MINNESOTA
STATE POLICE OFFICERS
RETIREMENT FUND

FINANCIAL REPORT AND
ACTUARIAL SURVEY

FISCAL YEAR ENDED
JUNE 30, 1967

CHAPTER 359 LAWS 1965

FILE COPY

December 31, 1967

STATE POLICE OFFICERS RETIREMENT FUND

Introduction

In accordance with Chapter 359 of 1965 Minnesota Laws, a statement of the financial condition as of year ending June 30, 1967 of the State Police Officers Retirement Fund is herewith submitted. This statement contains the following items:

1. Introduction
2. Exhibit A, Balance Sheet
3. Exhibit B, Income Statement
4. Exhibit C, Census of Membership and Annuitants
5. Schedule 1, Statement of Unfunded Accrued Liability
6. Schedule 2, Statement of Estimated Total Reserve Required

Submitted by: S/ Charles J. Reiter
President

S/ Edward W. Reed
Secretary

S/ Henry H. Nelsen
Trustee

Prepared by: S/ Donald J. McMahon
Accountant

Exhibit A

STATE POLICE OFFICERS RETIREMENT FUND

BALANCE SHEET

Year ending June 30, 1967

Assets

Cash:		
In office	$ -	
On deposit with State Treasurer	15,204.00	
		$ 15,204.00
Accounts receivable:		
Members contributions		
Employer contributions		
Other		
Accrued interest on investments		
Dividends on stocks declared but not received		
Investments:		
Bonds at Par	$946,000.00	
Stocks at cost	316,559.00	
Real estate	-	
Other	76,000.00	
		$1,338,559.00
Equipment at cost less depreciation		
Other		
Total Assets		$1,353,763.00
Unfunded accrued liabilities (Schedule 1)		2,324,389.00
		$3,678,152.00

Liabilities and Reserve

Current:		
Accounts Payable	$ 58.00	
Annuity payments	-	
Survivor benefits payments	-	
Refundments	-	
Accrued expenses	-	
Total current liabilities		$ 58.00
Suspense items		-
Total reserves required (Schedule II)		3,678,094.00
Total Liabilities and Reserves		$3,678,152.00

Exhibit B

STATE POLICE OFFICERS RETIREMENT FUND

INCOME STATEMENT

Year ending June 30, 1967

INCOME:			
Employee contributions		$67,419.00	
Employer contributions:			
Regular 9%	$101,079.00		
Additional 3½%	39,308.00	140,387.00	
Investment Income		49,669.00	
Profit from Sale of Investments		161,531.00	
Other		555.00	
Total Income			$419,561.00
DEDUCTIONS FROM INCOME:			
Benefit Payments:			
Retirement Annuity	79,181.00		
Disability	-		
Widows	20,955.00		
Surviving Children	4,178.00	104,314.00	
Refundments:			
Employee Terminations	386.00	386.00	
Member Deaths	-		
Annuitant Deaths	-		
Transfer out to S.E.R.A.			
Increase in total reserve required		*	
General Expense:			
Non-state employee services	1,200.00		
Salaries	1,200.00		
Communications and travel	462.00		
Office Supplies	217.00		
Data Processing	66.00		
Office Equipment	60.00	3,205.00	
Total deductions from income (exclusive of increase in total reserve required)			$107,905.00

*Not available for year ending June 30, 1967

This income statement is prepared exclusive of the increase of total reserve required which is not available at this time.

Exhibit C

STATE POLICE OFFICERS RETIREMENT FUND

Census of Membership and Annuitants

The following is a summary of membership and survivors of deceased members as of June 30, 1967.

Status	Number
Active Members	169
Deferred Annuitants	4
Service Retirements	34
Disabled Members	0
Widows of Deceased Members	23
Children of Deceased Members	10

Schedule 1

STATE POLICE OFFICERS RETIREMENT FUND

Unfunded Accrued Liability

Year ending June 30, 1967

Accrued liability (Schedule 2)		$3,678,094.00
Assets in fund:		
Total Assets (Exhibit A)	$1,353.763.00	
Total Current Liabilities (Exhibit A)	58.00	
Net Assets		1,353,705.00
Unfunded accrued liability (Exhibit A)		$2,324,389.00

Schedule 2

STATE POLICE OFFICERS RETIREMENT FUND

Total Reserves Required

Year ending June 30, 1967

Active members:		
Retirement benefits	$2,363,538.00	
Disability benefits	133,650.00	
Refundments	6,800.00	
Survivors benefits	105,148.00	
		$2,609,136.00
Deferred Annuitants		55,572.00
Former members without vested rights		-
Annuitants:		
Retirement	627,339.00	
Disability annuities	-	
Widows	263,527.00	
Surviving children	33,217.00	
Other survivors	89,303.00	
		1,013,386.00
Total accrued liability (Exhibit A)		$3,678,094.00

November 17, 1967

INTRODUCTION

Name of Association Minnesota State Police Officers Retirement Association

In accordance with Chapter 359 of the 1965 Minnesota Laws and Chapter 249 of the 1967 Minnesota Laws, an actuarial survey as of June 30, 1967 has been made of this retirement association. The survey covers the membership of the fund as shown in the census of members and survivors of deceased members, which is included in this report. The details of the benefits under the plan, assets in the fund, income of the fund, and membership data were furnished by the Association.

This report covers the following items:

A. Benefits of the Plan and Contributions.

B. Assumptions in Actuarial Valuation.

C. Results of Valuation.

D. Discussion of Results.

E. Analysis of Change in the Unfunded Accrued Liability.

F. Census of Membership and Benefits Being Paid as of June 30, 1967.

G. Analysis of Changes in Membership.

H. Average Ages at Entry and Retirement.

I. Analysis of Actuarial Assumptions.

J. Certification by Actuary.

STATE POLICE OFFICERS RETIREMENT FUND

A. BENEFITS OF PLAN AND CONTRIBUTIONS

The plan provides the following major benefits:

1. Retirement Benefit.

   a. Requirements for retirement:

      Age 58 and 10 years' allowable service credit. (Reduced early retirement benefit available at age 55 with 20 years' allowable service.)

   b. Monthly annuity when minimum requirements are met:

      2% of average monthly salary for each year of allowable service.

   c. Additional monthly annuity after minimum requirements are met:

      2% of average monthly salary for each additional year. No additional credit given for service after reaching age 60, except for participants hired before 7-1-1961 who may count years of service past age 60.

2. Disability Benefit (monthly annuity).

   In Line of Duty: 55% of average monthly salary.

   Not in Line of Duty: If ten years' service completed and disablement occurs before age 60, a benefit of 2% of average monthly salary for each year of service, plus the following supplemental benefits:

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

3. Widow's and Orphan's Benefit (monthly annuity).

a. In case of participant's death before retirement, the surviving spouse may choose one of the following two benefits:

(1) $75 per month for surviving dependent spouse, plus $45 per month for each dependent child, plus $20 per month to be divided equally among the dependent children. Maximum of $250 for any one family.

(2) If member had completed 20 years of allowable service, a deferred annuity payable at age 62 of 75% of the member's normal annuity, with a maximum of $200. If the member was under 58 at the time of death, the benefit is reduced by 1/2% for each month before age 58.

b. In case of death after retirement:

No monthly survivors benefit unless participant has elected an option. However, an amount equal to the excess of the member's contributions less benefits received by the member are paid to his beneficiary if no option has been elected.

4. Other Death Benefit (lump sum): None.

5. Termination of Employment Benefit:

Employee contributions returned without interest.

6. Salary Basis for Benefits:

No maximum.

7. Contributions:

Member:	6.0% of covered salary
Employer Regular:	9.0% of covered salary
Employer Additional:	6.5% of covered salary
Total	21.5% of covered salary

B. ASSUMPTIONS IN ACTUARIAL VALUATION

1.	Mortality:	United States Life Tables, 1959-61 (White Males and White Females). These tables were used for both active and retired members, and for survivors.
2.	Disability:	The rates of disability were adapted from experience of the New York State Employees' Retirement System, graduated and extrapolated as required for this valuation.
3.	Withdrawal:	A rate of withdrawal of .030 at age 20 decreasing uniformly to zero at age 50 with no withdrawals after that age.
4.	Salary Scale:	A salary scale assuming a 3% annual increase in salaries was used to project the prospective retirement benefit.
5.	Retirement Age:	The assumed average age at retirement for this fund was 62.5.
6.	Interest:	3%, compounded annually.

It is felt that these assumptions are appropriate for the valuation of this fund on a realistic basis.

C. RESULTS OF VALUATION

1. Valuation.

Normal Cost of Benefits	$ 152,571
Total Administrative Expense	3,205
Accrued Liability	3,678,094

2. Current Deficit from Full Funding.

Accrued Liability	$ 3,678,094
Assets in Fund *	1,353,705
Unfunded Accrued Liability	$ 2,324,389

3. Annual Payment to Achieve Full Funding by 1997.

Annual Deposit to retire deficit by 1997	$ 115,127
Total Normal Cost	152,571
Total Administrative Expense	3,205
Total Annual Payment	$ 270,903

4. Minimum Contribution to prevent increase in Deficit.

Interest on deficit at 3%	$ 69,732
Total Normal Cost	152,571
Total Administrative Expense	3,205
Minimum Contribution	$ 225,508

5. *Income of Fund during fiscal year ending June 30, 1967.

Members' Contributions	$ 67,418.72
Taxes or Public Funds	140,387.13
Total Contributions	$ 207,805.85
Investment Income	$ 49,669.05

6. *Annual Payroll.

Total Payroll (no limit) as of 6-30-67	$ 1,178,748

*Data furnished by Association.

D. DISCUSSION OF RESULTS

The valuation was made by a method known as the entry age normal cost method. Under this method, the normal cost is determined based on the age at hire of each member. This normal cost is the annual deposit required (using the assumptions outlined in Section B above) to pay for the cost of each member's prospective benefits over the period from his date of hire to his date of retirement.

The elements of normal cost for this plan are:

Type of Benefit	Normal Cost
Service Retirement Benefit	$ 109,977
Disability Benefit	20,051
Withdrawal Benefit	1,005
Survivor's Benefit	21,538
Total Normal Cost	$ 152,571

This total normal cost and the administrative expense is 13.2% of the total payroll as of June 30, 1967.

When a retirement plan is fully funded, the fund contains an amount equal to the accumulation (under the actuarial assumptions made) of the normal cost for each member from his date of hire to the date of the valuation. This accumulation is called the accrued liability or the required reserve.

The elements of accrued liability for this plan are:

Type of Benefit	Accrued Liability
1. Active Members	
Retirement Benefit	$ 2,363,538
Disability Benefit	133,650
Withdrawal Benefit	6,800
Survivor's Benefit	105,148
Total for Active Members	$ 2,609,136
2. Inactive Members	
Retired	$ 627,339
Deferred Retired	55,572
Widows	263,527
Orphans	33,217
Survivor's Benefit	89,303
Total for Inactive Members	$ 1,068,958
Total Accrued Liability	$ 3,678,094

A retirement plan which is fully funded requires future contributions no larger than the sum of the administrative expense and the normal costs for all active members to pay for the prospective benefits (if the assumptions made are realized exactly). To the extent that normal costs and administrative expenses have not been paid in the past, a plan is not fully funded. The amount by which the plan is short of full funding is called the unfunded accrued liability of the fund. In other words, the unfunded accrued liability is the excess of the accrued liability over the actual assets of the fund.

The amount of annual contribution which would be required to pay each year's normal cost, the administrative expenses and eliminate the deficit by 1997 is the "total annual payment" shown in Section C of this report.

The deficit in the fund will increase unless at least 3% interest on the deficit is paid each year in addition to the normal cost and the administrative expenses. The sum of these three amounts should be regarded as the minimum annual contribution to the fund in order to keep the deficit at its present size. This "minimum contribution" is shown in Section C of this report.

E. ANALYSIS OF CHANGE IN THE UNFUNDED ACCRUED LIABILITY

As of 6-30-66

Total Accrued Liability	$ 3,249,270	
Assets in Fund	1,203,413	
Unfunded Accrued Liability		$ 2,045,857

As of 6-30-67

Total Accrued Liability 6-30-67	$ 3,678,094	
Assets in Fund	1,353,705	
Unfunded Accrued Liability		$ 2,324,389
Increase in Unfunded Accrued Liability		$ 278,532

Increase because of Change in Benefits	$ 297,840	
Decrease due to Gain from Actual Experience	5,178	
Decrease due to Current Level of Contributions	14,130	
		$ 278,532

F. CENSUS OF MEMBERSHIP AND BENEFITS

BEING PAID AS OF JUNE 30, 1967

Status	Number	Annual Payroll
Active Members	169	$ 1,178,748

Status	Number	Annual Benefit
Service Retirements	34	$ 79,381.32
Disabled Annuitants	None	0
Widow Annuitant	23	21,240.00
Orphan Annuitants	10	4,860.00
Deferred Annuitants	4	6,306.24
		$ 111,787.56

G. ANALYSIS OF CHANGES IN MEMBERSHIP

Active Members as of 6-30-66	171
New Entrants	1
Total	172
Death	1
Retirement With Service Annuity	2
Total Terminations	3
Actives as of 6-30-67	169
Service Retirements as of 6-30-66	32
New Retireds	2
Transferred from Disabled Status	1
Total	35
Death	1
Service Retirements as of 6-30-67	34
Disabled Annuitants as of 6-30-66	1
Transferred to Retired Status	1
Disabled Annuitants as of 6-30-67	0
Widow Annuitants as of 6-30-66	22
New Widows	1
Total	23
Total Terminations	None
Widow Annuitants as of 6-30-67	23
Orphan Annuitants as of 6-30-66	10
New Orphans	1
Total	11
Orphans reaching Age 18	1
Orphan Annuitants as of 6-30-67	10
Deferred Annuitants as of 6-30-66	4
No Changes	
Deferred Annuitants as of 6-30-67	4

H. AVERAGE AGES AT ENTRY AND RETIREMENT

The average age at which employment commences is as follows:

All current members		31.2
New Entrants Fiscal Year	1962-1963	31.8
	1963-1964	33.9
	1964-1965	27.4
	1965-1966	29.9
	1966-1967	38.0

The average age at which service retirements have taken place is as follows:

All current service retirements		66.3
New Retireds Fiscal Year	1962-1963	68.0
	1963-1964	56.0
	1964-1965	66.0
	1965-1966	67.5
	1966-1967	66.0

I. ANALYSIS OF ACTUARIAL ASSUMPTIONS

In accordance with Chapter 359 of the 1965 Minnesota Laws, an investigation of the basic experience of this fund has been made to substantiate the assumptions which are found in Section B.

The period chosen for this study began January 1, 1962 and ended June 30, 1967. The active membership for this period ranged from approximately 160 to 170 members. The number of individuals receiving benefits for this period varied from approximately 40 to 70. Even though the period studied was quite long, it is very difficult to attach a great deal of statistical significance to the results because of the relatively small number of members involved.

Let us consider each of the assumptions as they appear in Section B:

Mortality

The mortality tables used are the 1959-1961 United States Life Tables for White Males and White Females. Mortality was studied separately for the three major groups (Actives, Service Retirements and Widows). Following are the results of this investigation:

	Expected Deaths Based on 59-61 US	Actual Deaths
Actives	9.4	6
Retireds	8.9	10
Widows *	2.2	2

*Deaths and Remarriages included for the Widows.

These results show that the 1959 to 1961 U.S. Tables reproduce the actual deaths fairly closely. Therefore, this assumption was considered to be appropriate.

Disability

Because of the size of the fund and the fact that disability rates are quite small, it was felt that very little statistical significance could be attached to the experience of the fund. Therefore, we have adapted rates from the New York State Employees Retirement System which we consider appropriate for this type of organization.

Withdrawal

We have found that the withdrawal among the Active Members was somewhat higher than the rates we have been using. There were 17 actual withdrawals occurring over the period studied compared with 6.2 expected withdrawals. However, the trend of withdrawals has been decreasing for the last few years. For example, there were no withdrawals during the past year.

Therefore, for the sake of conservatism, we have used the same rates as used previously. We recommend that the trend of the withdrawal rates be studied carefully for the next several years.

Salary Scale

The three percent annual increase in salaries is appropriate when considered with the three percent interest rate assumption. Over a long period of time, these two items will probably be approximately the same even though there will be variations from year to year. These two items have opposite effects as an increase in interest results in lower costs whereas an increase in the salary scale results in higher costs.

Retirement Age

We have assumed that the average age at retirement will be 62.5. This is somewhat lower than the average ages at which retirements have occurred in the past. However, we felt that there were three very good reasons for using the lower average age.

First, the use of a lower average retirement age is conservative and will lead to larger actuarial gains in the future if the current members do retire at a higher average age than 62.5. Second, the nationwide trend in retirement ages for all occupations has been toward the younger ages. Third, members entering the fund after January 1, 1961 have their benefits frozen at age 60.

Interest

The State Laws require that an interest assumption of 3%, compounded annually, be used.

J. CERTIFICATION BY ACTUARY

Name of Association Minnesota State Police Officers Retirement Association

We hereby certify that this actuarial survey of the above named Association was made as of June 30, 1967, on the basis of accepted actuarial methods and procedures. The survey was completed in accordance with the requirements of Chapter 359 of Minnesota Laws 1965 and Chapter 249 of Minnesota Laws 1967.

Franklin C. Smith

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