109.20	29	4,064.26
66	71	12,358.43	36	5,229.83
67	106	18,279.19	50	6,516.38
68	102	18,482.59	59	8,995.18
69	134	20,955.51	59	8,067.73
70	186	31,858.36	73	10,087.06
71	184	28,623.52	66	8,313.14
72	203	33,086.34	60	7,757.69
73	160	23,552.16	54	6,012.82
74	206	27,999.27	67	6,580.41
75	183	22,873.44	60	5,753.32
76	151	20,058.62	61	5,641.20
77	171	21,881.01	65	5,965.18
78	129	15,246.63	69	6,268.99
79	118	13,025.93	45	4,125.76
80	87	9,192.90	28	2,322.98
81	78	8,843.29	30	2,021.87
82	76	8,823.98	32	3,329.05
83	63	6,965.30	16	1,279.33
84	38	4,211.57	20	1,873.99
85	30	3,266.10	11	785.59
86	27	2,353.62	8	717.23
87	19	2,284.22	4	371.39
88	27	3,041.63	5	357.41
89	10	1,184.64	3	242.15
90	4	500.59	2	308.30
91	5	611.08	3	200.05
92	4	390.57	1	65.79
93	3	295.48	1	163.18
94	1	110.56		
95	1	58.19		
99	1	102.27		
<u>Totals</u>	<u>2,661</u>	<u>\$373,592.06</u>	<u>1,049</u>	<u>\$117,313.32</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Municipal Employees Only

Retired Under Law in Force July 1, 1957 and Subsequent

Age	Male		Female	
	Number	Monthly Annuity	Number	Monthly Annuity
59	1	\$ 117.32	1	\$ 174.08
60			1	96.42
61	2	168.14		
62	1	92.08	1	88.37
63	1	179.10	2	142.00
64	2	291.50	4	433.68
65	16	1,323.23	7	575.05
66	62	5,353.31	36	2,396.28
67	47	2,663.42	38	1,909.92
68	67	4,541.18	25	1,109.21
69	56	3,091.70	32	2,177.86
70	64	4,018.02	33	1,646.56
71	49	3,240.36	37	2,311.19
72	57	3,722.25	23	1,663.36
73	39	2,986.74	26	1,441.09
74	15	1,092.06	14	1,419.47
75	6	453.60	7	970.99
76	8	355.38	4	278.14
77	1	136.80	5	846.74
78	1	18.72	1	23.91
79	1	331.25		
80	1	25.32	2	401.74
81	3	289.13		
82			1	207.55
83			1	172.60
84				
85				
86			1	89.99
<u>Totals</u>	<u>500</u>	<u>\$34,490.61</u>	<u>302</u>	<u>\$20,576.20</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Municipal Employees Only

Retired Under Combination of Law in Force Prior and Subsequent to July 1, 1957

<u>Age</u>	<u>Number</u>	Male	<u>Number</u>	Female
		<u>Monthly Annuity</u>		<u>Monthly Annuity</u>
61	1	\$ 106.82		
66	3	162.29		
67	1	75.47	2	\$ 168.29
68	2	128.08	1	107.63
69	1	32.60	1	28.22
70	1	121.15		
71	2	265.48		
72	1	112.33		
73				
74	2	115.42		
82	<u>1</u>	<u>32.43</u>	<u>-</u>	<u>-</u>
<u>Totals</u>	<u>15</u>	<u>\$1,152.07</u>	<u>4</u>	<u>\$304.14</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Municipal Employees Only

Beneficiaries Under Law in Force Prior to July 1, 1957

Age	Male		Female	
	Number	Monthly Annuity	Number	Monthly Annuity
60			2	\$ 187.14
61			14	1,011.44
62			19	1,223.01
63			20	1,252.52
64			39	2,801.45
65			39	2,495.34
66			26	1,703.10
67			31	1,846.34
68			44	2,616.58
69			41	2,729.95
70	1	\$ 7.81	49	3,658.22
71			45	2,892.46
72			53	3,473.73
73	1	76.50	61	3,743.10
74	1	43.11	47	2,801.58
75			42	2,510.34
76			39	2,067.93
77			52	2,780.01
78	1	36.27	48	2,965.31
79	1	9.06	37	1,790.29
80			39	2,125.17
81	1	10.57	27	1,288.84
82			33	1,568.99
83	3	142.63	21	1,139.72
84			18	753.09
85			11	558.78
86	1	12.54	8	396.91
87			11	534.02
88			4	193.85
89	1	42.48	5	305.82
90			4	148.58
91			1	39.05
92			2	133.63
93				
94				
95				
<u>Totals</u>	<u>11</u>	<u>\$380.97</u>	<u>932</u>	<u>\$55,736.29</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Municipal Employees Only

Survivor Annuities

FEMALE

<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>	<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>
24	1	\$ 65.00			
25			55	23	\$ 1,471.09
26	1	49.47	56	35	2,252.62
27			57	27	1,721.43
28			58	27	1,699.87
29			59	40	2,532.94
30	1	65.00	60	36	2,227.02
31			61	33	2,142.46
32			62	38	2,478.07
33			63	37	2,459.04
34			64	36	2,391.51
35	2	130.00	65	28	1,970.53
36	1	65.00	66	34	2,574.32
37	1	65.00	67	24	1,864.18
38	1	65.00	68	23	1,706.63
39	1	65.00	69	18	1,366.39
40	2	130.00	70	20	1,666.26
41	3	195.00	71	20	1,732.41
42	3	195.00	72	15	1,163.97
43	3	157.47	73	9	758.18
44	6	390.00	74	12	916.23
45	5	311.02	75	17	1,353.73
46	7	455.00	76	9	701.98
47	6	390.00	77	10	755.54
48	6	364.42	78	8	654.56
49	18	1,130.75	79	7	444.96
50	7	440.58	80	2	108.14
51	23	1,429.30	81	2	173.97
52	22	1,414.15	82	5	461.09
53	30	1,760.84	83	3	195.00
54	22	1,394.12	84	1	65.00
			87	2	186.50
			<u>Totals</u>	<u>773</u>	<u>\$52,922.74</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Municipal Employees Only

Survivor Annuities

<u>Male</u>			<u>Widows and Children</u>		
<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>	<u>Widow's Age</u>	<u>Number</u>	<u>Total Monthly Annuity</u>
53	1	\$ 65.00			
55	1	65.00			
58	1	65.00	25	2	\$ 350.00
61	1	39.21	26		
62	1	48.11	27		
63	1	65.00	28	1	220.00
68	2	130.00	29	1	175.00
76	1	65.00	30		
			31	3	570.00
			32	1	179.01
			33	1	250.00
			34	3	505.00
			35	3	570.00
			36	4	920.00
			37	9	1,620.57
			38	5	880.00
			39	14	2,942.70
			40	5	808.66
			41	7	1,220.00
			42	4	678.52
			43	16	2,399.84
			44	12	2,385.00
			45	12	2,190.00
			46	15	2,546.75
			47	16	2,650.00
			48	13	2,048.73
			49	11	1,676.80
			50	13	2,065.00
			51	9	1,271.15
			52	11	1,565.00
			53	12	1,815.00
			54	15	2,187.14
			55	9	1,301.26
			56	14	2,046.19
			57	12	1,604.97
			58	1	130.00
			59	5	695.00
			60	1	130.00
			61	1	175.00
<u>Totals</u>	<u>9</u>	<u>\$542.32</u>		<u>261</u>	<u>\$42,772.29</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Hospital Employees Only

Retired Under Law in Force July 1, 1957 and Subsequent

MALES

<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>
67	1	\$33.03

FEMALES

66	1	24.43
69	1	19.23
75	1	10.57

Public Employees Retirement Association
State of Minnesota

ACTUARIAL VALUATION REPORT AND FINANCIAL EXHIBITS

Police and Fire Fund

This section of the report sets forth the information on the Police and Fire Fund Retirement System required by law for the legislature based on the annual actuarial valuation. They are accompanied by financial exhibits which combine the audited financial reports of the system with the results of the valuation.

These figures have been prepared in accordance with the requirements of the law under the supervision of an approved actuary. Chief among these requirements are the use of the entry age normal cost method and 3% interest, both of which are reflected in the first series of exhibits. The other assumptions as to mortality, disability, withdrawal, and salary scales are the same as were used in the valuation for the year ending June 30, 1965.

The actuarial valuation for the current year measures all aspects of the Police and Fire Fund in accordance with the benefit program described in the Summary of the Plan section.

It is the conclusion of this report that, on the basis of 3% interest and the entry age normal cost calculation, the contributions to the Public Employees Police and Fire Fund are sufficient to maintain a reasonable actuarial balance, provided that the pattern of retirement produces an average retirement age of 64. This has been true in the past but may not remain so in the future. If it declines, additional contributions will be required to keep the fund actuarially sound.

Again the results between the current and prior year are consistent. The total obligation to members still active was 3.3 times the covered payroll in 1965 and 3.15 times the payroll in 1966. Here, however, quite different underlying factors are at work. The group covered declined in number and the

earnings increase was substantial so that an expected decrease in the actuarial reserves for benefits earned to date failed to materialize in the retirement age 60 valuation.

Exhibit 6 sets forth a reconciliation of the change in unfunded obligation from one year to the next, including the assignment of the major reasons for variation between the actual and expected results. It describes these changes based on the valuations which used retirement age 60, since last year's valuation was computed on this basis. The bottom section presents a short indication of what the results might have been using retirement age 64, adopting the assumption that the relationship between a 1965 valuation based on age 64 would be the same as existed between the age 60 valuations.

While a substantial loss apparently was suffered between the two age 60 valuations, all of this loss was accounted for by the change in distribution of the obligation between past and future service due to the additional information on the employee's compensation. After allowing for the estimated deficit in the rate, a small experience gain was indicated but was not large enough to eliminate the deficit on the age 60 basis. If retirement age 64 is used, a substantial experience gain was indicated. Despite this indication it was felt that there was not sufficient information available to make a detailed analysis, particularly in the absence of a valuation based on age 64 in the prior year.

CONCLUSIONS

Insofar as the assumption of retirement age 64 is reasonable, the conclusion that the Police and Fire Fund is in reasonable actuarial balance appears to be merited. The combined employer-employee contribution rate continues to be higher than for the General Fund because of the higher rate of benefit being earned in the first ten years of service, the more generous benefits for those with service prior to 1957, and the right to retire with full benefits as early as age 58.

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1966)

(Police and Fire Fund)

ASSETS

Cash - On Hand	\$ -		
On Deposit	13,179.88		
In Transit	<u>4,446.67</u>	\$ 17,626.55	
Accounts Receivable			
Member Contributions	\$ 41,635.82		
Employer Contributions	1,787,050.87		
Interest	53,863.43		
Dividends	2,943.40		
From Regular Fund	<u>20,160.83</u>	<u>\$1,905,654.35</u>	\$1,923,280.90
Less Current Liabilities			<u>10,269.41</u>
Net Current Assets			\$1,913,011.49

INVESTMENTS

Bonds			
U. S. Government	\$1,090,000.00		
Municipal	-		
Corporate	4,210,807.60		
Stocks			
Common	<u>\$1,757,490.96</u>		<u>\$7,058,298.56</u>
Total Assets			<u>\$8,971,310.05</u>

Members accumulated contributions \$3,361,321.81

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1966)

Police and Fire Fund

LIABILITIES

Accounts Payable	\$	10,269.41	
Retirement			
Survivor			
Refunds			
Expenses			
Suspense Items	\$	10,269.41	
Less Offset Against Current Assets		<u>10,269.41</u>	0

RESERVES

Entry Age Normal Reserves			
Retirement	\$17,788,241.00		
Disability	6,265,724.00		
Survivors	1,857,040.00		
Refund	<u>679,571.00</u>		
	\$26,590,576.00		
Less Value of Benefits to be Earned in the Future	<u>\$14,685,627.00</u>	\$11,904,949.00	
Vested Members		58,734.00	
Retired Members			
Retirement	\$ 1,394,396.00		
Disability	11,665.00		
Survivors	<u>818,608.00</u>	<u>2,224,669.00</u>	<u>\$14,188,352.00</u>
Unfunded Obligation			\$ 5,217,041.95
Funded Obligation			<u>\$ 8,971,310.05</u>

Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1966)

Police and Fire Fund

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$28,873,979
Obligation For Service		
Rendered to Date	\$14,188,352	
Net Assets	8,971,310	
Accrued Unfunded Obligation	5,217,042	
Funding Ratio		63%
Amortization (31 Year) Requirement	260,852	
Covered Payroll	9,584,075	
Amortization (31 Year) Rate Requirement		<u>2.72%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be		
Earned in the Future	\$14,685,627	
Present Value of Future Payroll	98,590,300	
Normal Cost Rate Requirement		
Employee Contribution Rate	14.90%	
Employer Normal Cost Rate Requirement	6.00	<u>8.90%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		11.50%
Amortization (31 Year) Rate Requirement	2.72%	
Normal Cost Rate Requirement	8.90	
Allowance for Expenses	0.18	
Total Requirement		11.80
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		(0.30%)

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1966)

(Police and Fire Fund)

ASSETS

Cash - On Hand	\$ -		
On Deposit	13,179.88		
In Transit	<u>4,446.67</u>	\$ 17,626.55	
Accounts Receivable			
Member Contributions	\$ 41,635.82		
Employer Contributions	1,787,050.87		
Interest	53,863.43		
Dividends	2,943.40		
From Regular Fund	<u>20,160.83</u>	<u>\$1,905,654.35</u>	\$1,923,280.90
Less Current Liabilities			<u>10,269.41</u>
Net Current Assets			\$1,913,011.49

INVESTMENTS

Bonds			
U. S. Government	\$1,090,000.00		
Municipal	-		
Corporate	4,210,807.60		
Stocks			
Common	<u>\$1,757,490.96</u>		<u>\$7,058,298.56</u>
Total Assets			<u>\$8,971,310.05</u>

Members accumulated contributions \$3,361,321.81

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1966)

Police and Fire Fund

LIABILITIES

Accounts Payable	\$	10,269.41	
Retirement			
Survivor			
Refunds		0	
Expenses			
Suspense Items		0	\$ 10,269.41
Less Offset Against Current Assets			<u>10,269.41</u> 0

RESERVES

Entry Age Normal Reserves

Retirement	\$23,772,910.00		
Disability	4,590,548.00		
Survivors	1,262,703.00		
Refund	<u>571,253.00</u>		
	\$30,197,414.00		
Less Value of Benefits to be Earned in the Future	<u>\$14,563,769.00</u>	<u>\$15,633,645.00</u>	
Vested Members		58,734.00	
Retired Members			
Retirement	\$ 1,394,396.00		
Disability	11,665.00		
Survivors	<u>818,608.00</u>	<u>\$ 2,224,669.00</u>	<u>\$17,917,048.00</u>
Unfunded Obligation			\$ 8,945,737.95
Funded Obligation			<u>\$ 8,971,310.05</u>

Public Employees Retirement Association
State of MinnesotaACTUARIAL REQUIREMENTS
(July 1, 1966)June 30, 1966 Census and Valuation — 3% InterestPolice and Fire Fund

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$32,480,817
Obligation For Service		
Rendered to Date	\$17,917,048	
Net Assets	8,971,310	
Accrued Unfunded Obligation	8,945,738	
Funding Ratio		50%
Amortization (31 Year) Requirement	447,286	
Covered Payroll	9,584,075	
Amortization (31 Year) Rate Requirement		<u>4.67%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$14,563,769	
Present Value of Future Payroll	86,723,200	
Normal Cost Rate Requirement	16.79%	
Employee Contribution Rate	6.00	
Employer Normal Cost Rate Requirement		<u>10.79%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		11.50%
Amortization (31 Year) Rate Requirement	4.67%	
Normal Cost Rate Requirement	10.79	
Allowance for Expenses	0.18	
Total Requirement		15.64
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>(4.14%)</u>

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

SOURCES AND USES OF FUNDS

<u>Sources</u>		<u>Uses</u>	
<u>Employee Contributions</u>	\$ 566,523.23	<u>Refunds</u>	
		Employee Contributions	\$ 216,201.21
<u>Employer Contributions</u>			
Regular	851,307.82	<u>Benefits Paid</u>	
Advance	33,025.93	Retirement	112,192.80
<u>Investment Income</u>	246,611.21	Survivor	51,918.59
<u>Transfer from Regular Fund</u>	58,229.81	Disability	1,187.16
<u>Investment Sales</u>		<u>Direct Expense</u>	1,172.81
Bonds	1,924,272.36	<u>Investment Purchases</u>	
Stocks	18,474.07	Bonds	2,691,502.08
<u>Miscellaneous Income</u>	1,556.67	Stocks	606,768.27
<u>Cancelled Warrants</u>	398.63	Premium and Interest	323.76
<u>Decrease in Cash Account</u>	18,629.88	<u>Transfers to Regular Fund</u>	37,762.93
	<u>\$3,719,029.61</u>		<u>\$3,719,029.61</u>

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

RECONCILIATION OF ASSET BALANCES

Asset Balance — July 1, 1965 \$7,413,203.89

Add:

Employer Contributions	\$1,096,511.89
Employee Contributions	615,537.23
Investment Income	264,761.66
Miscellaneous Income	<u>22,002.57</u>

Total Additions	<u>1,998,813.35</u> \$9,412,017.24
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Deduct:

Benefits Paid

Retirement	\$110,981.49	
Survivor	52,815.96	
Disability	<u>1,187.16</u>	\$ 164,984.61

Refunds	216,201.21
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Expense Administrative	17,384.58
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Capital Adjustment	<u>31,867.38</u>
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Total Deductions	<u>430,437.78</u>
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Asset Balance — June 30, 1966	<u><u>\$8,981,579.46</u></u>
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Public Employees Retirement Association
State of Minnesota

(Police and Fire Fund)

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)
(Year Ending June 30, 1966)

Revenue:

Employee Contributions	\$ 615,537.23	
Employer Contributions	1,096,511.89	
Investment Income	264,761.66	
Miscellaneous Income	<u>22,002.57</u>	
Total Revenue		\$1,998,813.35

Expenditure:

Benefits	\$ 164,984.61	
Refund of Contributions	216,201.21	
Administrative Expense	17,384.58	
Capital Adjustment	<u>31,867.38</u>	
Total Expenditures		<u>430,437.78</u>
Increase in Assets (1965)		\$1,568,375.57
Estimated Increase in Actuarial Reserves		<u>3,096,772.00</u>
Decrease (Increase) in Unfunded Obligation		(\$1,528,396.43)

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

RECONCILIATION OF DECREASE IN UNFUNDED OBLIGATION

Expected Decrease in Unfunded Obligation

Amortization Payment	\$ 145,605	
Excess Interest (1.17 x Average Invested Assets)	74,828	
Estimated Deficit in Rate	<u>(350,052)</u>	
Expected Decrease (Increase)		(\$ 129,619)

Expected Increase in Actuarial Reserves

Increase in Assets	\$1,568,376	
Decrease in Unfunded	<u>(129,619)</u>	
Expected Reserve Increase		\$1,697,995

Reconciliation of Increase in Actuarial Reserves

Expected Increase in Reserve	\$1,697,995	
Actual Increase in Reserve	<u>3,096,772</u>	
Experience Variation Loss		<u>(\$1,398,777)</u>
Change in Reserves Attributable to changes in Employee Number and Salary Distribution	\$1,498,236	
Other Experience Gains	<u>99,459</u>	
Total		<u>\$1,398,777</u>

Estimated Result Based on Valuation with Retirement Age 64

Estimated Increase in Actuarial Reserve Requirement	\$1,071,221	
Increase in Assets	\$1,568,376	
Amortization Payment	(104,341)	
Excess Interest	(74,828)	
Asset Increase to Offset Reserve Requirement	<u>\$1,389,207</u>	
Experience Gain	\$ 317,986	

Public Employees Retirement Association
State of Minnesota

RECONCILIATION OF ACTIVE MEMBERS AND ANNUITANTS

Police and Fire Fund

1. Active Members

As of July 1, 1965	1,767
New Entrants (Estimated)	<u>320</u>
<u>Total</u>	<u>2,087</u>

Separations:

(a) With Refund of Contributions (Estimated)	135
(b) With Deferred Annuity	0
(c) With Disability Annuity	0
(d) Deceased with Survivor Annuity	13
(e) With Normal Retirement Annuity	<u>21</u>
<u>Total</u>	<u>169</u>

As of July 1, 1966	1,918
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2. Annuitants

a. Normal Retirement Annuitants

As of July 1, 1965	64
Additions During Year	21
Deletions During Year	2
As of July 1, 1966	83

b. Survivor Annuitants

As of July 1, 1965	35
Additions During Year	13
Deletions During Year	2
As of July 1, 1966	46

c. Disability Annuitants

As of July 1, 1965	1
Additions During Year	0
Deletions During Year	0
As of July 1, 1966	1

d. Deferred Annuitants

As of July 1, 1965	0
Additions During Year	0
Deletions During Year	0
As of July 1, 1966	0

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1966)

Police and Fire Fund

LIABILITIES

Accounts Payable	\$	10,269.41	
Retirement		-	
Survivor		-	
Refunds		-	
Expenses		-	
Suspense Items		-	\$ 10,269.41
Less Offset Against Current Assets			<u>10,269.41</u> 0

RESERVES

Entry Age Normal Reserves

Retirement	\$15,831,535.00		
Disability	5,576,494.00		
Survivors	1,652,766.00		
Refund	604,818.00		
	<u>\$23,665,613.00</u>		
Less Value of Benefits to be Earned in the Future	\$12,408,182.00	\$11,257,431.00	
Vested Members		58,734.00	
Retired Members			
Retirement	\$ 1,352,564.00		
Disability	11,315.00		
Survivors	<u>794,050.00</u>	<u>2,157,929.00</u>	<u>\$13,474,094.00</u>
Unfunded Obligation			\$ 4,502,783.95
Funded Obligation			<u>\$ 8,971,310.05</u>

Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1966)

Police and Fire Fund

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$25,882,276
Obligation For Service		
Rendered to Date	\$13,474,094	
Net Assets	8,971,310	
Accrued Unfunded Obligation	4,502,784	
Funding Ratio		67%
Amortization (31 Year) Requirement	240,314	
Covered Payroll	9,584,075	
Amortization (31 Year) Rate Requirement		<u>2.51%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	\$12,408,182	
Present Value of Future Payroll	94,646,700	
Normal Cost Rate Requirement		
Employee Contribution Rate	13.11%	
Employer Normal Cost Rate Requirement	6.00	<u>7.11%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		11.50%
Amortization (31 Year) Rate Requirement	2.51	
Normal Cost Rate Requirement	7.11	
Allowance for Expenses	0.18	
Total Requirement		9.80
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>1.70%</u>

Police and Fire FundACTUARIAL ASSUMPTIONS

While ample statistics were available, it did not appear desirable to process these for an experience analysis since an Actuarial Survey will be required by law in 1967. Consequently, the following experience factors based on Police and Fire retirement systems closely resembling the Police and Fire Employees Retirement Association were adopted for purposes of making this valuation.

Interest:	3.0%
Mortality Before Retirement:	1951 Group Annuity
After Retirement:	1965 Group Annuity
Retirement Age:	64
Disability:	See Following Table
Turnover:	See Following Table
Salary Scale:	See Following Table
1952-57 Wage Base:	Estimate based on 1952-57 contribu- tions

Age 60 was used as the average age at retirement based on our analysis of the retirement patterns of the present group.

A detailed statement of the mortality rates, disability rates, turnover factors and salary scale is set out in the following pages.

Public Employees' Retirement Association
State of Minnesota

Police and Fire Fund

All Employees

MORTALITY RATES

(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.616	45	3.580
21	.640	46	4.065
22	.666	47	4.599
23	.693	48	5.180
24	.724	49	5.807
25	.758	50	6.475
26	.796	51	7.187
27	.838	52	7.938
28	.885	53	8.731
29	.935	54	9.563
30	.991	55	10.436
31	1.054	56	11.346
32	1.122	57	12.298
33	1.198	58	13.302
34	1.281	59	14.379
35	1.374	60	15.555
36	1.475	61	16.866
37	1.587	62	18.353
38	1.711	63	20.068
39	1.849	64	22.067
40	2.000	65	24.418
41	2.192		
42	2.450		
43	2.769		
44	3.147		

Public Employees' Retirement Association
State of Minnesota

Police and Fire Fund

All Employees

DISABILITY RATES

(Per 1,000 Employees)

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	1.70	45	10.40
21	1.75	46	11.60
22	1.80	47	12.95
23	1.86	48	14.50
24	1.92	49	16.10
25	1.98	50	17.70
26	2.05	51	19.60
27	2.12	52	21.60
28	2.19	53	23.70
29	2.27	54	25.95
30	2.35	55	28.25
31	2.50	56	30.65
32	2.70	57	33.25
33	2.95	58	36.05
34	3.20	59	38.85
35	3.50	60	41.65
36	3.90	61	44.50
37	4.30	62	47.35
38	4.75	63	50.20
39	5.25	64	53.15
40	5.90		
41	6.60		
42	7.40		
43	8.30		
44	9.25		

Public Employees' Retirement Association
State of Minnesota

Police and Fire Fund

All Employees

SEPARATION RATES

(Per 1,000 Employees)

<u>Age</u>	<u>Separation</u>	<u>Age</u>	<u>Separation</u>
20	70.0	40	24.5
21	70.0	41	21.3
22	70.0	42	18.5
23	69.9	43	16.0
24	69.8	44	13.7
25	69.7	45	11.8
26	69.4	46	10.2
27	68.9	47	8.7
28	68.0	48	7.3
29	67.0	49	6.1
30	65.8	50	5.0
31	64.3	51	3.9
32	62.4	52	2.9
33	59.8	53	2.2
34	56.1	54	1.5
35	51.1	55	1.1
36	45.4	56	.7
37	39.5	57	.5
38	33.6	58	.3
39	28.7	59	.1

Public Employees' Retirement Association
State of Minnesota

Police and Fire Fund

All Employees

EARNINGS PROGRESSION

<u>Age</u>	<u>Rate</u>	<u>Age</u>	<u>Rate</u>
20	.4102	45	.6730
21	.4184	46	.6864
22	.4268	47	.7002
23	.4353	48	.7142
24	.4440	49	.7284
25	.4529	50	.7430
26	.4619	51	.7579
27	.4712	52	.7730
28	.4806	53	.7885
29	.4902	54	.8043
30	.5000	55	.8203
31	.5100	56	.8368
32	.5202	57	.8535
33	.5306	58	.8706
34	.5412	59	.8880
35	.5521	60	.9057
36	.5631	61	.9238
37	.5744	62	.9423
38	.5859	63	.9612
39	.5976	64	.9804
40	.6095	65	1.0000
41	.6217		
42	.6342		
43	.6468		
44	.6598		

Public Employees Police and Fire Fund
State of Minnesota

SUMMARY OF PLAN

1. Name

Public Employees Police and Fire Fund.

2. Type of Plan

Self-insured, managed by a 12 member Board of Trustees consisting of the State Auditor, State Insurance Commissioner, State Treasurer, and nine others elected from the membership of the Association.

3. Employers Included

Any county, city, village, borough, town, school district within the State, or a department or unit of the State or any other public body employing any person who is a public employee as defined by the Law.

4. Employees Included

All full-time police officers and fire fighters, except those on a per diem basis, of an eligible employer who are not contributing to another plan.

5. Service Considered

All periods of service in which salary deductions were made or for which payments in lieu of salary deduction were deposited, including seasonal layoff and authorized sick leaves.

6. Earnings Considered

(a) For service prior to July 1, 1957, average of highest consecutive 5 years prior to such date, not to exceed \$4,800.

(b) For service during the period July 1, 1957 to July 1, 1965, all earnings not to exceed \$4,800 in any calendar year.

(c) After July 1, 1965, all earnings not to exceed \$6,000 in any calendar year.

(d) Earnings considered for determining benefit under the law in force prior to 1957 shall be the average annual earnings during the 10-year period immediately preceding retirement.

7. Employer Contributions

Police and Fire - Amount equal to 9% of total considered earnings for current service plus 2-1/2% of total considered earnings to amortize past service costs.

8. Employee Contributions

- (a) For service prior to July 1, 1957, 4% of considered earnings.
- (b) After July 1, 1957, 6% of considered earnings.

9. Normal Retirement Benefit

After attainment of age 58 and completion of 10 years of service.

Police and Fire - Annuity equal to the sum of:

- (a) 2% of considered earnings for each of the first ten years plus;
- (b) 2% of considered earnings for each of the second ten years plus;
- (c) 2% of considered earnings for each of the third ten years.
- (d) 1% of considered earnings for each year over thirty.

or any person who was a member of the association on June 30, 1957 and who thereafter becomes a member of the police and fire fund may elect to receive a benefit computed under the law in force prior to June 30, 1957 without maximum limitation.

10. Late Retirement Benefit

Annual annuity determined as for Normal Retirement, considering Service and Earnings to actual retirement.

11. Disability Benefit

In event of total and permanent disability after completion of 10 years of service or attainment of age 50 and completion of 5 years of service.

Annual Annuity determined as for Normal Retirement, considering Service and Earnings to date of disablement, plus a supplement as follows:

Under 51	\$50
51	44
52	38
53	32
54	26
55	20
56	12
57	6

In event of duty disablement of Police or Firemen, a minimum of 40% of average salary, regardless of age or service.

12. Death Benefit

Active - In event of death after 18 months of service.

Annual Annuity to dependent spouse of 30% of average salary not to exceed \$65 per month, plus for each dependent child under age 18, 20% of average salary not to exceed \$45 per month, plus 10% of average salary not to exceed \$20 per month to be divided among dependent children. Maximum family benefit equal to lesser of \$250 per month or 100% of average salary.

In lieu of above benefit, if employee has completed 20 years of service, a 75% survivor benefit for spouse payable at age 62. Maximum benefit \$150 per month. If employee was under age 58 benefit is reduced 1/2% for each month that he was under age 58.

Any employee not eligible for above benefits, his contributions with interest at 2% shall be paid to his beneficiary.

Retired

(a) Under law in force July 1, 1957 and prior, 50% of his annuity continued to his beneficiary provided his beneficiary is his surviving spouse and has attained age 60, and has not remarried; or is the parent of the retired member.

(b) Under law in effect July 1, 1957 and subsequent, refund of contributions less benefit paid to date of death.

13. Separation Benefit

In event of termination after 10 years of service, a deferred vested benefit payable at age 58, provided participant does not withdraw contribution.

Annual Annuity determined as for Normal Retirement considering Service and Earnings to date of termination. In lieu of annuity, participant shall receive a refund of contributions without interest.

14. Optional Benefits

A participant may elect to receive an equivalent actuarially reduced annuity in the form of a joint and survivor annuity or a period certain and life thereafter annuity.

15. Expenses

Paid by Association from retirement fund.

16. Actuarial Method

For purpose of reports to the Legislative Commission, costs for the Plan shall be determined on an "entry-age level normal cost" basis amortizing the unfunded accrued liability over 40 years from 1957, 3% interest.

**Public Employees Retirement Association
State of Minnesota**

Police and Fire Fund

CONSIDERED EARNINGS

Maximum \$6,000 Per Employee

Active Male Employees
(Age and Service as of July 1, 1966)

		YEARS OF SERVICE							
		UNDER 1		1		2 - 4		5 - 9	
AGE	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	
TO 25	9	46,133	27	130,646	11	59,363	-	-	
25-29	27	120,605	64	317,011	128	715,686	23	124,626	
30-34	21	92,509	37	173,085	84	446,023	85	483,873	
35-39	18	78,260	25	103,261	62	317,321	105	581,660	
40-44	8	28,798	21	92,201	52	252,217	69	383,728	
45-49	7	31,117	16	78,162	49	226,701	47	247,280	
50-54	16	68,166	13	52,453	32	134,914	28	138,919	
55-59	1	2,990	6	24,855	26	112,574	32	158,508	
60-64	3	11,899	8	37,385	15	57,860	20	82,020	
65-69	2	6,620	1	2,057	4	12,401	5	15,495	
70&UP	-	-	2	1,921	3	5,416	2	7,815	
	112	487,097	220	1,013,037	466	2,340,476	416	2,223,924	

		YEARS OF SERVICE							
		10 - 14		15 - 19		20 - 24		25 - 29	
AGE	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	
TO 25	-	-	-	-	-	-	-	-	
25-29	3	16,681	-	-	-	-	-	-	
30-34	26	152,289	5	30,000	-	-	-	-	
35-39	53	297,379	17	97,750	13	74,035	-	-	
40-44	53	295,615	32	184,439	15	84,634	4	23,954	
45-49	34	186,211	24	139,345	12	62,201	12	71,014	
50-54	31	168,809	31	171,837	12	68,560	15	88,648	
55-59	12	60,724	22	126,875	15	81,592	4	21,901	
60-64	19	92,424	16	85,165	16	77,532	5	23,870	
65-69	3	14,456	12	62,149	8	38,316	-	-	
70&UP	1	4,170	5	26,280	-	-	1	6,000	
	235	1,288,758	164	923,840	91	486,870	41	235,387	

		YEARS OF SERVICE							
		30 - 34		35 - 39		40 & OVER		ALL	
AGE	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	
TO 25	-	-	-	-	-	-	47	236,142	
25-29	-	-	-	-	-	-	245	1,294,609	
30-34	-	-	-	-	-	-	258	1,377,779	
35-39	-	-	-	-	-	-	293	1,549,666	
40-44	-	-	-	-	-	-	254	1,345,586	
45-49	3	18,000	-	-	-	-	204	1,060,031	
50-54	9	53,634	7	42,000	-	-	194	987,940	
55-59	9	49,784	9	54,000	1	6,000	137	699,803	
60-64	8	44,719	2	12,000	6	36,000	118	560,874	
65-69	3	17,186	2	11,319	9	53,640	49	233,639	
70&UP	1	6,000	1	6,000	2	12,000	18	75,602	
	33	189,323	21	125,319	18	107,640	1817	9,421,671	

Average Age 42.76

Average Service 9.22

Average Entry Age 33.54

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

CONSIDERED EARNINGS

Maximum \$6,000 Per Employee

Active Female Employees
(Age and Service as of July 1, 1966)

AGE	YEARS OF SERVICE							
	UNDER 1		1		2 - 4		5 - 9	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	2	5,111	-	-	-	-
25-29	3	12,832	1	2,667	2	10,646	1	2,970
30-34	-	-	-	-	-	-	-	-
35-39	1	4,003	3	17,315	1	1,020	-	-
40-44	-	-	1	5,790	-	-	2	9,070
45-49	-	-	-	-	3	13,130	1	4,888
50-54	-	-	4	22,043	2	2,995	-	-
55-59	-	-	2	9,987	-	-	-	-
60-64	-	-	-	-	-	-	3	10,002
65-69	-	-	-	-	-	-	-	-
70&UP	-	-	-	-	-	-	-	-
	4	16,835	13	62,913	8	27,791	7	26,930

AGE	YEARS OF SERVICE							
	10 - 14		15 - 19		20 - 24		25 - 29	
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS
TO 25	-	-	-	-	-	-	-	-
25-29	-	-	-	-	-	-	-	-
30-34	-	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	-	-
40-44	-	-	1	5,856	-	-	-	-
45-49	-	-	-	-	-	-	-	-
50-54	-	-	1	3,774	-	-	-	-
55-59	-	-	1	2,160	-	-	-	-
60-64	2	8,262	-	-	1	1,320	-	-
65-69	-	-	2	6,563	-	-	-	-
70&UP	-	-	-	-	-	-	-	-
	2	8,262	5	18,353	1	1,320	-	-

AGE	YEARS OF SERVICE						
	30 - 34		35 - 39		40 & OVER		ALL
	NO.	EARNINGS	NO.	EARNINGS	NO.	EARNINGS	EARNINGS
TO 25	-	-	-	-	-	-	2 5,111
25-29	-	-	-	-	-	-	7 29,115
30-34	-	-	-	-	-	-	-
35-39	-	-	-	-	-	-	5 22,338
40-44	-	-	-	-	-	-	4 20,716
45-49	-	-	-	-	-	-	4 18,018
50-54	-	-	-	-	-	-	7 28,812
55-59	-	-	-	-	-	-	3 12,147
60-64	-	-	-	-	-	-	6 19,584
65-69	-	-	-	-	-	-	2 6,563
70&UP	-	-	-	-	-	-	-
							40 162,404

Average Age 45.88

Average Service 5.93
- 23 -

Average Entry Age 39.95

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

Retired Under the Law in Force Prior to July 1, 1957

<u>Age</u>	<u>Male</u>		<u>Female</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
66	4	\$ 655.39		
67	4	627.63		
68	3	493.82	1	\$ 168.38
69	6	929.37		
70	8	1,511.79		
71	1	138.01	1	199.89
72	3	554.34		
73	2	257.83		
74	-	-		
75	2	297.68		
76	-	-		
77	1	155.39		
78	1	34.32	1	276.10
79	-	-	1	272.24
89	1	31.68		
<u>Totals</u>	<u>36</u>	<u>\$5,687.25</u>	<u>4</u>	<u>\$916.61</u>

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

Retired Under Law in Force July 1, 1957 and Subsequent

<u>Age</u>	<u>Males Number</u>	<u>Monthly Annuity</u>
58	1	\$ 107.68
59	1	95.09
60	1	91.45
61	1	82.78
62	3	210.32
63	2	164.89
64	2	318.66
65	4	377.85
66	4	202.84
67	4	215.84
68	2	250.12
69	4	298.28
70	3	203.98
71	2	129.47
72	3	194.35
73	3	226.79
74	2	127.53
<u>Totals</u>	<u>42</u>	<u>\$3,297.92</u>

Retired Under Combination of Law in Force Prior and Subsequent to July 1, 1957

<u>Age</u>	<u>Males Number</u>	<u>Monthly Annuity</u>
66	1	\$ 107.84

Disability Retirements Annuities

<u>Age</u>	<u>Males Number</u>	<u>Monthly Annuity</u>
54	1	\$ 98.93

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

Survivor Annuities

<u>Without Children</u>			<u>Widows and Children</u>		
<u>Age</u>	<u>Number</u>	<u>Total Monthly Annuity</u>	<u>Age</u>	<u>Number</u>	<u>Total Monthly Annuity</u>
43	1	\$ 65.00	26	1	\$ 130.00
47	1	65.00	28	1	250.00
48	3	195.00	33	1	155.00
50	3	195.00	36	1	250.00
53	1	65.00	38	1	245.00
54	1	65.00	43	1	175.00
55	1	65.00	48	5	830.00
56	1	65.00	49	2	260.00
57	3	307.32	52	3	435.00
58	1	65.00	53	1	175.00
59	2	130.00	<u>Totals</u>	<u>17</u>	<u>\$2,905.00</u>
60	2	130.00			
62	1	65.00			
66	1	65.00			
67	3	226.77			
70	1	26.28			
71	1	65.00			
75	1	66.07			
76	1	65.00			
78	1	76.14			
80	1	63.00			
<u>Totals</u>	<u>31</u>	<u>\$2,130.58</u>			

PERA VALUATION AS OF JUNE 30, 1966

(General Fund)

The purpose of this memorandum is to discuss the valuation report of the Public Employees' Retirement Association, dated November 28, 1966, which was submitted to the Commission in accordance with Chapter 359 of Minnesota Laws 1965. The valuation was made using the entry age normal cost method and assuming 3% interest. The 1966 and 1965 valuation reports were completed by Arthur Stedry Hansen, Consulting Actuaries.

This memorandum contains the following:

1. Statistical and Valuation Data
2. Discussion of Valuation Results
3. Conclusion

1. Statistical and Valuation Data

Results of the valuation reports as of June 30, 1965 and June 30, 1966 are shown for comparative purposes. Figures are rounded where necessary for simplicity of presentation.

(1) <u>Membership</u>	As of	As of
	<u>June 30, 1965</u>	<u>June 30, 1966</u>
Active Members	42,025 (A)	44,460 (B)
Retired Members	4,344	4,588
Disabled Members	133	145
Survivors of Deceased Members	1,780	1,972
Deferred Annuitants	352	257

(A) Includes 1,929 Hospital employee members.

(B) Includes 2,392 Hospital employee members.

(2) Payroll and Annuities Payable

Total Payroll (no limit)	\$ 168.0 Million	Not Available
Covered Payroll (\$6,000 limit)	155.0 Million	\$ 170.0 Million
Annuities Payable (annual)	8.0 Million	8.6 Million

	As of <u>June 30, 1965</u>	As of <u>June 30, 1966</u>
(3) <u>Valuation Balance Sheet</u>		
Accrued Liability	\$ 274 Million	\$ 276 Million
Assets	<u>126 Million</u>	<u>142 Million</u>
Unfunded Accrued Liability (Deficit)	\$ 148 Million	\$ 134 Million
Funding Ratio (Assets/Accrued Liability)	46%	52%
(4) <u>Normal Cost and Funding Costs</u>		
	<u>% of Covered Payroll</u>	<u>% of Covered Payroll</u>
Normal Cost	10.11%	10.75%
Normal Cost	10.11%	10.75%
Interest on Deficit	<u>2.86</u>	<u>2.36</u>
Minimum Contribution	12.97%	13.11%
Normal Cost	10.11%	10.75%
Amortization by 1997	<u>4.68</u>	<u>3.93</u>
Required Contribution	14.79%	14.68%
		+ 27 million
(5) <u>Statutory Contributions</u>		
Employee	6.0%	6.0%
Employer Regular	6.0	6.0
Employer Additional	<u>2.5</u>	<u>2.5</u>
Total Contributions	14.5%	14.5%
(6) <u>Investment Yield (A)</u>	3.39%	3.58%

(A) Ratio of reported investment income to mean reported assets.

2. Discussion of Valuation Results

The total contribution required to pay the normal cost and provide for amortization of the deficit by 1997 has changed very little from 1965 to 1966. However, there has been a definite shift in the relative sizes of the normal cost and the amount for amortization. The normal cost has increased from 10.11% of covered payroll to 10.75% while the amount for amortization has declined from 4.68% to 3.93%.

The PERA Actuary attributes the above shift to the availability of more accurate payroll data in 1966. The 1965 valuation was the first one made after the maximum covered salary was increased from \$4,800 to \$6,000. In the 1965 report, the PERA Actuary stated that since the PERA office did not at that time have a record of earnings in excess of \$4,800 on each individual employee, it was necessary to estimate such earnings from studies of the total earnings of various employee groups. From the data available in 1966, it was determined that the employees earning more than \$4,800 were not concentrated in the older ages as had been estimated in 1965 but in the younger ages. We are of the opinion that this is a valid explanation of the change.

In addition to the funding cost figures shown in Section 1, Part (4), the PERA Actuary, in judging the actuarial balance of the System, has taken into account administrative expenses of 0.22% of covered payroll. Thus, he shows the total required contribution including administrative expense to be 14.90%. Since the statutory contribution rate is 14.5%, he concludes that the System is in reasonable actuarial balance even when administrative expenses are taken into account.

The report also contains a valuation based upon an interest rate of 3.5%. For purposes of comparison, the required contribution from this valuation is set forth as follows:

	As of June 30, 1965	As of June 30, 1966
Normal Cost	8.90%	9.46%
Amortization to 1997	4.39	3.68
Required Contribution	13.29%	13.14%
Administrative Expense		0.22
		13.36%

3. Conclusion

The 1966 valuation report filed by PERA conforms with the requirements of Chapter 359.

We agree with the conclusion of the PERA Actuary to the effect that with a 14.5% contribution rate the System is in reasonable actuarial balance.

Franklin C. Smith
Associate, Society of Actuaries
GEORGE V. STENNES AND ASSOCIATES
Consulting Actuaries