

November 2, 1966

INTRODUCTION

Name of Association Minnesota Highway Patrol Officers' Retirement Association

In accordance with Chapter 359 of 1965 Minnesota Laws, an actuarial valuation as of June 30, 1966 has been made of this retirement association. The valuation 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. Census of Membership and Annuitants.
- F. Benefits Being Paid as of June 30, 1966.
- G. Certification by Actuary.



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MINNESOTA HIGHWAY PATROL OFFICERS' RETIREMENT FUND

A. BENEFITS OF PLAN AND CONTRIBUTIONS

The plan provides the following major benefits:

1. Retirement Benefit.

a. Requirements for retirement:

- (1) Age 55 and 20 years of service required for full service benefit.
- (2) 10 years of service required for vesting of deferred annuity benefit with payments to start at age 55.

b. Monthly annuity when minimum requirements are met:

- (1) \$250 per month.
- (2) \$125 per month.

c. Additional monthly annuity after minimum requirements are met:

- (1) \$5 per month for each year of service in excess of 20.
- (2) \$12.50 per month for each year of service in excess of 10 (after 20 years of service, regular annuity as in (1) is granted.)

2. Disability Benefit.

a. Requirements:

In Line of Duty: None.

Not in Line of Duty: 10 years of service.

b. Monthly Annuity:

\$250 per month plus \$5 per month for each year of service in excess of 20.

3. Widow's and Orphan's Benefits.

a. Active members:

(1) Death benefit before retirement:

Widow: \$75 per month.

Orphans: \$45 per month to age 18 for each child plus \$20 per month prorated equally to such children when there is more than one orphan.

(Maximum family benefit \$250 per month.)

(2) Death benefit after retirement:

None (actuarial equivalent of life annuity may be chosen under an option to provide a widow's benefit).

b. Retired member: None.

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

5. Termination of Employment Benefit:

Member contributions returned without interest (except that after 10 years of service a deferred annuity may be elected.)

6. Salary Basis for Benefits:

\$6,000 per year maximum.

7. Contributions (based on \$6,000 annual salary limit):

Member: 7.4% of covered salary

Employer Regular: 11.2% of covered salary

Employer Additional: 9.0% of covered salary

Total 27.6% 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 extra-
polated 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: No prediction of future salaries made except
for assumption that salary at retirement of
recent entrants will be the same as that for
members of long service.
5. Retirement Age: The assumed average age at retirement
for this fund was 57.0.
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	\$ 386,766
Accrued Liability	7,874,492

2. Current Deficit from Full Funding.

Accrued Liability	\$ 7,874,492
Assets in Fund *	<u>3,730,465</u>
Unfunded Accrued Liability	\$ 4,144,027

3. Annual Payment to Achieve Full Funding by 1997.

Annual Deposit to retire deficit by 1997	\$ 197,331
Total Normal Cost	<u>386,766</u>
Total Annual Payment	\$ 584,097

4. Minimum Contribution to prevent increase in Deficit.

Interest on deficit at 3%	\$ 124,321
Total Normal Cost	<u>386,766</u>
Minimum Contribution	\$ 511,087

5. *Income of Fund during fiscal year ending June 30, 1966.

Members' Contributions	\$ 170,169
Taxes or Public Funds	460,713
Other	<u>0</u>
Total Contributions	630,882

Investment Income	\$ 130,733
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6. Annual Payroll.

Covered Payroll (\$6,000 limit) as of 6-30-66	\$ 2,258,028
Total Payroll (no limit) as of 6-30-66	\$ 2,619,276

* 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:

<u>Type of Benefit</u>	<u>Normal Cost</u>
Service Retirement Benefit	\$ 277, 934
Disability Benefit	43, 813
Withdrawal Benefit	5, 062
Survivor's Benefit	40, 217
Vesting	19, 740
Total Normal Cost	\$ 386, 766

This total normal cost is 17.1% of the total covered payroll as of June 30, 1966.

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:

<u>Type of Benefit</u>	<u>Accrued Liability</u>
1. <u>Active Members</u>	
Retirement Benefit	\$ 5, 195, 901
Disability Benefit	261, 822
Withdrawal Benefit	49, 093
Survivor's Benefit	224, 650
Vesting	212, 042
Total for Active Members	\$ 5, 943, 508
2. <u>Inactive Members</u>	
Retired	\$ 1, 433, 786
Deferred Retired	187, 210
Widows	287, 594
Orphans	22, 394
Total for Inactive Members	\$ 1, 930, 984
Total Accrued Liability	\$ 7, 874, 492

A retirement plan which is fully funded requires future contributions no larger than the sum of the normal cost of all active members to pay for the prospective benefits (if the assumptions made are realized exactly). To the extent that normal costs 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 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. The sum of these two 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. CENSUS OF MEMBERSHIP AND ANNUITANTS

Following is a summary of membership and survivors of deceased members as of June 30, 1966:

<u>Status</u>	<u>Number</u>
Active Members	377
Deferred Annuitants	13
Service Retirements	54
Disabled Members	None
Widows of Deceased Members	15
Children of Deceased Members	7

F. BENEFITS BEING PAID AS OF JUNE 30, 1966

	<u>Number</u>	<u>Monthly Benefit</u>
Service Retirements	54	\$ 10,906.14
Disabled Members	None	None
Widows of Deceased Members	15	1,545.52
Children of Deceased Members	7	<u>215.00</u>
Total		\$ 12,666.66
(Equivalent Total Annual Benefit		\$ 151,999.92)

G. CERTIFICATION BY ACTUARY

Name of Association Minnesota Highway Patrol Officers' Retirement Association

We hereby certify that this actuarial survey of the above named Association was made as of June 30, 1966, 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.

Franklin C. Smith

Franklin C. Smith

Associate, Society of Actuaries

GEORGE V. STENNES AND ASSOCIATES