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Public Employees Retirement Assn.

Public Employees Retirement Association
State of Minnesota

ACTUARIAL VALUATION REPORT

November 27, 1967

ARTHUR STEDRY HANSEN CONSULTING ACTUARIES

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November 27, 1967

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, 1967, 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, 1967.

Respectfully submitted,

ARTHUR STEDRY HANSEN
CONSULTING ACTUARIES

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

DHR:mm
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.

This report substantiates the conclusion that the actuarial position of the General Fund has been improved by the removal of the \$6,000 earnings limit. In prior estimates, we estimated that the effect of this change would make the employer contribution rate very slightly positive. In point of fact, the total contribution rate now appears to be 0.05% more than the amount necessary to meet the actuarial requirements of the program (see Exhibit 2). If the fund were placed on a 3-1/2% valuation basis, there would be a margin of 1.57%, more than 10% of the actuarial requirement. These results indicate that the General Fund is in actuarially sound condition and in proper actuarial balance before taking into account its coordination with Social Security.

Two significant changes occurred during the year. First, we estimate that approximately \$10 million of new payroll, primarily additional female employees, was taken into account this year for the first time. The additional obligation based on this new payroll is reflected in the value of benefits to be earned in the future. Consequently, it has little effect on the reserves for benefits earned to date.

The major reason for an increase in these reserves in excess of that expected, lay in a larger than estimated increase due to removing the \$6,000 maximum ceiling on earnings. As shown in Exhibit 6, this had been estimated to increase the past service reserves by \$8.4 million, based on an estimated covered payroll of \$181 million. In fact, the total covered earnings increased to slightly over \$196 million. This increase is primarily attributable to the removal of the earnings limit, although some element of inflation and the fact that the census is being taken a year later undoubtedly has contributed to it.

The larger covered payroll resulted in an increase in reserves of just under \$4.5 million over the prior estimate. Gains from other experience variations, i.e. the small change in the normal cost rate, inflation, turnover, and late retirement netted out to a relatively small amount of just over \$0.5 million. While these figures are approximate, they confirm the conclusion reached in prior reports that the fund is in reasonable actuarial balance on a 3% basis.

It is important to observe that the increase in the covered payroll did not affect the actuarial balance of the program. In fact, while more dollars are involved, it actually strengthened the General Fund's position by increasing the margin of the contribution rate over the actuarial requirement.

These conclusions are valid and useful despite the change in the law to coordinate the program with Social Security. Because the number of members opting to go under the combined program was a relatively small percentage, the

actuarial balance established for the General Fund as it is presently constituted will only gradually be modified as new employees come in under Social Security. The transition to a new actuarial balance based on the combined program will be slow. Since it is probable that the actuarial margins of the coordinated program are substantially smaller than exist for the present PERA, the two types of plan should be analyzed separately, at least until the time that the plan not coordinated with Social Security ceases to cover a significant group.

We believe it important to make such a separate analysis since the margins now becoming evident under the PERA program might well be used to simplify and modernize the benefits for that particular group of employees. This type of improvement should be available at any time the legislature modifies its position requiring the use of a 3% interest assumption.

In this connection, we are ready to meet with the Board, and any other interested group, to establish the basis for our belief that the fund is earning substantially in excess of 3% and will continue in the indefinite future. Until progress can be made on this point, we merely wish to record our opinion that benefits out of the uncoordinated portion of the General Fund are smaller than those which might reasonably be made available from present revenue sources, including investment income.

CONCLUSION

It is our opinion that the General Fund is in good actuarial balance and the benefits being earned under the law can be provided from a combined employer - employee 14-1/2% contribution rate.

[illegible]

1. *Pharmaceutical industry* – The pharmaceutical industry is a major player in the healthcare sector, responsible for the development, production, and distribution of drugs. It is a highly regulated industry with significant research and development costs. The industry is often criticized for high prices and lack of transparency.

100

Figure 1 shows a 2D hexagonal lattice of atoms. A central atom is highlighted with a larger, shaded circle. A dashed line connects this central atom to one of its nearest neighbors. The lattice is labeled "2D hexagonal lattice" at the bottom.

1. *Pharmaceutical industry* – The pharmaceutical industry is a major source of funding for research in the field of aging. The industry has a vested interest in developing new drugs and treatments that can improve the health and quality of life of the elderly population.

[illegible]

1. *Phragmites australis* (Cav.) Trin. ex Steud.

The diagram illustrates the experimental setup for measuring the time delay of a laser beam. A laser beam enters from the top left, passes through a beam splitter, and is directed through a series of lenses and mirrors. The beam is focused onto a sample, and the resulting signal is detected by a detector. The setup is labeled with various components: Laser, Beam Splitter, Lenses, Mirrors, Sample, and Detector.

[illegible]

the 1990s, the number of people in the world who are illiterate has increased from 400 million to 600 million. The number of illiterate people in the world is expected to increase to 700 million by the year 2015. The number of illiterate people in the world is expected to increase to 800 million by the year 2020. The number of illiterate people in the world is expected to increase to 900 million by the year 2025. The number of illiterate people in the world is expected to increase to 1 billion by the year 2030. The number of illiterate people in the world is expected to increase to 1.1 billion by the year 2035. The number of illiterate people in the world is expected to increase to 1.2 billion by the year 2040. The number of illiterate people in the world is expected to increase to 1.3 billion by the year 2045. The number of illiterate people in the world is expected to increase to 1.4 billion by the year 2050. The number of illiterate people in the world is expected to increase to 1.5 billion by the year 2055. The number of illiterate people in the world is expected to increase to 1.6 billion by the year 2060. The number of illiterate people in the world is expected to increase to 1.7 billion by the year 2065. The number of illiterate people in the world is expected to increase to 1.8 billion by the year 2070. The number of illiterate people in the world is expected to increase to 1.9 billion by the year 2075. The number of illiterate people in the world is expected to increase to 2 billion by the year 2080. The number of illiterate people in the world is expected to increase to 2.1 billion by the year 2085. The number of illiterate people in the world is expected to increase to 2.2 billion by the year 2090. The number of illiterate people in the world is expected to increase to 2.3 billion by the year 2095. The number of illiterate people in the world is expected to increase to 2.4 billion by the year 2100.

9900

[illegible]

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1967)

(General Fund)

LIABILITIES

Accounts Payable	\$	83,952.31	
Retirement			
Survivor			
Refunds		9,039.40	
Expenses			
Suspense Items		<u>64,194.48</u>	\$ 157,186.19
Less Offset Against Current Assets			<u>157,186.19</u> 0

RESERVES

Entry Age Normal Reserves at 3% — Active Members			
Retirement	\$309,126,155.00		
Disability	17,795,075.00		
Survivors	26,042,162.00		
Refund	<u>26,780,410.00</u>		
	\$379,743,802.00		
Less Value of Benefits to be Earned in the Future	<u>177,464,748.00</u>	\$202,279,054.00	
Vested Members		2,724,628.00	
Retired Members			
Retirement	\$ 73,374,122.00		
Disability	1,808,494.00		
Survivors	<u>22,606,594.00</u>	<u>\$ 97,789,210.00</u>	<u>\$302,792,892.00</u>
Unfunded Obligation			\$142,204,148.14
Funded Obligation			<u>160,588,743.86</u>

Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1967)

June 30, 1967 Census and Valuation — 3% Interest

(General Fund)

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$480,257,640
Obligation for Service		
Rendered to Date	\$ 302,792,892	
Net Assets	160,588,744	
Accrued Unfunded Obligation	142,204,148	
Funding Ratio		53%
Amortization (30-Year) Requirement	7,255,156	
Covered Payroll	206,254,241	
Amortization (30-Year) Rate Requirement		<u>3.52%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	177,464,748	
Present Value of Future Payroll	1,653,442,500	
Normal Cost Rate Requirement	10.73%	
Employee Contribution Rate	6.00*	
Employer Normal Cost Rate Requirement		<u>4.73%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		8.50%*
Amortization (30-Year) Rate Requirement	3.52%	
Normal Cost Rate Requirement	4.73	
Allowance for Expenses	0.20	
Total Requirement		8.45
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>0.05%</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>	\$10,404,892.09	<u>Refunds</u>	
		Employee Contributions	\$ 3,237,977.91
		Employer Contributions	870.92
<u>Employer Contributions</u>		<u>Penalties Refunded</u>	557.09
Regular	12,141,350.38	<u>Donations Refunded</u>	2,272.49
Advance	472,919.34		
<u>Investment Income</u>	5,366,781.28	<u>Benefits Paid</u>	
Transfer from the		Retirement	6,916,375.07
<u>Police and Fire Fund</u>	38,683.44	Survivor	1,917,395.20
		Disability	196,504.64
<u>Investment Sales</u>		<u>Direct Expense</u>	397,530.32
Bonds	25,946,612.59	<u>Social Security</u>	43,410.07
Stocks	725,808.27	<u>Investment Purchases</u>	
<u>Miscellaneous Income</u>	84,983.31	Bonds	33,736,375.00
<u>Cancelled Warrants</u>	56,624.62	Stocks	8,966,065.09
<u>Decrease in Cash Account</u>	326,421.19	Premium and Interest	6,916.67
		<u>Transfers to Police and Fire Fund</u>	59,445.73
		<u>Accounts Payable</u>	84,380.31
	<u>\$55,565,076.51</u>		<u>\$55,565,076.51</u>
Cash Balance 6/30/67	<u>180,778.88</u>		
Total (Statement of Receipts and Disbursements)	<u>\$55,745,855.39</u>		

Public Employees Retirement Association
State of Minnesota

(General Fund)

RECONCILIATION OF ASSET BALANCES

Asset Balance — July 1, 1966 \$142,537,381.85

Add:

Employer Contributions	\$14,849,455.17	
Employee Contributions	10,496,435.32	
Investment Income	5,504,054.00	
Miscellaneous Income	41,397.57	
Unit Matching Contributions	<u>62,211.54</u>	
Total Additions		<u>30,953,553.60</u>
		\$173,490,935.45

Deduct:

Benefits Paid

Retirement	\$6,887,497.15	
Survivor	1,911,553.30	
Disability	<u>195,424.29</u>	\$ 8,994,474.74

Refunds	3,222,141.02	
Social Security	43,409.77	
Expense Administrative	411,115.98	
Capital Adjustment	19,004.89	
Transfer to Police and Fire Fund	23,510.51	
Miscellaneous Adjustment	<u>31,348.49</u>	

Total Deductions: \$ 12,745,005.40

Asset Balance — June 30, 1967 \$160,745,930.05

Public Employees Retirement Association
State of Minnesota

(General Fund)

STATEMENT OF REVENUE, EXPENDITURES,
CHANGES IN RESERVES AND EXPERIENCE GAIN (LOSS)

(Year Ending June 30, 1967)

Revenue:

Employer Contributions	\$14,849,455.17	
Employee Contributions	10,496,435.32	
Investment Income	5,504,054.00	
Miscellaneous Income	41,397.57	
Unit Matching Contributions	<u>62,211.54</u>	
Total Revenue		\$30,953,553.60

Expenditure:

Benefits	\$ 8,994,474.74	
Refund of Contributions	3,222,141.02	
Social Security	43,409.77	
Administrative Expense	411,115.98	
Capital Adjustment	19,004.89	
Transfer to Police and Fire Fund	23,510.51	
Increase (Decrease) in Accounts Payable	(42,638.55)	
Miscellaneous	<u>31,348.49</u>	
Total Expenditures		<u>12,702,366.85</u>

Increase in Assets (1966)	\$18,251,186.75
Estimated Increase in Actuarial Reserves	<u>26,990,899.00</u>
Decrease (Increase) in Unfunded Obligation	<u><u>(\$ 8,739,712.25)</u></u>

Public Employees Retirement Association
State of Minnesota

(General Fund)

RECONCILIATION OF DECREASE IN UNFUNDED OBLIGATION

Expected Decrease in Unfunded Obligation

Amortization Payment	\$2,669,289	
Excess Interest (1.26% x Average Invested Assets)	1,598,351	
Estimated Deficit in Rate	(678,492)	
Increase due to Amendment Removing \$6,000 Maximum on Earnings	<u>(8,410,651)</u>	
Expected Decrease (Increase)		(\$ 4,821,503)

Expected Increase in Actuarial Reserves

Increase in Assets	\$18,251,187	
Decrease (Increase) in Unfunded	<u>(4,821,503)</u>	
		\$23,072,690

Reconciliation of Change in Actuarial Reserves

Expected Increase in Reserves	\$23,072,690	
Actual Increase in Reserves	<u>26,990,899</u>	
Experience Variation Gain (Loss)		(\$ 3,918,209)
Increase in Excess of Estimate due to Amendment	\$ 4,457,645	
Other Experience Gains (Net)	<u>(539,436)</u>	
Total		<u>(\$ 3,918,209)</u>

Public Employees Retirement Association
State of Minnesota

RECONCILIATION OF ACTIVE MEMBERS

General Fund

As of July 1, 1966	44,460
New Entrants	10,558
Reinstated	<u>2,205</u>
<u>Total</u>	<u>57,223</u>

Separations:

(a) With Refund of Contributions	9,889
(b) With Deferred Annuity	249
(c) With Disability Annuity	39
(d) With Normal Retirement Annuity	<u>529</u>

<u>Total</u>	<u>10,706</u>
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Active as of July 1, 1967	46,517
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Public Employees Retirement Association
State of Minnesota

RECONCILIATION OF ANNUITANTS

General Fund

<u>Normal Retirement Annuitants</u>	
As of July 1, 1966	4,588
Additions During Year	529
Deletions During Year	<u>252</u>
<u>Total as of July 1, 1967</u>	<u>4,865</u>
Annual Annuity - July 1, 1966	\$6,606,947
July 1, 1967	\$7,052,842
 <u>Disability Annuitants</u>	
As of July 1, 1966	145
Additions During Year	39
Deletions During Year	<u>21</u>
<u>Total as of July 1, 1967</u>	<u>163</u>
Annual Annuity - July 1, 1966	\$163,234
July 1, 1967	\$194,153
 <u>Survivor Annuitants</u>	
(a) Spouse Only	
As of July 1, 1966	1,972
Additions During Year	257
Deletions During Year	<u>179</u>
<u>Total as of July 1, 1967</u>	<u>2,050</u>
Annual Annuity - July 1, 1966	\$1,528,254
July 1, 1967	\$1,518,392
 (b) Children	
As of July 1, 1966	539
Additions During Year	
Deletions During Year	<u>—</u>
<u>Total as of July 1, 1967</u>	<u>619</u>
Annual Annuity - July 1, 1966	\$317,766
July 1, 1967	\$394,400
 <u>Deferred Annuitants</u>	
As of July 1, 1966	257
Additions During Year	249
Deletions During Year	<u>34</u>
<u>Total as of July 1, 1967</u>	<u>472</u>

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1967)

(General Fund)

LIABILITIES

Accounts Payable	\$	83,952.31	
Retirement			
Survivor			
Refunds		9,039.40	
Expenses			
Suspense Items		<u>64,194.48</u>	\$ 157,186.19
Less Offset Against Current Assets			<u>157,186.19</u> 0

RESERVES

Entry Age Normal Reserves at 3-1/2% — Active Members			
Retirement	\$275,122,278.00		
Disability	15,837,617.00		
Survivors	23,177,524.00		
Refund	<u>23,834,565.00</u>		
	\$337,971,984.00		
Less Value of Benefits to be Earned in the Future	<u>\$149,879,668.00</u>	\$188,092,316.00	
Vested Members		\$ 2,424,919.00	
Retired Members			
Retirement	\$ 71,172,898.00		
Disability	1,754,239.00		
Survivors	<u>21,928,396.00</u>	<u>\$ 94,855,533.00</u>	<u>\$285,372,768.00</u>
Unfunded Obligation			\$124,784,024.14
Funded Obligation			<u>\$160,588,743.86</u>

Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1967)

June 30, 1967 Census and Valuation — 3-1/2% Interest
(General Fund)

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$435,252,436
Obligation for Service		
Rendered to Date	\$ 285,372,768	
Net Assets	160,588,744	
Accrued Unfunded Obligation	124,784,024	
Funding Ratio		56%
Amortization (30-Year) Requirement	6,784,670	
Covered Payroll	206,254,241	
Amortization (30-Year) Rate Requirement		<u>3.29%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be Earned in the Future	149,879,668	
Present Value of Future Payroll	1,587,304,800	
Normal Cost Rate Requirement	9.44%	
Employee Contribution Rate	6.00*	
Employer Normal Cost Rate Requirement		<u>3.44%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		8.50%*
Amortization (30-Year) Rate Requirement	3.29%	
Normal Cost Rate Requirement	3.44	
Allowance for Expenses	0.20	
Total Requirement		6.93
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>1.57%</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) For service during the period July 1, 1965 to July 1, 1967, all earnings not to exceed \$6,000 in any calendar year.

(d) After July 1, 1967, all earnings.

(e) 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

Active Male Employees
(Age and Service as of July 1, 1967)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	296	\$ 1,219,268	447	\$ 1,607,693	251	\$ 1,151,231	14	\$ 54,533
25 to 29	164	691,492	418	1,972,709	676	3,732,125	321	1,928,046
30 to 34	114	475,781	345	1,580,255	536	2,940,478	573	3,536,850
35 to 39	280	967,549	406	1,730,094	537	2,795,993	615	3,774,860
40 to 44	114	442,432	305	1,337,387	746	3,622,438	901	5,228,312
45 to 49	100	432,116	308	1,389,250	701	3,394,808	963	5,437,261
50 to 54	112	433,102	323	1,310,141	596	2,787,789	843	4,513,649
55 to 59	60	231,449	235	928,541	414	1,787,707	720	3,732,182
60 to 64	35	118,292	116	398,719	293	1,142,026	565	2,741,099
65 to 69	25	76,664	70	168,534	110	302,192	191	865,477
70 & Up	8	25,294	46	96,601	68	163,265	74	254,463
<u>Total</u>	<u>1308</u>	<u>\$ 5,113,439</u>	<u>3019</u>	<u>\$12,519,924</u>	<u>4928</u>	<u>\$23,820,052</u>	<u>5780</u>	<u>\$32,066,732</u>

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	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	14	100,269	-	-	-	-	-	-
30 to 34	203	1,351,614	13	81,521	-	-	-	-
35 to 39	447	2,972,283	99	672,825	3	19,263	-	-
40 to 44	663	4,215,917	430	3,001,416	55	370,485	1	9,900
45 to 49	623	3,879,639	503	3,359,557	129	943,508	10	67,711
50 to 54	670	3,874,973	504	3,149,520	200	1,351,501	63	478,890
55 to 59	550	3,028,653	478	2,910,917	229	1,554,247	95	672,420
60 to 64	486	2,561,786	524	3,051,552	264	1,745,027	109	774,505
65 to 69	222	1,122,006	198	1,102,585	137	923,781	70	498,772
70 & Up	74	273,940	79	384,520	31	175,509	23	174,282
<u>Total</u>	<u>3952</u>	<u>\$23,381,080</u>	<u>2828</u>	<u>\$17,714,413</u>	<u>1048</u>	<u>\$ 7,083,321</u>	<u>371</u>	<u>\$ 2,676,480</u>

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Over		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	1008	\$ 4,032,725
25 to 29	-	-	-	-	-	-	1593	8,424,641
30 to 34	-	-	-	-	-	-	1784	9,966,499
35 to 39	-	-	-	-	-	-	2387	12,932,867
40 to 44	-	-	-	-	-	-	3215	18,228,287
45 to 49	1	6,605	-	-	-	-	3338	18,910,455
50 to 54	10	86,711	1	8,258	-	-	3322	17,994,534
55 to 59	45	328,258	8	69,759	1	7,020	2835	15,251,153
60 to 64	48	355,367	34	263,351	1	6,116	2475	13,157,840
65 to 69	30	225,707	28	219,671	5	34,917	1086	5,540,306
70 & Up	10	71,156	9	51,102	7	46,130	429	1,716,262
<u>Total</u>	<u>144</u>	<u>\$ 1,073,804</u>	<u>80</u>	<u>\$ 612,141</u>	<u>14</u>	<u>\$ 94,183</u>	<u>23472</u>	<u>\$126,155,569</u>

Public Employees Retirement Association
State of Minnesota

General Fund — Municipal Employees

CONSIDERED EARNINGS

Active Female Employees

(Age and Service as of July 1, 1967)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	389	\$ 1,226,717	934	\$ 3,223,741	648	\$ 2,450,551	81	\$ 359,501
25 to 29	139	442,557	374	1,337,634	483	2,231,838	252	1,103,124
30 to 34	111	315,715	352	917,022	463	1,778,577	332	1,765,291
35 to 39	211	511,915	535	1,301,241	726	2,315,705	484	2,068,542
40 to 44	144	369,260	565	1,426,258	943	2,737,707	597	2,148,791
45 to 49	124	331,568	527	1,289,065	855	2,427,298	835	2,913,129
50 to 54	106	257,508	384	935,479	803	2,393,066	1017	3,736,557
55 to 59	61	160,256	243	623,548	565	1,661,985	851	2,927,201
60 to 64	20	39,362	99	214,846	213	503,895	422	1,148,660
65 to 69	13	35,342	36	80,306	53	116,061	135	320,364
70 & Up	9	19,733	11	11,873	18	25,496	35	64,144
<u>Total</u>	<u>1327</u>	<u>\$ 3,709,933</u>	<u>4060</u>	<u>\$11,361,013</u>	<u>5770</u>	<u>\$18,642,179</u>	<u>5041</u>	<u>\$18,555,304</u>

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	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	22	92,190	-	-	-	-	-	-
30 to 34	95	539,101	13	70,509	-	-	-	-
35 to 39	137	776,451	68	394,872	7	42,530	-	-
40 to 44	141	665,013	77	437,620	30	178,037	2	10,310
45 to 49	270	1,192,530	110	594,588	34	213,378	18	117,279
50 to 54	433	1,832,165	241	1,308,325	64	395,770	36	239,246
55 to 59	539	2,292,995	345	1,805,762	107	653,311	40	255,953
60 to 64	329	1,180,897	212	946,564	111	635,536	43	275,811
65 to 69	114	374,288	89	348,049	54	313,211	30	195,088
70 & Up	29	51,260	26	85,581	10	39,981	10	63,255
<u>Total</u>	<u>2109</u>	<u>\$ 8,996,890</u>	<u>1181</u>	<u>\$ 5,991,870</u>	<u>417</u>	<u>\$ 2,471,754</u>	<u>179</u>	<u>\$ 1,156,942</u>

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Over		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	2052	\$ 7,260,510
25 to 29	-	-	-	-	-	-	1270	5,207,343
30 to 34	-	-	-	-	-	-	1366	5,386,215
35 to 39	-	-	-	-	-	-	2168	7,411,256
40 to 44	-	-	-	-	-	-	2499	7,972,996
45 to 49	2	12,570	-	-	-	-	2775	9,091,405
50 to 54	16	100,507	2	10,949	-	-	3102	11,209,572
55 to 59	21	149,927	10	68,970	2	12,840	2784	10,612,748
60 to 64	26	174,958	18	112,144	5	30,570	1498	5,263,243
65 to 69	13	87,873	13	92,806	1	6,066	551	1,969,454
70 & Up	8	44,474	4	24,451	-	-	160	430,248
<u>Total</u>	<u>86</u>	<u>\$ 570,309</u>	<u>47</u>	<u>\$ 309,320</u>	<u>8</u>	<u>\$ 49,476</u>	<u>20225</u>	<u>\$71,814,990</u>

Public Employees Retirement Association
State of Minnesota

General Fund — Hospital Employees

CONSIDERED EARNINGS

Active Male Employees
(Age and Service as of July 1, 1967)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	126	\$ 357,099	52	\$ 161,229	10	\$ 25,645	-	\$ -
25 to 29	35	108,243	14	53,101	11	52,876	-	-
30 to 34	26	118,986	16	99,044	10	45,930	-	-
35 to 39	13	49,888	16	115,987	13	83,169	-	-
40 to 44	10	41,294	9	59,932	13	93,976	-	-
45 to 49	11	45,551	11	72,806	8	43,432	-	-
50 to 54	10	38,441	5	28,333	9	54,555	-	-
55 to 59	8	28,407	1	4,559	6	34,960	-	-
60 to 64	6	20,483	-	-	-	-	-	-
65 to 69	1	1,423	-	-	-	-	-	-
70 & Up	-	-	-	-	-	-	-	-
<u>Total</u>	<u>246</u>	<u>\$ 809,815</u>	<u>124</u>	<u>\$ 594,991</u>	<u>80</u>	<u>\$ 434,543</u>	<u>-</u>	<u>\$ -</u>

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	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	-	-	-
45 to 49	-	-	-	-	-	-	-	-
50 to 54	-	-	-	-	-	-	-	-
55 to 59	-	-	-	-	-	-	-	-
60 to 64	-	-	-	-	-	-	-	-
65 to 69	-	-	1	3,661	-	-	-	-
70 & Up	-	-	1	3,660	-	-	-	-
<u>Total</u>	<u>-</u>	<u>\$ -</u>	<u>2</u>	<u>\$ 7,321</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Over		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	188	\$ 543,973
25 to 29	-	-	-	-	-	-	60	214,220
30 to 34	-	-	-	-	-	-	52	263,960
35 to 39	-	-	-	-	-	-	42	249,044
40 to 44	-	-	-	-	-	-	32	195,202
45 to 49	-	-	-	-	-	-	30	161,789
50 to 54	-	-	-	-	-	-	24	121,329
55 to 59	-	-	-	-	-	-	15	67,926
60 to 64	-	-	-	-	-	-	6	20,483
65 to 69	-	-	-	-	-	-	2	5,084
70 & Up	-	-	-	-	-	-	1	3,660
<u>Total</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>452</u>	<u>\$ 1,846,670</u>

Public Employees Retirement Association
State of Minnesota

General Fund — Hospital Employees

CONSIDERED EARNINGS

Active Female Employees
(Age and Service as of July 1, 1967)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	562	\$ 1,292,128	274	\$ 826,104	101	\$ 378,441	-	\$ -
25 to 29	224	488,849	119	393,117	66	246,649	-	-
30 to 34	95	196,079	57	177,063	46	153,133	1	5,076
35 to 39	76	178,260	52	131,486	43	142,232	-	-
40 to 44	82	193,459	58	174,095	54	177,585	2	9,116
45 to 49	58	115,070	52	157,743	58	199,407	-	-
50 to 54	60	118,008	42	105,229	64	227,667	-	-
55 to 59	43	79,756	12	39,927	37	139,695	2	3,718
60 to 64	10	20,784	-	-	-	-	1	5,517
65 to 69	8	19,313	-	-	-	-	-	-
70 & Up	1	374	-	-	-	-	-	-
<u>Total</u>	<u>1219</u>	<u>\$ 2,702,080</u>	<u>666</u>	<u>\$ 2,004,764</u>	<u>469</u>	<u>\$ 1,664,809</u>	<u>6</u>	<u>\$ 23,427</u>

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	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	1	7,200	-	-	-	-
40 to 44	1	3,600	-	-	-	-	-	-
45 to 49	-	-	-	-	-	-	-	-
50 to 54	1	7,200	-	-	-	-	-	-
55 to 59	2	7,577	1	3,824	-	-	-	-
60 to 64	2	12,531	-	-	-	-	-	-
65 to 69	-	-	-	-	-	-	-	-
70 & Up	-	-	-	-	-	-	-	-
<u>Total</u>	<u>6</u>	<u>\$ 30,908</u>	<u>2</u>	<u>\$ 11,024</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Over		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	937	\$ 2,496,673
25 to 29	-	-	-	-	-	-	409	1,128,615
30 to 34	-	-	-	-	-	-	199	531,351
35 to 39	-	-	-	-	-	-	172	459,178
40 to 44	-	-	-	-	-	-	197	557,855
45 to 49	-	-	-	-	-	-	168	472,220
50 to 54	-	-	-	-	-	-	167	458,104
55 to 59	-	-	-	-	-	-	97	274,497
60 to 64	-	-	-	-	-	-	13	38,832
65 to 69	-	-	-	-	-	-	8	19,313
70 & Up	-	-	-	-	-	-	1	374
<u>Total</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>2368</u>	<u>\$ 6,437,012</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Disability Retirements

<u>Age</u>	<u>Male</u>		<u>Female</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
43	1	\$ 132.78		
44				
45	3	288.82	1	\$ 86.95
46	1	87.84		
47	1	89.23		
48				
49				
50				
51	1	101.23		
52	3	295.10	1	68.46
53	4	410.26	2	166.75
54	5	566.58	1	56.01
55	5	536.33	1	64.22
56	6	807.53		
57	5	631.29		
58	10	1,539.96	3	284.24
59	5	696.88	6	681.55
60	4	562.00	1	107.32
61	10	1,162.23	6	680.56
62	5	566.70	3	205.58
63	9	1,105.32	1	41.30
64	6	744.57	3	303.49
65	6	403.71	6	451.23
66	7	488.53	4	313.95
67	6	333.48	5	376.60
68	4	220.52	1	40.27
69	1	34.52	3	93.74
70	2	64.58	1	31.84
71			2	136.17
72	1	36.69	1	82.49
73				
74				
75				
<u>Totals</u>	<u>111</u>	<u>\$11,906.68</u>	<u>52</u>	<u>\$ 4,272.72</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Retired Under Law in Force Prior to July 1, 1957

Age	Male		Female	
	Number	Monthly Annuity	Number	Monthly Annuity
60		\$	2	\$ 266.27
61	3	498.86	2	293.30
62	9	1,317.03	4	496.21
63	15	2,273.63	11	1,034.40
64	15	2,520.17	14	1,693.45
65	32	5,141.06	26	3,870.22
66	76	13,259.54	37	5,289.87
67	96	17,205.32	46	6,984.89
68	118	20,785.21	57	7,153.62
69	106	19,322.52	66	9,546.81
70	153	24,238.94	68	9,839.99
71	211	33,864.41	75	10,330.53
72	198	29,371.36	73	8,590.62
73	212	32,995.75	66	7,588.07
74	169	23,820.80	67	6,109.53
75	193	25,784.37	66	6,200.01
76	172	21,882.11	62	5,545.70
77	138	18,269.36	61	5,854.51
78	154	19,926.30	68	5,929.80
79	129	15,054.46	66	6,073.71
80	114	12,572.12	45	3,946.46
81	81	8,986.54	28	2,289.72
82	71	8,088.10	29	1,920.58
83	66	7,984.14	30	3,012.56
84	53	5,923.91	16	1,279.33
85	31	3,535.95	19	1,628.45
86	26	2,800.09	11	785.59
87	26	2,189.75	8	717.23
88	16	2,077.02	4	371.39
89	22	2,414.85	2	35.74
90	9	1,050.66	2	199.65
91	3	377.93	2	308.30
92	4	536.26	3	200.05
93	3	315.85	1	65.79
94	2	227.56	1	163.18
100	1	102.27		
<u>Totals</u>	<u>2,727</u>	<u>\$386,714.20</u>	<u>1,138</u>	<u>\$125,615.53</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Retired Under Law in Force July 1, 1957 and Subsequent

Age	Male		Female	
	Number	Monthly Annuity	Number	Monthly Annuity
59	1	\$ 107.43	2	\$ 317.41
60	1	117.32	1	174.08
61			1	96.42
62	2	168.14		
63	2	123.20	3	235.75
64	2	246.58	3	200.45
65	14	1,216.05	16	1,112.93
66	60	5,213.23	30	1,649.67
67	87	7,914.48	48	3,212.06
68	69	4,407.16	50	2,734.50
69	85	6,937.01	35	2,250.72
70	63	3,947.62	41	2,678.58
71	65	3,742.55	38	1,930.55
72	44	3,680.58	29	2,071.66
73	46	3,359.38	18	1,506.02
74	26	2,475.41	19	1,233.71
75	17	1,148.91	13	1,425.75
76	6	439.40	8	981.56
77	8	353.28	3	229.78
78	3	485.56	5	887.11
79	2	222.35	2	57.34
80	2	340.89		
81	1	25.32	2	401.74
82	5	628.12		
83			1	207.55
84			1	172.60
85				
86				
87			1	89.99
<u>Totals</u>	<u>611</u>	<u>\$47,299.97</u>	<u>370</u>	<u>\$25,857.93</u>

Public Employees Retirement Association
State of Minnesota

General Fund

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

<u>Age</u>	<u>Number</u>	<u>Male</u>	<u>Number</u>	<u>Female</u>
		<u>Monthly Annuity</u>		<u>Monthly Annuity</u>
62	1	\$ 106.82		
67	3	162.29		
68	1	75.47	2	\$ 168.29
69	2	128.08	1	107.63
70	1	32.60	1	28.22
72	2	199.44		
73	1	112.33	1	23.33
75	2	115.42		
83	1	32.43		
<u>Totals</u>	<u>14</u>	<u>\$ 964.88</u>	<u>5</u>	<u>\$ 327.47</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Beneficiaries Under Law in Force Prior to July 1, 1957

Age	Male		Female	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
60			1	\$ 44.36
61			12	932.12
62			17	1,306.47
63			23	1,486.92
64			24	1,539.91
65	1	\$ 84.01	43	3,172.94
66			41	2,727.26
67			31	2,161.57
68			36	2,212.99
69			55	3,362.53
70			50	3,456.33
71	1	7.81	51	3,674.19
72	1	48.24	49	3,194.36
73			62	3,980.67
74	1	76.50	65	4,006.47
75			51	3,082.15
76			48	2,805.04
77			47	2,373.10
78			59	3,153.22
79	1	36.27	51	3,124.04
80	1	9.06	39	1,946.64
81			37	1,993.42
82	1	10.57	28	1,282.86
83			33	1,553.96
84	3	138.54	19	1,076.07
85			17	729.16
86			12	650.47
87			8	396.91
88			9	438.45
89			3	157.31
90	1	42.48	4	232.59
91			3	126.42
92			1	39.05
93			1	74.34
<u>Totals</u>	<u>11</u>	<u>\$ 453.48</u>	<u>1,030</u>	<u>\$62,494.29</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Survivor Annuities

FEMALE

<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>	<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>
25	1	\$ 65.00	55	42	\$ 2,651.46
26	2	130.00	56	38	2,434.02
27	1	49.47	57	51	3,258.95
28			58	39	2,470.04
29	2	130.00	59	37	2,349.87
30	1	65.00	60	46	2,960.17
31	1	65.00	61	36	2,312.78
32	3	195.00	62	30	1,892.12
33			63	41	2,551.83
34	2	130.00	64	38	2,423.13
35	3	195.00	65	33	2,069.76
36	5	325.00	66	24	1,482.15
37	5	325.00	67	33	2,031.36
38	4	260.00	68	17	1,008.17
39	3	195.00	69	22	1,361.13
40	15	925.99	70	13	823.30
41	9	561.83	71	17	1,126.77
42	8	520.00	72	16	1,024.07
43	8	520.00	73	12	741.77
44	14	856.90	74	6	390.00
45	18	1,170.00	75	10	650.00
46	16	1,040.00	76	12	725.75
47	21	1,278.48	77	7	379.42
48	25	1,690.00	78	8	477.26
49	20	1,266.29	79	6	383.31
50	29	1,811.64	80	6	363.60
51	23	1,444.41	81	2	108.14
52	33	2,049.18	82	1	23.97
53	35	2,259.15	83	3	195.00
54	42	2,540.84	84	3	195.00
			85	1	65.00
			<u>Totals</u>	<u>999</u>	<u>\$62,993.48</u>

Public Employees Retirement Association
State of Minnesota

General Fund

Survivor Annuities

Male		
<u>Age</u>	<u>Number</u>	<u>Monthly Annuity</u>
54	1	\$ 65.00
56	1	65.00
59	1	65.00
62	2	104.21
63	1	48.11
64	2	114.09
69	2	130.00
<u>Totals</u>	<u>10</u>	<u>\$591.41</u>

Children	
<u>Number</u>	<u>Total Monthly Annuity</u>
619	\$32,866.70

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.

These figures and exhibits indicate that the adequacy of the contribution rate to the Police and Fire Fund has been substantially improved by the amendment including all earnings rather than limiting them to \$6,000. In Exhibit 2 (using a 3% interest and age 64 retirement assumption), the actuarial balance of the program has improved from a slight deficit of 0.30% to a positive margin of 2.29%. Thus the additional dollars which are received by the fund, both now and in the future, due to the removal of the salary ceiling have redressed the prior adverse actuarial balance and provide an appropriate hedge against a future pattern of retirement earlier than age 64.

In actuarial terms, this result has been brought about by a series of complex interactions. As shown in Exhibit 6, the prior actuarial assumptions have been closely reflective of the experience since the net loss from inflation,

turnover, the pattern of retirement, and the expected deficit was relatively small. Three other larger changes are taken into account by this report, with the major factor being a disproportionate increase in the value of benefits to be earned in the future.

Prior to the removal of the salary ceiling, most of the members in this group were at the maximum salary level. This meant that for all intents and purposes, there was no projection of any future salary increase in the prior figures. Once the salary ceiling was removed, a projection of the future salary increases through a salary scale again became relevant. This in turn increased the discounted value of future payroll payments by over 50%, from \$98.6 million to \$155.9 million. The actuarial significance of this increase was to make a smaller normal cost contribution rate more effective in producing larger amounts and to shift a substantial portion of the obligation out of the value of benefits earned to date and into the value of benefits which will be paid for in the future. This results in a much more appropriate division of the obligation between past and future service and the normal cost rate requirement should be much more stable in the future.

A second major change was the inclusion of the additional obligation which was reflected by removing the salary ceiling. Because of the very much smaller size of the Police and Fire Fund (its total obligation is only 7% of the General Fund), no estimate of the cost of removing the salary ceiling was made in advance, other than to confirm that its removal would have the same characteristic as in the General Fund, i.e., of improving the actuarial balance of the program. Based on the current value we are now able to estimate the cost of the amendment which, in total, aggregated to \$3,458,421 or roughly 10% of the obligation under the prior law.

The cost of the amendment insofar as this group is concerned, was relatively more than the General Fund because of the higher wage levels of the Police and Fire members. Thus, the removal of the salary ceiling benefited the Police and Fire group about three times as much as the General members. As shown in Exhibit 6, 45% of this increase was allocated to past service and the remainder funded in the future.

Finally, an allowance for a 10% increase in the number of covered Police and Firemen has been incorporated in these figures. This accounted for slightly more than \$1.6 million of the increase in the value of benefits to be earned in the future but had no substantial effect on the required reserves for benefits earned to date. Taking all of these changes into account supports the conclusion that most of the change in reserves and in the adequacy of the combined employer member contribution requirement was due to inclusion of new employees and the removal of the earnings limit. The reconciliation strengthens the view that the actuarial assumptions being used are reasonably appropriate for this purpose with the single exception of the interest rate. Again, substantial margins exist in this fund which might well be reflected in benefit improvements and simplification of the law for the Police and Firemen, particularly if the effect of coordination with Social Security is segregated in a separate analysis.

CONCLUSION

The Police and Fire Fund is currently in actuarially sound condition. This conclusion is based on the law as it existed prior to coordination with Social Security, the effect of which will have to be taken into account in the Actuarial Report for the next fiscal year.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1861.

2. The second part is a report from the Secretary of the Treasury, dated January 1, 1861.

3. The third part is a report from the Secretary of the Interior, dated January 1, 1861.

4.

5. The fifth part is a report from the Secretary of the Navy, dated January 1, 1861.

6. The sixth part is a report from the Secretary of the War, dated January 1, 1861.

7. The seventh part is a report from the Secretary of the State, dated January 1, 1861.

8. The eighth part is a report from the Secretary of the Army, dated January 1, 1861.

9. The ninth part is a report from the Secretary of the Navy, dated January 1, 1861.

10. The tenth part is a report from the Secretary of the War, dated January 1, 1861.

11. The eleventh part is a report from the Secretary of the State, dated January 1, 1861.

12. The twelfth part is a report from the Secretary of the Navy, dated January 1, 1861.

13. The thirteenth part is a report from the Secretary of the War, dated January 1, 1861.

14. The fourteenth part is a report from the Secretary of the State, dated January 1, 1861.

15. The fifteenth part is a report from the Secretary of the Navy, dated January 1, 1861.

16. The sixteenth part is a report from the Secretary of the War, dated January 1, 1861.

17. The seventeenth part is a report from the Secretary of the Navy, dated January 1, 1861.

18. The eighteenth part is a report from the Secretary of the War, dated January 1, 1861.

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1967)

Police and Fire Fund

LIABILITIES

Accounts Payable	\$ 22,145.58		
Retirement			
Survivor			
Refunds			
Expenses			
Suspense Items	\$ 22,145.58		
Less Offset Against Current Assets	<u>22,145.58</u>	0	

RESERVES

Entry Age Normal Reserves			
Retirement	\$23,044,163.00		
Disability	6,840,405.00		
Survivors	2,405,102.00		
Refund	<u>799,917.00</u>		
	\$33,089,587.00		
Less Value of Benefits to be Earned in the Future	<u>19,843,109.00</u>	\$13,246,478.00	
Vested Members		89,497.00	
Retired Members			
Retirement	\$ 2,029,105.00		
Disability	11,396.00		
Survivors	<u>832,284.00</u>	<u>2,872,785.00</u>	<u>\$16,208,760.00</u>
Unfunded Obligation			\$ 5,491,954.39
Funded Obligation			<u><u>10,716,805.61</u></u>

Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1967)

Police and Fire Fund

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$36,051,869
Obligation for Service		
Rendered to Date	\$ 16,208,760	
Net Assets	10,716,806	
Accrued Unfunded Obligation	5,491,954	
Funding Ratio		66%
Amortization (30-Year) Requirement	280,196	
Covered Payroll	11,995,822	
Amortization (30-Year) Rate Requirement		<u>2.34%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be		
Earned in the Future	\$ 19,843,109	
Present Value of Future Payroll	155,890,400	
Normal Cost Rate Requirement		
Employee Contribution Rate	12.73%	
Employer Normal Cost Rate Requirement	6.00	<u>6.73%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		11.50%
Amortization (30-Year) Rate Requirement	2.34%	
Normal Cost Rate Requirement	6.73	
Allowance for Expenses	0.14	
Total Requirement		9.21
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		2.29%

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>	\$ 618,323.61	<u>Refunds</u>	
		Employee Contributions	\$ 213,831.42
<u>Employer Contributions</u>			
Regular	871,711.29	<u>Benefits Paid</u>	
Advance	35,014.76	Retirement	149,529.21
<u>Investment Income</u>	306,505.67	Survivor	64,070.38
<u>Transfer from Regular Fund</u>	59,445.73	Disability	1,187.16
<u>Investment Sales</u>		<u>Direct Expense</u>	462.20
Bonds	1,292,944.81	<u>Investment Purchases</u>	
Stocks	29,083.99	Bonds	2,192,518.40
<u>Miscellaneous Income</u>	264.91	Stocks	551,925.82
<u>Cancelled Warrants</u>	864.82	Premium and Interest	4,469.93
<u>Decrease in Cash Account</u>	2,518.37	<u>Transfers to Regular Fund</u>	38,683.44
	<u>\$3,216,677.96</u>		<u>\$3,216,677.96</u>

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

RECONCILIATION OF ASSET BALANCES

Asset Balance — July 1, 1966			\$ 8,981,579.46
Add:			
Employer Contributions	\$1,197,407.01		
Employee Contributions	686,672.32		
Investment Income	348,931.42		
Miscellaneous Income	26.27		
Transfers from Regular Fund	<u>17,448.63</u>		
Total Additions			<u>2,250,485.65</u>
			\$11,232,065.11
Deduct:			
Benefits Paid			
Retirement	\$148,865.03		
Survivor	63,875.38		
Disability	<u>1,187.16</u>	\$ 213,927.57	
Refunds		213,790.92	
Expense Administrative		17,240.60	
Capital Adjustment		27,705.29	
Transfers to Regular Fund		<u>20,449.54</u>	
Total Deductions			<u>493,113.92</u>
Asset Balance — June 30, 1967			<u>\$10,738,951.19</u>

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, 1967)

Revenue:

Employer Contributions	\$1,197,407.01	
Employee Contributions	686,672.32	
Investment Income	348,931.42	
Miscellaneous Income	26.27	
Transfers from General Fund	<u>17,448.63</u>	
Total Revenue		\$2,250,485.65

Expenditure:

Benefits	\$ 213,927.57	
Refund of Contributions	213,790.92	
Administrative Expense	17,240.60	
Capital Adjustment	27,705.29	
Transfers to General Fund	20,449.54	
Increase (Decrease) in Accounts Payable	<u>11,876.17</u>	
Total Expenditures		<u>504,990.09</u>

Increase in Assets (1966)	\$1,745,495.56
Estimated Increase in Actuarial Reserves	<u>2,020,408.00</u>
Decrease (Increase) in Unfunded Obligation	(<u>\$ 274,912.44</u>)

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

RECONCILIATION OF DECREASE IN UNFUNDED OBLIGATION

Expected Decrease in Unfunded Obligation

Amortization Payment	\$ 104,341	
Excess Interest (1.26% x Average Invested Assets)	97,889	
Estimated Deficit in Rate	(28,752)	
Increase due to Amendment Removing \$6,000 Maximum on Earnings	<u>(1,556,289)</u>	
Expected Decrease (Increase)		(\$ 1,382,811)

Expected Increase in Actuarial Reserves

Increase in Assets	\$1,745,496	
Decrease (Increase) in Unfunded	<u>(1,382,811)</u>	
		\$ 3,128,307

Reconciliation of Change in Actuarial Reserves

Expected Increase in Reserves	\$3,128,307	
Actual Increase in Reserves	<u>2,020,408</u>	
Experience Variation Gain		\$ 1,107,899

Change in Reserves Attributable to Changes in the Division between Past and Future Service (Net)	\$1,639,455	
Other Experience Loss (Net)	<u>(531,556)</u>	
Total		<u>\$ 1,107,899</u>

Public Employees Retirement Association
State of Minnesota

RECONCILIATION OF ACTIVE MEMBERS

Police and Fire Fund

As of July 1, 1966	1,918
New Entrants	426
Reinstated	67
<u>Total</u>	<u>2,411</u>
Separations	
(a) With Refund of Contributions	328
(b) With Deferred Annuity	7
(c) With Disability Annuity	0
(d) With Normal Retirement Annuity	38
<u>Total</u>	<u>373</u>
Active as of July 1, 1967	2,038

Public Employees Retirement Association
State of Minnesota

RECONCILIATION OF ANNUITANTS

Police and Fire Fund

Normal Retirement Annuitants

As of July 1, 1966	83
Additions During Year	38
Deletions During Year	<u>7</u>
<u>Total as of July 1, 1967</u>	<u>114</u>
Annual Annuity - July 1, 1966	\$123,368
July 1, 1967	\$175,305

Disability Annuitants

As of July 1, 1966	1
Additions During Year	0
Deletions During Year	<u>0</u>
<u>Total as of July 1, 1967</u>	<u>1</u>
Annual Annuity - July 1, 1966	\$1,187
July 1, 1967	\$1,187

Survivor Annuitants

(a) Spouse Only

As of July 1, 1966	46
Additions During Year	8
Deletions During Year	<u>3</u>
<u>Total as of July 1, 1967</u>	<u>51</u>
Annual Annuity - July 1, 1966	\$39,384
July 1, 1967	\$41,494

(b) Children

As of July 1, 1966	35
Additions During Year	6
Deletions During Year	<u>0</u>
<u>Total as of July 1, 1967</u>	<u>41</u>
Annual Annuity - July 1, 1966	\$23,160
July 1, 1967	\$25,380

Deferred Annuitants

As of July 1, 1966	0
Additions During Year	7
Deletions During Year	<u>0</u>
<u>Total as of July 1, 1967</u>	<u>7</u>

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1967)

(Police and Fire Fund)

ASSETS

Cash - On Hand	\$ -		
On Deposit	10,718.44		
In Transit	<u>4,389.74</u>	\$ 15,108.18	
Accounts Receivable			
Section 353.36	\$ 735.93		
Member Contributions	47,258.02		
Employer Contributions	2,082,195.26		
Interest	72,259.31		
Dividends	4,797.71		
From Regular Fund	<u>36,945.60</u>	<u>\$2,244,191.83</u>	\$ 2,259,300.01
Less Current Liabilities			<u>22,145.58</u>
Net Current Assets			\$ 2,237,154.43

INVESTMENTS

Bonds			
U. S. Government	\$ 725,000.00		
Municipal	-		
Corporate	5,391,858.22		
Canadian Government			
Insured	100,000.00		
Stocks			
Common	2,261,871.08		
Prepaid Interest	<u>921.88</u>	<u>\$ 8,479,651.18</u>	
Total Assets			<u>\$10,716,805.61</u>

Members accumulated contributions \$3,711,028.15

Public Employees Retirement Association
State of Minnesota

FINANCIAL BALANCE SHEET
(Year Commencing July 1, 1967)

Police and Fire Fund

LIABILITIES

Accounts Payable	\$	22,145.58	
Retirement	-		
Survivor	-		
Refunds	-		
Expenses	-		
Suspense Items	-	\$ 22,145.58	
Less Offset Against Current Assets		<u>22,145.58</u>	0

RESERVES

Entry Age Normal Reserves

Retirement	\$20,509,305.00
Disability	6,087,960.00
Survivors	2,140,541.00
Refund	<u>711,926.00</u>
	\$29,449,732.00

Less Value of Benefits to be Earned in the Future	16,761,336.00	\$12,688,396.00
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Vested Members	79,652.00
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Retired Members

Retirement	\$ 1,968,232.00		
Disability	11,054.00		
Survivors	<u>807,315.00</u>	<u>\$ 2,786,601.00</u>	<u>\$15,554,649.00</u>

Unfunded Obligation	\$ 4,837,843.39
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Funded Obligation	<u>\$10,716,805.61</u>
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Public Employees Retirement Association
State of Minnesota

ACTUARIAL REQUIREMENTS
(July 1, 1967)

Police and Fire Fund

AMORTIZATION RATE REQUIREMENT

Present Value of Benefit (For Both Past and Future Service)		\$32,315,985
Obligation for Service		
Rendered to Date	\$ 15,554,649	
Net Assets	10,716,806	
Accrued Unfunded Obligation	4,837,843	
Funding Ratio		69%
Amortization (30-Year) Requirement	263,040	
Covered Payroll	11,995,822	
Amortization (30-Year) Rate Requirement		<u>2.19%</u>

ENTRY AGE NORMAL RATE REQUIREMENT

Value of Benefits to be		
Earned in the Future	\$ 16,761,336	
Present Value of Future Payroll	149,654,800	
Normal Cost Rate Requirement		
Employee Contribution Rate	11.20%	
Employer Normal Cost Rate Requirement	6.00	<u>5.20%</u>

ACTUARIAL BALANCE

Employer Contribution Rate Set by Law		11.50%
Amortization (30-Year) Rate Requirement	5.20%	
Normal Cost Rate Requirement	2.19	
Allowance for Expenses	0.14	
Total Requirement		7.53
Excess (Deficit) of Employer Contribution Rate Set by Law and Total Requirement		<u>3.97%</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) For service during the period July 1, 1965 to July 1, 1967, all earnings, not to exceed \$6,000 in any calendar year.

(d) After July 1, 1967, all earnings.

(e) 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

Active Male Employees
(Age and Service as of July 1, 1967)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	18	\$ 84,526	25	\$ 126,942	19	\$ 101,456	-	\$ -
25 to 29	28	125,500	79	400,124	142	898,123	28	181,013
30 to 34	26	119,687	41	204,160	104	640,657	82	530,105
35 to 39	22	90,557	32	143,392	95	527,762	87	598,349
40 to 44	8	43,190	29	132,548	56	303,080	84	518,541
45 to 49	8	43,177	24	114,346	43	236,276	49	301,015
50 to 54	7	33,564	29	135,557	43	219,715	45	240,772
55 to 59	4	15,580	11	55,883	25	121,822	27	142,131
60 to 64	5	25,860	7	18,584	16	71,000	25	126,211
65 to 69	-	-	4	9,510	3	12,641	6	23,923
70 & Up	-	-	5	16,527	2	2,956	1	5,094
<u>Total</u>	<u>126</u>	<u>\$ 581,641</u>	<u>286</u>	<u>\$ 1,357,573</u>	<u>548</u>	<u>\$ 3,135,488</u>	<u>434</u>	<u>\$ 2,667,154</u>

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	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	-	-	-	-	-	-	-	-
30 to 34	16	118,699	3	23,547	-	-	-	-
35 to 39	61	427,711	21	156,222	6	37,482	-	-
40 to 44	52	349,296	39	270,925	18	122,617	3	20,285
45 to 49	43	293,162	27	186,510	11	78,636	13	91,157
50 to 54	28	185,180	37	247,623	11	74,140	10	66,348
55 to 59	18	101,391	26	179,212	12	83,943	8	50,570
60 to 64	18	105,639	16	95,059	10	66,748	6	36,679
65 to 69	7	36,761	2	12,971	8	41,409	6	35,400
70 & Up	1	4,560	2	8,590	-	-	-	-
<u>Total</u>	<u>244</u>	<u>\$ 1,622,399</u>	<u>173</u>	<u>\$ 1,180,659</u>	<u>76</u>	<u>\$ 504,975</u>	<u>46</u>	<u>\$ 300,439</u>

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Over		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	62	\$ 312,924
25 to 29	-	-	-	-	-	-	277	1,604,760
30 to 34	-	-	-	-	-	-	272	1,636,855
35 to 39	-	-	-	-	-	-	324	1,981,475
40 to 44	-	-	-	-	-	-	289	1,760,482
45 to 49	3	22,500	-	-	-	-	221	1,366,779
50 to 54	12	86,341	3	22,770	-	-	225	1,312,010
55 to 59	11	77,660	7	48,450	2	17,199	151	893,841
60 to 64	7	51,371	-	-	5	38,084	115	635,235
65 to 69	3	20,742	1	7,500	6	45,693	46	246,550
70 & Up	-	-	1	7,500	2	13,650	14	58,877
<u>Total</u>	<u>36</u>	<u>\$ 258,614</u>	<u>12</u>	<u>\$ 86,220</u>	<u>15</u>	<u>\$ 114,626</u>	<u>1996</u>	<u>\$11,809,788</u>

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

CONSIDERED EARNINGS

Active Female Employees
(Age and Service as of July 1, 1967)

Age	YEARS OF SERVICE							
	Under 1		1		2 to 4		5 to 9	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	3	\$ 7,296	2	\$ 4,830	1	\$ 3,150	-	\$ -
25 to 29	-	-	2	6,506	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	2	10,065	1	1,020	-	-
40 to 44	-	-	1	1,170	-	-	2	10,458
45 to 49	-	-	2	8,211	4	23,100	-	-
50 to 54	-	-	1	7,200	4	26,100	1	1,800
55 to 59	1	2,760	1	3,000	4	21,960	-	-
60 to 64	-	-	-	-	1	7,200	1	4,050
65 to 69	-	-	-	-	-	-	-	-
70 & Up	-	-	-	-	-	-	-	-
<u>Total</u>	<u>4</u>	<u>\$ 10,056</u>	<u>11</u>	<u>\$ 40,982</u>	<u>15</u>	<u>\$ 82,530</u>	<u>4</u>	<u>\$ 16,308</u>

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	-	\$ -	-	\$ -	-	\$ -	-	\$ -
25 to 29	1	3,180	-	-	-	-	-	-
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	-	-	-
45 to 49	-	-	-	-	-	-	-	-
50 to 54	-	-	-	-	-	-	-	-
55 to 59	-	-	2	6,258	-	-	-	-
60 to 64	2	10,465	1	7,200	-	-	-	-
65 to 69	-	-	2	9,055	-	-	-	-
70 & Up	-	-	-	-	-	-	-	-
<u>Total</u>	<u>3</u>	<u>\$ 13,645</u>	<u>5</u>	<u>\$ 22,513</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>

Age	YEARS OF SERVICE							
	30 to 34		35 to 39		40 & Over		All	
	No.	Earnings	No.	Earnings	No.	Earnings	No.	Earnings
Under 25	-	\$ -	-	\$ -	-	\$ -	6	\$ 15,276
25 to 29	-	-	-	-	-	-	3	9,686
30 to 34	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	3	11,085
40 to 44	-	-	-	-	-	-	3	11,628
45 to 49	-	-	-	-	-	-	6	31,311
50 to 54	-	-	-	-	-	-	6	35,100
55 to 59	-	-	-	-	-	-	8	33,978
60 to 64	-	-	-	-	-	-	5	28,915
65 to 69	-	-	-	-	-	-	2	9,055
70 & Up	-	-	-	-	-	-	-	-
<u>Total</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>-</u>	<u>\$ -</u>	<u>42</u>	<u>\$ 186,034</u>

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

Retired Under the Law in Force Prior to July 1, 1967

<u>Age</u>	<u>Male</u>		<u>Female</u>	
	<u>Number</u>	<u>Monthly Annuity</u>	<u>Number</u>	<u>Monthly Annuity</u>
65	3	\$ 501.73	1	\$ 48.07
66	5	927.62		
67	8	1,262.62		
68	6	1,016.37		
69	5	842.06	1	168.38
70	6	929.37		
71	8	1,519.02	1	199.89
72	3	630.93		
73	3	523.66		
74	3	545.84		
75	-	-		
76	2	297.68		
77	-	-		
78	1	155.39		
79	1	34.32	1	276.10
80	-	-	1	272.24
89	1	122.14		
90	1	31.68		
<u>Totals</u>	<u>56</u>	<u>\$9,340.43</u>	<u>5</u>	<u>\$ 964.68</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>	<u>Female Number</u>	<u>Monthly Annuity</u>
58	1	\$ 117.12		
59	3	327.58		
60	2	146.10		
61	2	192.95		
62	2	178.36		
63	5	345.50	1	\$ 24.99
64	4	340.67		
65	3	349.35		
66	3	311.35		
67	4	202.84		
68	4	215.84		
69	2	250.12		
70	4	298.28		
71	3	268.67		
72	2	129.47		
73	3	194.35		
74	3	226.79		
75	1	75.45		
<u>Totals</u>	<u>51</u>	<u>\$4,170.79</u>	<u>1</u>	<u>\$ 24.99</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>
67	1	\$ 107.84

Disability Retirements Annuities

<u>Age</u>	<u>Males Number</u>	<u>Monthly Annuity</u>
55	1	\$ 98.93

Public Employees Retirement Association
State of Minnesota

Police and Fire Fund

Survivor Annuities

<u>Widows</u>			<u>Widows</u>		
<u>Age</u>	<u>Number</u>	<u>Total Monthly Annuity</u>	<u>Age</u>	<u>Number</u>	<u>Total Monthly Annuity</u>
27	1	\$ 65.00	68	3	\$ 226.77
29	1	65.00	71	2	101.70
34	1	65.00	72	1	65.00
37	1	65.00	76	2	142.05
44	1	65.00	77	1	65.00
47	1	65.00	79	1	76.14
48	1	65.00	81	1	63.00
49	7	455.00			
50	2	130.00	<u>Totals</u>	<u>51</u>	<u>\$3,457.85</u>
51	3	195.00			
53	3	195.00			
54	2	130.00			
55	1	65.00			
57	2	130.00			
58	3	307.32			
59	2	130.00			
60	2	130.00			
61	2	130.00			
63	1	65.00			
67	3	200.87			

<u>Children</u>	
<u>Number</u>	<u>Total Monthly Annuity</u>
41	\$2,115.00

PERA SUPPLEMENTAL REPORTS

On April 12, 1968, a letter was received from the PERA Actuary discussing questions raised in GVS Minnesota Memorandum No. 67-3 and in GVS Minnesota Memorandum No. 67-4 reviewing the PERA Valuation as of June 30, 1967. He first commented that the explanations given in the memorandums concerning the change in the normal costs from 1966 to 1967 were proper interpretations of the discussions of this subject in his report.

In each memorandum, there was an attempt to make a breakdown of the increase in the unfunded accrued liability into the separate elements. The attempt was not completely successful in either case as the combination of the separate elements did not equal the actual increase. The PERA Actuary indicated that in each case our estimate of the actuarial gains was too large and should be adjusted to produce the correct result. This would make the two analyses read as follows:

	<u>General Fund</u>		<u>Police and Fire</u>	
Increase due to				
Removal of Ceiling		\$12, 868, 296		\$1, 556, 289
Decrease from Amortization	\$2, 799, 856		\$286, 535	
Decrease from Actuarial				
Gains	<u>1, 328, 728</u>	<u>4, 128, 584</u>	<u>994, 842</u>	<u>1, 281, 377</u>
Net Increase		\$ 8, 739, 712		\$ 274, 912

On April 15, 1968, the PERA Actuary submitted an Actuarial Survey. This Survey did contain information which indicated that in the General Fund the average age at entry is tending downward while the average retirement age remains somewhat over age 67; and that in the Police and Fire Fund the average age at entry is also tending downward and the average retirement age has decreased by a smaller amount.

The remainder of the information in the Survey consists of a repetition of the tables of death rates, termination rates, disability rates and salary scale given in the Valuation Report. Along with the assumed interest rate of 3%, these form the basis of the actuarial cost calculations, and these assumptions are the same as those used in the 1965 and 1966 valuations. In his letter dated November 28, 1967 covering the Valuation Report, the PERA Actuary stated: "Study of the results of the survey have led to the conclusion that no change in the actuarial assumptions is required at this time."

In a verbal discussion with the PERA Actuary, it was pointed out that it was the intent of the law that a survey should either contain information supporting the conclusion that no changes should be made or display actual experience which indicates that changes are in order. It was brought out in the discussion that he had misinterpreted certain provisions of the law and had not realized that such information was required. This information will be furnished in a supplemental report.

We have made some rough estimates which indicate that about \$847,000 of the \$1,328,728 of actuarial gains in the General Fund comes from interest earnings in excess of 3%. This leaves about \$480,000 from other sources. In the Police and Fire Fund, about \$51,000 comes from excess interest leaving about \$944,000 from other sources. These results indicate that for the one year of operation the other actuarial assumptions are on the conservative side, particularly in the Police and Fire Fund.

To prepare the way for future discussions, it should be brought out at this time that in the letter mentioned above as well as in the recent verbal discussion, the PERA Actuary has replied to a comment that his assumption that salaries will increase at the rate of 2% a year is open to question because salaries have increased at a rate in excess of 4% in recent years. His reply indicates that the actuarial committee of the Arthur Stedry Hansen firm has given this subject careful consideration and has reached the following conclusions:

"We have concluded that it is within the range of permissible actuarial practice to conclude, particularly for a permanent plan such as that of a public retirement group, that it is appropriate not to enter inflationary elements into the salary scale, provided that the assets are so invested that they are self-adjusting to inflation, at least in part. I would specifically put this conclusion into effect for the Minnesota Public Employees Retirement Association, feeling that a 2% compound increase to reflect merit and experience gains is more than ample."

The PERA Actuary has requested that he be given time at a future meeting of the Commission to present this point of view in some detail.

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

PERA VALUATION AS OF JUNE 30, 1967

(General Fund)

The purpose of this memorandum is to discuss the valuation report of the Public Employees' Retirement Association, dated November 27, 1967, which was submitted to the Commission in accordance with Chapter 249 of Minnesota Laws 1967. The valuation was made using the entry age normal cost method and assuming 3% interest. The 1967 and 1966 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, 1966 and June 30, 1967 are shown for comparative purposes. Figures are rounded where necessary for simplicity of presentation.

	As of <u>June 30, 1966</u>	As of <u>June 30, 1967</u>
(1) <u>Membership</u>		
Active Members	44,460 (A)	46,517 (B)
Retired Members	4,588	4,865
Disabled Members	145	163
Survivors of Deceased Members	2,511	2,669
Deferred Annuitants	257	472

(A) Includes 2,392 Hospital employee members.

(B) Includes 2,821 Hospital employee members.

(2) Payroll and Annuities Payable

Covered Payroll (\$6,000 limit in 1966; total pay in 1967)	\$ 170.0 million	\$ 206.3 million
Annuities Payable (annual)	8.6 million	9.1 million

	As of <u>June 30, 1966</u>	As of <u>June 30, 1967</u>
(3) <u>Valuation Balance Sheet</u>		
Accrued Liability	\$ 276 million	\$ 303 million
Assets	<u>142 million</u>	<u>161 million</u>
Unfunded Accrued Liability (Deficit)	\$ 134 million	\$ 142 million
Funding Ratio (Assets/Accrued Liability)	52%	53%

(4) Normal Cost and Funding Costs

Normal Cost	10.75%	10.73%
Expenses	<u>0.22</u>	<u>0.20</u>
Normal Cost Plus Expenses	10.97%	10.93%
Normal Cost Plus Expenses	10.97%	10.93%
Interest on Deficit	<u>2.36</u>	<u>2.07</u>
Minimum Contribution	13.33%	13.00%
Normal Cost Plus Expenses	10.97%	10.93%
Amortization by 1997	<u>3.93</u>	<u>3.52</u>
Required Contribution	14.90%	14.45%

(5) Statutory Contributions

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) Investment Yield (A)

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

3.39%

3.70%

2. Discussion of Valuation Results

The normal cost as a percentage of payroll has declined from 10.75% in 1966 to 10.73% in 1967. With the removal of the \$6,000 limit on covered salary, such a reduction would be anticipated, and in fact the small size of the drop has been the subject of discussion. The PERA Actuary states that since the salaries of a large number of participants are still under \$6,000, the removal of the ceiling does not have as large an effect on prospective benefits as might have been expected. The salary scale which he uses assumes that salaries increase at the rate of 2% per year, and for many participants compensation will not

exceed \$6,000 for several years. For example, with this assumption it will be ten years before a \$5,000 salary exceeds the \$6,000 level, and twenty-one years before a \$4,000 salary exceeds the previous ceiling.

In addition, the PERA Actuary stated that some of the employer units were still reporting only \$6,000 of compensation for employees earning over that amount. Therefore, it was necessary to estimate actual earnings in some cases.

The immediate increase in covered payroll, however, has been sufficiently large to cause the required amortization contribution as a percentage of payroll to drop from 3.93% to 3.52%. The total required contribution has gone down from 14.90% to 14.45% which is approximately equal to the total statutory contribution.

Although all cost figures as a percentage of payroll have decreased, it is interesting also to compare dollar amounts. The following shows the various components of the required contribution in 1966 and 1967:

	As of June 30, 1966	As of June 30, 1967
Normal Cost	\$ 18,234,484	\$ 22,131,080
Expense Allowance	373,171	412,508
Amortization by 1997	<u>6,666,188</u>	<u>7,260,149</u>
	\$ 25,273,843	\$ 29,803,737

We wish to discuss further with the PERA Actuary the breakdown of the increase in the unfunded accrued liability into the separate elements. The information is undoubtedly available by reference to the proper items in the Report, but we have not been able to make an accurate breakdown. An approximate result is as follows:

Increase due to Removal of Ceiling		\$ 12,868,296
Decrease from Amortization	\$ 2,799,856	
Decrease from Actuarial Gains	<u>1,542,095</u>	<u>4,341,951</u>
Net Increase		\$ 8,526,345
Actual Increase		\$ 8,739,712

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

	3%	3.5%
Normal Cost	<u>10.73%</u>	<u>9.44%</u>
Expenses	0.20	0.20
Amortization by 1997	<u>3.52</u>	<u>3.29</u>
	14.45%	12.93%

3. Conclusion

Subject to further discussion of the breakdown of the increase in the unfunded accrued liability and subject to a later filing of a review of actual experience compared with the actuarial assumptions, the Report filed by PERA conforms with the requirements of Chapter 249.

The statutory contributions appear to be adequate to pay normal cost, provide administrative expenses and amortize the unfunded accrued liability by 1997.

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

PERA VALUATION AS OF JUNE 30, 1967

(Police and Fire Fund)

The purpose of this memorandum is to discuss the valuation report of the PERA Police and Fire Fund, dated November 27, 1967, which was submitted to the Commission in accordance with Chapter 249 of Minnesota Laws 1967. The valuation was made using the entry age normal cost method and assuming 3% interest. The 1967 and 1966 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 report are shown below. Figures are rounded where necessary for simplicity of presentation.

	As of June 30, 1966	As of June 30, 1967
(1) <u>Membership</u>		
Active Members	1,918	2,038
Retired Members	83	114
Disabled Members	1	1
Survivors of Deceased Members	81	92
Deferred Annuitants	0	7
(2) <u>Payroll and Annuities Payable</u>		
Covered Payroll (\$6,000 limit in 1966; total pay in 1967)	\$ 9,584,075	\$ 11,995,822
Annuities Payable (annual)	182,000	243,366
(3) <u>Valuation Balance Sheet</u>		
Accrued Liability	\$ 14.2 million	\$ 16.2 million
Assets	<u>9.0 million</u>	<u>10.7 million</u>
Unfunded Accrued Liability (Deficit)	\$ 5.2 million	\$ 5.5 million
Funding Ratio (Assets/Accrued Liability)	63%	66%

	As of <u>June 30, 1966</u>	As of <u>June 30, 1967</u>
(4) <u>Normal Costs and Funding Costs</u>		
Normal Cost	14.90%	12.73%
Expenses	<u>0.18</u>	<u>0.14</u>
Normal Cost Plus Expenses	15.08%	12.87%
Normal Cost Plus Expenses	15.08%	12.87%
Interest on Deficit	<u>1.63</u>	<u>1.37</u>
Minimum Contribution	16.71%	14.24%
Normal Cost Plus Expenses	15.08%	12.87%
Amortization by 1997	<u>2.72</u>	<u>2.34</u>
Required Contribution	17.80%	15.21%
(5) <u>Statutory Contributions</u>		
Employee	6.0%	6.0%
Employer Regular	9.0	9.0
Employer Additional	<u>2.5</u>	<u>2.5</u>
Total	17.5%	17.5%
(6) Investment Yield (A)	3.28%	3.61%

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

2. Discussion of Valuation Results

The normal cost as a percentage of payroll has declined from 14.90% in 1966 to 12.73% in 1967. With the removal of the \$6,000 limit, a reduction would be anticipated, but the magnitude of the decrease lead to some discussion, particularly in view of the small decrease shown in the Report for the General Fund. The PERA Actuary states that a large number of participants in the PERA Fire and Police Fund have salaries well in excess of \$6,000 at the present time. Therefore, the removal of the ceiling immediately adds a substantial amount to the participating payroll and the application of the assumed salary scale projects still greater additions in the future. The number of dollars of normal cost, however, does not increase proportionately since the ceilings in effect prior to 1967 hold down the increase in average earnings. Thus, the ratio of present value of normal costs to present value of future payrolls decreases.

The substantial immediate increase in covered payroll has naturally produced a large drop in the amortization contribution as a percentage of payroll. The change was from 2.72% to 2.34%. The total required contribution has gone down from 17.80% to 15.21% which is well below the total statutory contribution.

Although all cost figures as a percentage of payroll have decreased, it is interesting also to compare dollar amounts. The following shows the various components of the required contribution in 1966 and 1967:

	As of <u>June 30, 1966</u>	As of <u>June 30, 1967</u>
Normal Cost	\$ 1,428,027	\$ 1,527,068
Expense Allowance	17,251	16,794
Amortization by 1997	<u>260,852</u>	<u>280,702</u>
	\$ 1,706,130	\$ 1,824,564

We wish to discuss further with the PERA Actuary the breakdown of the increase in the unfunded accrued liability into the separate elements. The information is undoubtedly available by reference to the proper items in the Report, but we have not been able to make an accurate breakdown. An approximate result is as follows:

Increase due to Removal of Ceiling		\$ 1,556,289
Decrease from Amortization	\$ 286,535	
Decrease from Actuarial Gains	<u>1,013,915</u>	<u>1,300,450</u>
Net Increase		\$ 255,839
Actual Increase		\$ 274,912

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

	<u>3%</u>	<u>3.5%</u>
Normal Cost	12.73%	11.20%
Expenses	0.14	0.14
Amortization by 1997	<u>2.34</u>	<u>2.19</u>
	15.21%	13.53%

3. Conclusion

Subject to further discussion of the breakdown of the increase in the unfunded accrued liability and subject to a later filing of a review of actual experience compared with the actuarial assumptions, the Report filed by PERA conforms with the requirements of Chapter 249.

The statutory contributions appear to be more than adequate to pay normal cost, provide administrative expenses and amortize the unfunded accrued liability by 1997. However, the margin will be reduced if a future trend toward retirements at an average age lower than age 64 should develop.

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