EDINA FIREMEN'S RELIEF ASSOCIATION

ACTUARIAL REPORT

PREPARED AS OF JANUARY 1, 1985

September, 1985

EDINA FIREMEN'S RELIEF ASSOCIATION

ACTUARIAL REPORT

The main purposes of the report are:

1. to present the basic valuation results,

2. to indicate the minimum required contribution for 1985.

3. to review the funded status of the plan,

4. to provide other information required to be reported under Minnesota Statutes.

Highlights from the current and prior valuations are:

1. The minimum required contribution under Chapter 201 of the Minnesota Statutes has decreased to $37,571 for 1985 from $41,265 for 1983. The major reason for the decrease in the minimum required contribution was the change in the number of active participants.

2. The actuarial value of assets was sufficient to provide for 177% of the actuarial present value of accumulated retirement plan benefits as of January 1, 1985.

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BASIC VALUATION RESULTS

The 1985 valuation results are based upon the plan provisions as of January 1, 1985; there were no changes from the prior valuation dated January 1, 1983. The actuarial methods and assumptions are the same as for the prior valuation.

	January 1, 1985	January 1, 1983
1. **Normal Cost** The portion of the total cost of the plan allocated to the year under the Entry Age Actuarial Cost Method (Table 85-1).	$ 37,571	$ 41,265
2. **Actuarial Accrued Liability** The portion of the total cost of the plan allocated to prior years under the Entry Age Actuarial Cost Method (Table 85-1).	1,370,055	1,277,907
3. **Asset Value** The market value of plan assets (Table 85-2).	2,169,714	1,586,510
4. **Unfunded Actuarial Accrued Liability (Surplus)** The excess of the actuarial accrued liability over the actuarial value of assets; the amount used to determine the portion of contributions attributable to prior years.	(799,659)	(308,603)

CONTRIBUTION CONSIDERATIONS

5. Contribution Considerations: The contribution limit for any year is a function of the normal cost for that year and the unfunded actuarial accrued liability.

   a) Annual Payment to Achieve Full Funding of the Unfunded Actuarial Accrued Liability by December 31, 2002.

      Because the actuarial value of assets exceeds the actuarial accrued liability, the contribution required by Section 201 of the Minnesota Statutes is equal to the normal cost. A summary of the calculations determining this amount is shown as follows:

Normal Cost	$37,571
Annual Deposit Required to Retire Unfunded Actuarial Accrued Liability by 12-31-02	0
Total Annual Payment	$37,571

   b) Minimum Contribution to Prevent Increase in Unfunded Actuarial Accrued Liability

      A contribution of $37,571 is required to pay the normal cost for the year and to prevent the unfunded actuarial accrued liability from increasing. The summary of calculations determining this amount is shown as follows:

Normal Cost	$37,571
Interest on Unfunded Actuarial Accrued Liability at 5%	0
Minimum Contribution	$37,571

FUNDED STATUS

The unfunded actuarial accrued liability under the Entry Age Actuarial Cost Method is used primarily to determine the component of the target contribution which is allocated to prior years. It is also sometimes used as a measure for evaluating the funded status of the plan. A second and more important standard, the plan continuation liability, is also used to measure the funded status of the plan. Both of these are discussed below:

6. Actuarial Accrued Liability: A comparison of the actuarial value of assets with the actuarial accrued liability provides one measure of the funded status of the plan. The actuarial accrued liability for active participants consists of the portion of the total cost of the plan allocated to prior years under the Entry Age Actuarial Cost Method.

   The actuarial accrued liability for inactive and retired participants consists of the present value of benefits expected to be paid. These values as of the current valuation date are shown below along with the funded percentage, the ratio of the actuarial value of assets to the actuarial accrued liability.

	January 1, 1985
(a) accrued liability	$1,370,055
(b) actuarial value of assets	2,169,714
(c) funded percentage: (b) / (a)	158%

   Tables 85-1 and 85-2 provide a more detailed breakdown of these amounts for the current year. Table 85-3 provides a summary of the underlying actuarial assumptions and methods.

7. Actuarial Present Value of Accumulated Plan Benefits: A comparison of the actuarial value of assets with the actuarial present value of accumulated retirement plan benefits provides another measure of the funded status of the plan. The actuarial present value of accumulated plan benefits (also referred to as the plan continuation liability) consists of the liability for pension and ancillary benefits which have been earned on the basis of each participant's service history as of the valuation date. The value as of the current valuation date is shown below along with the funded percentage, the ratio of the actuarial value of assets expressed as a percentage of the actuarial present value of accumulated plan benefits:

	January 1, 1985
(a) present value of benefits earned to date	$1,228,379
(b) actuarial value of assets	2,169,714
(c) funded percentage: (b) / (a)	177%

FUNDED STATUS (continued)

Table 85-3 provides a summary of the underlying actuarial assumptions and methods. The benefits valued are those in effect on January 1, 1985 as outlined in Table 85-4. The determination of the actuarial present value of accumulated plan benefits has been made in accordance with generally accepted actuarial principles and practices.

ACTUARIAL METHODS AND ASSUMPTIONS

8. Actuarial Methods and Assumptions: The plan costs developed in this report are estimates of the amounts necessary to provide the benefits to plan participants assuming continued funding of the plan in a systematic manner. These estimates are based upon the actuarial methods selected to allocate the total cost of the plan to various years and actuarial assumptions regarding the return on investments, employee termination rates, mortality rates and other factors. Table 85-3 contains a summary of the actuarial methods and assumptions used in the current valuation and a description of any changes from the prior report.

SOURCES OF VALUATION DATA

9. Asset Data: The primary source of the asset data was information supplied by the Association.

10. Participant Data: The primary source of participant data for the current valuation is a census of all participants as of January 1, 1985 supplied by the Association. A summary of participant data as of January 1, 1985 is provided in Table 85-1.

11. Plan Benefits: A summary of the plan provisions as of January 1, 1985, based upon information provided by the Association, is provided in Table 85-4 with a description of any changes since the prior report.

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EDINA FIREMEN'S RELIEF ASSOCIATION

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SUMMARY OF VALUATION RESULTS

	January 1, 1985	January 1, 1983
A. Participant Data		
1. Number of participants		
(a) Active participants	37	39
(b) Deferred vested participants	2	2
(c) Retired participants	7	10
(d) Disabled participants	1	1
(e) Beneficiaries of deceased participants	6*	3
(f) Total	53	55

*Including 6 widows, 0 widowers, and 0 children of deceased participants.

	January 1, 1985	January 1, 1983
B. Normal Cost		
1. Normal Cost for:		
(a) Service retirement benefits	$ 33,158	$ 36,222
(b) Permanent disability benefits	851	962
(c) Survivor's benefits	978	1,113
(d) Temporary disability benefit	1,108	1,351
(e) Lump-sum death and orphan's benefits	1,476	1,617
(f) Total	37,571	41,265
C. Actuarial Accrued Liability		
1. Active Participants		
(a) Service retirement benefit	888,645	742,916
(b) Permanent disability benefit	3,574	3,174
(c) Survivor's benefits	4,274	3,706
(d) Temporary disability benefits	5,540	5,228
(e) Lump-sum death and orphan's benefits	(189)	(55)
(f) Total Actuarial Accrued Liability for Active Participants	901,844	754,969

SUMMARY OF VALUATION RESULTS (continued)

	January 1, 1985	January 1, 1983
2. Inactive Members		
(a) Retired members	$ 269,815	$ 370,935
(b) Disabled members	14,492	14,629
(c) Deferred vested members	97,012	87,292
(d) Beneficiaries of deceased members	86,892	50,082
(e) Total Actuarial Accrued Liability for Inactive Members	468,211	522,938
3. Total Actuarial Accrued Liability	1,370,055	1,277,907

D. Contribution Considerations

	January 1, 1985	January 1, 1983
1. Annual payment to achieve full funding of unfunded actuarial accrued liability by December 31, 2002	37,571	41,265
2. Minimum contribution to prevent increase in unfunded actuarial accrued liability	37,571	41,265

E. Funded Status

	January 1, 1985	January 1, 1983
1. Actuarial present value of accumulated retirement plan benefits		
(a) Vested benefits		
- retired participants, disabled participants and beneficiaries	371,199	435,646
- terminated vested participants	97,012	87,292
- active participants	610,789	494,341
- subtotal	1,079,000	1,017,279
(b) Nonvested benefits	149,379	137,610
(c) Total	1,228,379	1,154,889
2. Actuarial value of assets	2,169,714	1,586,510
3. Unfunded actuarial present value (surplus): (1) - (2)	(941,335)	(431,621)
4. Funded percentage:		
(a) Vested benefits	201%	156%
(b) Accrued benefits	177	137

EDINA FIREMEN'S RELIEF ASSOCIATION

SUMMARY OF ASSETS

		January 1, 1985
1.	Asset value (market basis) as reported by the Association	$2,169,714
2.	Support during 1984	
	(a) Insurance Premium Tax	118,869
	(b) Member's Contributions and Dues	0
	(c) Municipal contribution	0
	(d) Total Support	118,869
3.	Benefits Paid During 1984	36,046

EDINA FIREMEN'S RELIEF ASSOCIATION

SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS AS OF JANUARY 1, 1985

A. ACTUARIAL METHODS

1. Calculation of Normal Cost and Actuarial Accrued Liability: The method used to determine the normal cost and actuarial accrued liability was the Entry Age Actuarial Cost Method described below.

   Entry Age Actuarial Cost Method

   Projected pension and ancillary benefits were determined for all active participants under the assumed retirement age. Cost factors designed to produce annual costs as a constant amount in each year from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The actuarial assumptions shown below for normal cost and actuarial accrued liability were used in determining the projected benefits and cost factors. The actuarial accrued liability for active participants (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

   The actuarial accrued liability for retired participants and their beneficiaries currently receiving benefits, active participants past the assumed retirement age, terminated vested participants and disabled participants was determined as the actuarial present value of the benefits expected to be paid. No normal costs are now payable for these participants.

   Benefits payable in the event of temporary disability of active participants are funded by a one year term cost. The normal cost was determined as the actuarial present value of the benefits expected to be paid for those expected to become temporarily disabled during the year. The actuarial accrued liability is equal to the accumulation of prior term costs, less actual benefits paid, but not more than five times the current normal cost.

2. Calculations of Actuarial Present Value of Accumulated Plan Benefits: The actuarial method used to determine the actuarial present value of accumulated plan benefits (both vested and non-vested) was the Accrued Benefit Actuarial Cost Method described below.

SUMMARY OF ACTUARIAL METHODS
AND ASSUMPTIONS AS OF JANUARY 1, 1985 (continued)

A. ACTUARIAL METHODS
(continued)

Accrued Benefit Actuarial Cost Method

Pension benefits accrued to the valuation date and payable from the assumed retirement age were estimated for active participants under that age. Accrued pension benefits for active participants over the assumed retirement age and inactive participants were either supplied by the Association or estimated. The actuarial present value of accumulated plan benefits was determined by multiplying the accumulated pension benefits by single premium cost factors based on the applicable actuarial assumptions shown below.

B. ACTUARIAL ASSUMPTIONS

Normal Cost and Accrued Liability and Present Value of Accumulated Plan Benefits

1. Investment Return: 5% per year.
2. Mortality: 1971 Group Annuity Table.
3. Termination: A 7% rate from age 20 to age 30, grading to no terminations after age 45.
4. Temporary Disability: 75% of the 1947-1949 Basic Morbidity Table for males.
5. Permanent Disability: Rates of disability adapted from experience of the New York State Employees' Retirement System. Rates of recovery and mortality for disabled lives were taken from tables used by the Pension Benefit Guaranty Corporation based on Social Security disability experience.
6. Entry Age: Age on employment date.
7. Retirement Age: The greater of age 50 or the age when the participant has completed 20 years of service.
8. Form of Payment: Joint and 50% to Joint Annuitant Annuity.
9. Asset Basis: Market value.

SUMMARY OF ACTUARIAL METHODS
AND ASSUMPTIONS AS OF JANUARY 1, 1985 (continued)

C. SOURCES OF VALUATION DATA

1. Participant Data: Current and prior data, upon review, appeared to be consistent.

2. Asset Data: The asset data provided by the Association was used by TPF&C without further audit. This information has been relied upon by TPF&C in the preparation of Table 85-2.

3. Benefits Not Valued: The benefits valued included all of those summarized on Table 85-4.

D. CHANGE IN ACTUARIAL METHODS AND ASSUMPTIONS SINCE PRIOR YEAR

The actuarial methods and assumptions are unchanged from the prior report.

EDINA FIREMEN'S RELIEF ASSOCIATION

SUMMARY OF PLAN PROVISIONS

A. PLAN PROVISIONS AS OF JANUARY 1, 1985

1. Retirement Benefit:

   (a) Requirements:

   (1) 50 years of age.

   (2) 20 years of service.

   (b) Benefit: $280 per month after requirements are met.

   (c) Additional monthly annuity after minimum requirements are met:

   (1) $14 per year of service in excess of 20. (Maximum benefit $420).

2. Permanent Disability Benefit:

   (a) Requirement: Accident or sickness arising from service with the Fire Department.

   (b) Benefit: $180 per month after a waiting period of 100 days.

3. Temporary Disability Benefit:

   (a) Requirement: Accident or sickness arising from service with the Fire Department.

   (b) Benefit: $10 per day, maximum 100 days.

4. Early Retirement Benefit:

   (a) Requirements:

   (1) Over 10 years of service.

   (2) If not attained age 50, benefit is deferred to age 50.

SUMMARY OF PLAN PROVISIONS (continued)

A. PLAN PROVISIONS AS OF JANUARY 1, 1985
(continued)

(b) Benefit:

Equal to the corresponding percentage of the accumulated plan benefit in the following table.

Completed Years of Service	Percent of Accumulated Plan Benefit Which is Vested
Less than 10	0%
10	60
11	64
12	68
13	72
14	76
15	80
16	84
17	88
18	92
19	96
20 or More	100

5. Survivor's Benefit - Widow and Widowers (Monthly Annuity):

   (a) Before retirement of deceased member: $135 per month.

   (b) After retirement of member: $135 per month.

6. Survivor's Benefit - Orphans (Monthly Annuity):

   (a) Before retirement of deceased member: $27 per month payable until age 18 (maximum of $135 per month with regard to any member).

   (b) After retirement of deceased member: $27 per month payable until age 18 (maximum of $135 per month with regard to any member).

7. Survivor's Benefit - Widow and Widowers (Lump Sum Amount):

   (a) Benefit: $1,350 regardless of the cause of death.

B. CHANGES IN PLAN PROVISIONS SINCE PRIOR YEAR

There have been no changes in plan provisions since the prior report.