

1987 ACTUARIAL REPORT AND
EXPERIENCE STUDY

for

PINE CITY VOLUNTEER FIRE
DEPARTMENT RELIEF ASSOCIATION



Hewitt Associates

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SECTION 1. A BRIEF SUMMARY OF THE CENSUS DATA

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The data on which this actuarial valuation is based is summarized below.

Members Not Yet Receiving Benefits

	<u>Number</u>	<u>Prospective Retirement Annuities</u>
Active Members	30	\$30,000
Deferred Annuitant Members	-	-

Members Currently Receiving Benefits

	<u>Number</u>	<u>Annual Annuity Payments</u>
Retired Members	17	\$17,000
Disabled Members	-	-
Widows of Deceased Members	-	-
Children of Deceased Members	-	-

SECTION 2. THE ACTUARIAL VALUATION

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The results of the valuation on December 31, 1986, are shown below. These results reflect an annual benefit rate of \$1,000.

1. Accrued Liability	\$270,489
2. Special Fund Assets	<u>195,860</u>
3. Unfunded Actuarial Liability (Prior Service Deficit)	\$ 74,629
4. Normal Cost	\$ 5,430

The actuarial assumptions used in determining these results will be found in Appendix A.

Explanation of Actuarial Terminology

- **Accrued Liability:** The present value of benefits earned for service prior to the valuation date under the actuarial method used. The actuarial method used spreads the cost of total expected benefits equally over each member's anticipated period of active membership. The dollar amount shown as the Accrued Liability represents the number of dollars that should be in the Special Fund to provide for benefits already earned.
- **Unfunded Accrued Liability (Prior Service Deficit):** This amount is the difference between the Accrued Liability (the amount that should be in the Special Fund to fully provide for benefits already earned) and the actual amount of Special Fund assets.
- **Normal Cost:** The amount necessary, according to the actuarial method used, to pay for benefits earned in 1987 (and each future year until another actuarial valuation is completed).



SECTION 3. CONTRIBUTIONS

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The Volunteer Firefighter's Relief Association Financing Guidelines Act of 1971 Chapter 261, as amended by Chapter 424A of Minnesota Statutes 1986, specifies minimum support rates required on an annual basis. The minimum support rates from the municipality and state aid are determined as the amount required to meet the normal cost plus amortizing any current unfunded actuarial liability by the established date for full funding. This total contribution is shown below.

The contribution required by the municipality for any year is determined by taking Item 4 below, and subtracting one year's estimated state aid expected from the state pursuant to Minnesota Statutes, Chapter 69.

Contribution to Amortize Unfunded Accrued Liability (Prior Service Deficit) By Full Funding Date, December 31, 2006

1. Normal Cost	\$ 5,430
2. Amortization Payment on Unfunded Accrued Liability (Prior Service Deficit)	<u>5,703</u>
3. Total Contribution Required (including State Aid)	\$11,133

SECTION 4. INCOME OF FUND DURING 1986

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Members' Contributions	\$ 0.00
Contributions by Municipality	0.00
State Aid	14,539.00
Other	<u>0.00</u>
Total Contributions	\$14,539.00
Investment Income	\$18,174.31

SECTION 5. EXPERIENCE OF THE PLAN

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Since the previous valuation of the Plan, the Unfunded Accrued Liability has changed as follows:

Unfunded Accrued Liability, 1/1/82	\$ 9,886
Normal Cost, 1/1/82 - 12/31/86	34,150
Interest at 5% on the above	8,208
Contributions plus Interest, 1/1/82 - 12/31/86	<u>(67,150)</u>
Expected Unfunded Accrued Liability before Benefit Rate Increase	\$(14,906)
Actual Unfunded Accrued Liability before Benefit Rate Increase	<u>(20,336)</u>
Actuarial Gain since the Previous Valuation	\$ 5,430

The major factor of the actuarial gain was an asset gain of about \$39,000. This was offset by a turnover loss of approximately \$34,000. The change in the benefit rate per year of service from \$600 to \$1,000 increased the accrued liability by \$94,965.

The contribution for 1987 is \$11,133. The average entry age for all active members is 26.4

SECTION 6. THE PREPARATION OF THE REPORT

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This report has been prepared in accordance with generally accepted actuarial principles and practices. This actuarial survey was made in accordance with our understanding of the requirements of the Volunteer Firefighter's Relief Association Financing Guidelines Act of 1971 Chapter 261, as amended by Chapter 424A of Minnesota Statutes 1986. 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



Michael M. C. Sze
Fellow, Society of Actuaries

APPENDIX A. ACTUARIAL ASSUMPTIONS

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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 active members, retired members and for survivors.
Withdrawal Rates	The rate of withdrawal of .060 at age 20 decreasing uniformly to zero at age 45 with no withdrawal after that age.
Disability Rates	The expected Normal Cost of any disability benefit has been determined using claim statistics based on rates developed by the New York State Employees' Retirement System, and the resulting cost has been included in the Normal Cost shown on page 2.
Retirement Age	Members are assumed to retire after attaining age 53 and 20 years of service.
Interest Rate	Five percent compounded annually.
Actuarial Method	The Entry Age Normal Cost Method has been used with the Normal Cost determined as a level amount each year from the date of joining the Department to the assumed retirement age.

APPENDIX B. SUMMARY OF PLAN PROVISIONS

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Retirement Benefits

Requirements	Twenty years of service and 50 years of age.
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Amount	Benefit When Minimum Requirements Are Met: \$1,000.
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Vesting Benefit

Requirements	Not applicable.
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Amount	None.
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Lump Sum Death Benefit

Requirements	None.
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Amount	\$1,500.
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APPENDIX C. CENSUS DATA

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Active Members

<u>Number</u>	<u>Age Nearest Birthday</u>	<u>Completed Years of Service</u>	<u>Projected Annual Benefit</u>
1	50	16	\$1,000
2	49	27	1,000
3	49	14	1,000
4	48	13	1,000
5	47	13	1,000
6	46	23	1,000
7	46	16	1,000
8	45	20	1,000
9	45	18	1,000
10	44	20	1,000
11	44	15	1,000
12	43	21	1,000
13	39	4	1,000
14	38	8	1,000
15	37	4	1,000
16	35	10	1,000
17	34	2	1,000
18	32	10	1,000
19	32	10	1,000
20	32	7	1,000
21	31	11	1,000
22	30	1	1,000
23	29	9	1,000
24	29	5	1,000
25	28	7	1,000
26	26	1	1,000
27	26	0	1,000
28	25	4	1,000
29	23	4	1,000
30	22	0	1,000
Total Active Members			\$30,000

Retired Members

<u>Number</u>	<u>Age Nearest Birthday</u>	<u>Annual Benefit</u>
1	85	\$1,000
2	83	1,000
3	82	1,000
4	81	1,000
5	77	1,000
6	67	1,000
7	66	1,000
8	61	1,000
9	61	1,000
10	61	1,000
11	57	1,000
12	56	1,000
13	56	1,000
14	55	1,000
15	54	1,000
16	53	1,000
17	51	<u>1,000</u>
Total Retired Members		\$17,000



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