ACTUARIAL VALUATION

for

MINNESOTA STATE POLICE OFFICERS' RETIREMENT PLAN

Fiscal Year Ended June 30, 1968

November 29, 1968

Hewitt Associates
General Offices: Libertyville, Illinois
362-4080 • From Chicago call 274-7500
Chicago • Dayton • Los Angeles • Milwaukee
Minneapolis • New York

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Section 1. A Brief Summary of the Census Data

The data on which this actuarial valuation is based is summarized below. An analysis of the changes in the census data is presented in Section 3.

Active Members

Number	Annual Payroll June 30, 1968
169	$1,486,848

Other Members

	Number	Annual Annuity Payments
Retired Members	41	$ 99,151
Disabled Members	1	2,773
Widows of Deceased Members	25	24,834
Children of Deceased Members	10	7,320
Deferred Annuitant Members	4	6,218*
	81	$140,296

*Prospective Retirement Annuities.

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Section 2. The Actuarial Valuation

The results of the valuation on June 30, 1968 are shown below:

(1)	Accrued Liability	$ 4,049,939
(2)	Assets	1,604,111
(3)	Unfunded Accrued Liability (Prior Service Deficit)	$ 2,445,828
(4)	Normal Cost for Current Year	$ 170,945
(5)	Administrative Expense	$ 3,270

The actuarial assumptions will be found in Appendix B.

During the fiscal year ended June 30, 1968, the trust fund received income as follows:

Members' Contributions	$ 87,872.91
Taxes or Public Funds	227,889.06
Total Contributions	$315,761.97
Investment Income (not including realized gains and losses)	$ 57,799.21

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Section 2. The Actuarial Valuation (Continued)

The Normal Cost and Accrued Liability may be broken down into their components as shown below:

Normal Cost

Service Retirement Benefits	$ 119,211
Withdrawal Benefits	3,670
Disability Benefits	20,658
Survivors' Benefits	27,406
Total	$ 170,945

This total Normal Cost plus the administrative expense is 11.7% of the total payroll as of June 30, 1968.

Accrued Liability

Active Members

Service Retirement Benefits	$2,112,030
Withdrawal Benefits	11,268
Disability Benefits	208,190
Survivors' Benefits	415,915
Total for Active Members	$2,747,403

Inactive Members

Service Retirement	$ 779,143
Deferred Retired	62,471
Disability	30,382
Widows	290,929
Orphans	29,639
Survivors' Benefits	109,972
Total for Inactive Members	$1,302,536
Total Accrued Liability	$4,049,939

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Section 3. Experience of the Plan

The Unfunded Accrued Liability as of June 30, 1968 ($2,445,828) increased by $121,439, or about 5%, over its value as of June 30, 1967 ($2,324,389). Several factors were involved in creating this net increase. The minimum contribution to prevent an increase in the Unfunded Accrued Liability was $225,508. Since actual contributions during the past year were $315,762, this had the effect of reducing the Unfunded Accrued Liability by $90,254. The trust fund had a net investment income of $57,799, which represents a rate of return of about 3.9% before Realized Gains and Losses. Since the valuation assumes a return of 3%, the gain of approximately $13,400 from the trust fund performance reduced the Unfunded Accrued Liability.

Two actuarial assumptions have been changed in doing this valuation. The new disability rates assumed are based on the "Intermediate Rates of Disablement" used by the Social Security Administration in making their 1962 Cost Estimating Projections. The rates formerly used were based on the New York State Employees' Retirement System. The effect of this change in the actuarial costs and liabilities was not material. The second change in the actuarial assumptions is the assumed Normal Retirement Age. This valuation is based on an assumed age at retirement of 64. Prior valuations of the plan used a retirement age of 62.5. The average at retirement of all employees currently on service retirement is 66.9, and for those employees retiring in the past year, the average age was 69.0. This change in assumptions had the effect of reducing the costs and liabilities of the plan by approximately 12%.

The major factors which increased the Unfunded Accrued Liability are changes in the salary of participants and a change in the method of valuing the auxiliary benefits under the plan. For the valuation as of June 30, 1967 the 169 active members had a total payroll of $1,178,748, an average salary of $6,975. The comparable figures for the 169 active members in the current valuation are $1,486,848 total payroll and $8,798 average salary, an increase of 26%.

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Section 3. Experience of the Plan (Continued)

Analysis of Changes in the Census Data

Active Members

Active Members as of 6/30/67	169
New Entrants	15
Total	184
Separations from Active Service	
(1) Refundment of Contributions	2
(2) Disability	3
(3) Death	1
(4) Retirement with Service Annuity	9
Total Separations	15
Active Members as of 6/30/68	169

Inactive Members

Class of Annuitant	Members as of 6/30/67	New Entrants	Death	Other Terminations	Members as of 6/30/68
Service Retirement	34	9	2	0	41
Disability	0	1	0	0	1
Widows	23	2	0	0	25
Orphans	10	0	0	0	10
Deferred Annuitants	4	0	0	0	4
Total	71	12	2	0	81

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Section 4. Contributions

The contributions outlined below are the support rates required on an annual basis to meet the level of funding indicated. The amounts shown are based on the payroll used in the current valuation. The Normal Cost portion has been determined as a level dollar amount. The support rates shown assume payment as of the valuation date.

Contribution to Amortize Unfunded Accrued Liability (Prior Service Deficit) by 1997.

(1)	Normal Cost for Current Year	$170,945
(2)	Amortization Payment on Unfunded Accrued Liability (Prior Service Deficit)	123,752
(3)	Administrative Expense	3,270
(4)	Total Contribution	$297,967

Minimum Contribution to Prevent an Increase in Unfunded Accrued Liability.

(1)	Normal Cost	$170,945
(2)	Interest on Unfunded Accrued Liability at 3%	71,238
(3)	Administrative Expense	3,270
(4)	Minimum Contribution	$245,453

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Section 5. The Preparation of the Report

This report has been prepared in accordance with generally accepted actuarial principles and practices, based on data supplied by the Minnesota State Police Officers' Retirement Fund. The actuarial valuation was made in accordance with the requirements of Chapter 356 of Minnesota Laws 1967. The usual care has been exercised in making the calculations and presenting the results. The contents of this report are, therefore, believed to be a correct appraisal of the state of affairs of the plan.

Respectfully submitted,

HEWITT ASSOCIATES

Rodger R. Patrick

Rodger R. Patrick, ASA

November 29, 1968

APPENDIX A

Summary of the Plan Provisions

Eligibility

(1)	Normal Retirement Benefits	Age 58 with 10 years of service.
(2)	Early Retirement Benefits	Age 55 with 20 years of service.
(3)	Withdrawal Benefits	Any age.
(4) (a)	Disability in Line of Duty	Any age.
(b)	Disability Not in Line of Duty	Under age 60 with 10 years of service.
(5)	Spouses' and Orphans' Benefits	Any age for immediate benefit. Death after 20 years of service for deferred benefit.

Monthly Benefits

(1)	Normal Retirement	2% of career average salary for each year of service.
(2)	Early Retirement	Normal retirement benefit reduced by 1/2% for each month that first benefit payment precedes age 58.
(3)	Withdrawal	Return of contributions without interest.
(4) (a)	Disability in Line of Duty	55% of career average salary, reduced by Workmen's Compensation. Payable until earlier of recovery, death or age 60 (at which time normal retirement benefit paid).

APPENDIX A (Continued)

Summary of the Plan Provisions (Continued)

Monthly Benefits (Continued)

(b) Disability Not in Line of Duty

Normal retirement benefit accrued to date plus a supplemental amount determined as follows:

Age When Disabled	Supplemental Benefit
Under 51	$50
51	44
52	38
53	32
54	26
55	20
56	12
57	6

The total benefit may not exceed the normal retirement benefit for 30 years of service.

(5) Spouses' and Orphans' Benefits

(1) $75 for the dependent spouse plus $45 for each child, plus $20 to be split among all children, but not to exceed a maximum of $250 for any one family; or

(2) If the deceased employee had 20 or more years of service at his death, the spouse may elect to receive an annuity deferred to age 62 in lieu of the payments in (1) above. The amount is 75% of the member's accrued normal retirement benefit with a maximum benefit of $200. This amount is reduced by 1/2% for each month his date of death preceded age 58.

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APPENDIX A (Continued)

Summary of the Plan Provisions (Continued)

Normal Form of Annuity	Life Annuity.
Career Average Salary	Average annual salary upon which benefits are based. Currently, there is no limit on the amount of pay in any year which is included.

Contributions

	% of Salary
Members	6.0%
Employer Normal	9.0
Employer Additional	6.5
Total	21.5%

APPENDIX B

ACTUARIAL ASSUMPTIONS

Mortality Rates	The mortality rates used are based on the United States Life Table, 1959-61, White Males and White Females. These tables were used for both active and retired members and for survivors.
Withdrawal Rates	The rate of withdrawal of .030 at age 20 decreasing uniformly to zero at age 50 with no withdrawal after that age.
Disability Rates	These rates are based on "Intermediate Rates of Disablement" that were used by the Social Security Administration in their 1962 cost estimating procedures.
Retirement Age	The assumed average retirement age for this fund is age 64.
Salary Scale	A 3% annual increase in the salary on which retirement benefits are based has been assumed.
Interest Rate	3% compounded annually.
Actuarial Method	The Entry Age Normal Cost Method has been used to determine the Unfunded Prior Service Cost. The Normal Cost has been determined as a level dollar amount.

GVS Minnesota Memorandum No. 68-11
January 14, 1969

STATE POLICE OFFICERS VALUATION AS OF JUNE 30, 1968

The purpose of this memorandum is to discuss the valuation report of the Minnesota State Police Officers Retirement Association which was submitted to the Commission in accordance with Chapter 249 of Minnesota Laws 1967. The valuation was made on the basis of the entry age normal cost method and assuming 3% interest. This valuation was prepared by Rodger R. Patrick of Hewitt Associates.

This memo 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, 1967 and June 30, 1968 are shown for comparative purposes. Figures are rounded where necessary for simplicity of presentation.

(1) Membership	As of June 30, 1967	As of June 30, 1968
Active Members	169	169
Retired Members	34	41
Disabled Members	0	1
Widows of Deceased Members	23	25
Children of Deceased Members	10	10
Deferred Annuitants	4	4
(2) Payroll and Annuities Payable	(Thousands of Dollars)	
Covered Payroll	$ 1,179	$ 1,487
Annuities (Annual)	105	134
(3) Valuation Balance Sheet	(Thousands of Dollars)	
Accrued Liability	$ 3,678	$ 4,050
Assets	1,354	1,604
Unfunded Accrued Liability (Deficit)	$ 2,324	$ 2,446
Funding Ratio (Assets/Accrued Liability)	36.8%	39.6%

	As of June 30, 1967		As of June 30, 1968	
(4) Normal Costs and Funding Costs		% of Covered Payroll		% of Covered Payroll
Normal Cost	$ 152,571	12.9%	$ 170,945	11.7%
Expenses	3,205	0.3	3,270	0.2
	$ 155,776	13.2%	$ 174,215	11.9%
Normal Cost Plus Expenses	$ 155,776	13.2%	$ 174,215	11.9%
Interest on Deficit	69,732	5.9	71,238	4.8
Minimum Contribution	$ 225,508	19.1%	$ 245,453	16.7%
Normal Cost Plus Expenses	$ 155,776	13.2%	$ 174,215	11.9%
Amortization by 1997	115,127	9.8	123,752	8.3
Required Contribution	$ 270,903	23.0%	$ 297,967	20.2%
(5) Statutory Contributions				
Employee		6.0%		6.0%
Employer Regular		9.0		9.0
Employer Additional		6.5		6.5
Total		21.5%		21.5%
(6) Estimated Investment Yield*		3.96%		3.99%

* Ratio of reported investment income to estimated mean assets for fiscal year.

2. Discussion of Valuation Results

Although the normal cost has increased from $152,571 to $170,945, it has decreased from 12.9% of payroll to 11.7%. The total payroll increased about 26%, but the increase in prospective benefits which this produces is only about 12%. This accounts for the decrease as a percentage of payroll in the face of an increase in the dollar amount.

In a similar manner, a larger deficit can be amortized by an annual payment which is a smaller percentage of the substantially larger payroll.

The unfunded accrued liability has increased from $2,324,389 to $2,445,828, an increase of $121,439. This increase has been broken down by the Actuary as follows:

Increase from Actuarial Losses		$ 281,600
Decrease from Changes in Assumptions and Methods	$ 69,907	
Decrease from Amortization	90,254	160,161
		$ 121,439

The 12% increase in prospective benefits was the principal source of the actuarial losses. The changes in assumptions and methods involved a shift in the assumed average age at retirement from 62.5 to 64 which decreased the reserve for retirement benefits. This decrease was partially offset by a substantial increase in the reserves for disability and survivors' benefits.

The present statutory contribution of 21.5% of payroll contains a small margin over the required contribution of 20.2%. In fact, it provides the normal cost plus an amount sufficient to retire the deficit by 1990 to 1991.

3. Conclusion

The Valuation Report complies with the requirements of Chapter 249 of Minnesota Laws 1967 and indicates that the current statutory contribution is somewhat in excess of the required amount.

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