

**MINNEAPOLIS FIREFIGHTERS'
RELIEF ASSOCIATION**

*December 31, 1999
Actuarial Valuation*

April, 2000

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

December 31, 1999 Actuarial Valuation

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MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

December 31, 1999 Actuarial Valuation

Introduction

Purpose

This report presents the results of the December 31, 1999 valuation for the Minneapolis Firefighter's Relief Association. Its primary purposes are:

- to determine the funded status as of December 31, 1999,
- to determine the normal cost for 1999, and
- to present information required to be disclosed under Governmental Accounting Standards Board Statement No. 25 (GASB 25) as of December 31, 1999.

Sources of Data

The Relief Association supplied December 31, 1999 data for all active and inactive members, and asset information regarding the special fund. We have relied on this data in preparing this report.

Changes from the Previous Valuation

The prior actuarial valuation of the plan was prepared as of December 31, 1998. The actuarial assumptions and methods used to prepare this report are identical to those used in the 1998 report. Subsequent to the valuation date, a new contract was settled between the firefighters and the City of Minneapolis. This contract has not been reflected in this valuation, but it is expected to have no material effect on the funded status of the plan.

Summary of Valuation Results

As of December 31, 1999, the funded status of the plan (actuarial accrued liabilities divided by the actuarial value of assets) is 109.2% (see page 7). The normal cost for 1999, after adjustment for member contributions, is \$1,941,573 (see page 7).

Comments on actuarial methods

The employer normal cost has been determined using generally accepted actuarial principles and current law. As of the date of this report, a bill is pending in the Minnesota Legislature that would specify the method for calculating the normal cost. If this bill becomes law, the employer normal cost will be decreased by \$391,188.

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION
December 31, 1999 Actuarial Valuation

Introduction (continued)

Actuarial Certification

We certify that the actuarial valuation has been prepared in accordance with Minnesota Statutes §§356.20-.23 and §69.77 as they relate to fire department relief associations in cities of the first class in general and the Minneapolis Firefighters' Relief Association in particular.

Respectfully submitted,



Mark D. Meyer, FSA, MAAA
Consulting Actuary



Paul D. Krueger, JD, EA
Consulting Actuary

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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December 31, 1999 Actuarial Valuation

Summary of Results

A. Plan participant data

December 31, 1998 December 31, 1999

1. Number of participants		
a. Active employees	179	153
b. Terminated vested employees	2	1
c. Retirees	396	411
d. Disability	10	9
e. Surviving spouses	201	198
f. Surviving children	4	4
g. Total	792	776

B. Normal costs

1998 Plan Year

1999 Plan Year

1. Total normal cost		
a. Amount	\$2,585,552	\$2,323,102
b. Percentage of active payroll	23.68%	24.07%
2. Employer normal cost		
a. Amount	2,142,244	1,941,573
b. Percentage of active payroll	19.62%	20.11%

C. Amortization payments

1. Unfunded actuarial accrued liability	(\$15,276,034)	(\$26,874,947)
2. Amortization payment	0	0

D. Value of plan assets

December 31, 1998 December 31, 1999

1. Market value	310,029,845	342,204,913
2. Actuarial value (for calculating contributions)	300,149,775	318,042,643

E. Benefit liabilities

1. Present value of future benefits	296,134,353	300,811,418
2. Actuarial accrued liability	284,873,741	291,167,696

F. Funded status

1. Actuarial value of assets as a % of liabilities	105.4%	109.2%
2. Market value of assets as a % of liabilities	108.8%	117.5%

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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December 31, 1999 Actuarial Valuation

Funding Basis

Actuarial Value of Assets

A. Average unrealized gain

Year Ending December 31:	Market Value	Book Value	Unrealized Gain (Market - Book)
1997	\$267,177,580	\$184,228,556	\$82,949,024
1998	310,029,845	231,421,505	78,608,340
1999	342,204,913	232,882,437	109,322,476
			90,293,280

B. Book value of assets December 31, 1999

232,882,437

C. Excess investment income

1. Salary increases and time-weighted rate of return on assets

Fiscal Year	Salary Increase	Asset Return
1995	0.000%	26.598%
1996	0.000%	14.031%
1997	6.390%	23.842%
1998	7.420%	20.735%
1999	6.833%	18.278%
Average	4.129%	20.697%

2. Determination of excess investment income

a. Excess of asset return over salary increase	16.57%
b. Excess minus 2%	14.57%
c. Lesser of 1.5% or 2.c. times market value of assets	(5,133,074)

D. Actuarial value of assets as of December 31, 1999

\$318,042,643

(A. + B. + C.2.c.)

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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December 31, 1999 Actuarial Valuation

Summary of Member Data

	December 31, 1998	December 31, 1999
<u>A. Active members</u>		
1. Number		
a. Fully vested	179	153
b. Nonvested	0	0
c. Total	179	153
2. Average age	51.2	51.5
3. Average years of service	24.5	25.2
4. Total annual payroll for the year beginning on valuation date	\$11,356,611	\$10,039,101
5. Average annual salary	\$63,445	\$65,615
<u>B. Vested terminated members</u>		
1. Number	2	1
2. Total annual deferred benefits	\$33,864	\$22,724
3. Average annual benefit	\$16,932	\$22,724
<u>C. Retirees</u>		
1. Number	396	411
2. Total annual benefits	\$12,832,876	\$14,010,961
3. Average annual benefit	\$32,406	\$34,090
<u>D. Disabilitants</u>		
1. Number	10	9
2. Total annual benefits	\$325,154	\$307,448
3. Average annual benefit	\$32,515	\$34,161
<u>E. Surviving spouses</u>		
1. Number	201	198
2. Total annual benefits	\$3,576,429	\$3,656,357
3. Average annual benefit	\$17,793	\$18,466
<u>F. Dependent children</u>		
1. Number	4	4
2. Total annual benefits	\$25,378	\$26,246
3. Average annual benefit	\$6,345	\$6,562
<u>G. Total number of members</u>	792	776

612-823-7588
avg age

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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December 31, 1999 Actuarial Valuation

Summary of Changes in Membership

	<u>Actives</u>	<u>Vested Terminees</u>	<u>Retirees</u>	<u>Disabled</u>	<u>Spouses</u>	<u>Children</u>	<u>Total</u>
<u>A. Number of members on December 31, 1998</u>	179	2	396	10	201	4	792
<u>B. Changes in membership</u>							
1. Retirements	(23)		27	(4)			0
2. Vested terminations							0
3. Member deaths		(1)	(12)		8		(5)
4. Beneficiary deaths					(11)		(11)
5. Expiration of surviving child benefits							0
6. Separations due to disability	(3)			3			
7. Corrections							0
8. Total changes	(26)	(1)	15	(1)	(3)	0	(16)
<u>C. Number of members on December 31, 1999</u>	153	1	411	9	198	4	776

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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December 31, 1999 Actuarial Valuation

Funding Basis

Actuarial Values Used to Determine Contribution

December 31, 1998 December 31, 1999

A. Actuarial present value of projected benefits (the value of all future benefits to be paid to the current group of members)

1. Active members	\$94,717,699	\$87,621,002
2. Vested terminated members	671,303	446,621
3. Retired members	161,559,584	174,568,735
4. Spouses and children receiving benefits	32,267,201	32,302,333
5. Disabled members receiving benefits	<u>6,918,566</u>	<u>5,872,727</u>
6. Total present value of projected benefits	296,134,353	300,811,418

B. Actuarial accrued liability (the cost allocated to all prior years)

1. Active members	\$83,457,087	\$77,977,280
2. Vested terminated members	671,303	446,621
3. Retired members	161,559,584	174,568,735
4. Spouses and children receiving benefits	32,267,201	32,302,333
5. Disabled members receiving benefits	<u>6,918,566</u>	<u>5,872,727</u>
6. Total actuarial accrued liability	284,873,741	291,167,696

C. Amortization of unfunded actuarial accrued liability

1. Total actuarial accrued liability (A.7.)	\$284,873,741	\$291,167,696
2. Actuarial value of assets	300,149,775	318,042,643
3. Unfunded actuarial accrued liability (1. - 2.)	(15,276,034)	(26,874,947)
4. Funded status (2. / 3.)	105.4%	109.2%
5. Years left in amortization period	11	10
6. Amortization payment	0	0

D. Normal cost (the cost allocated to the current year)

1. Present value of future normal costs	\$11,260,612	\$9,643,722
2. Normal cost as a dollar amount		
a. Total normal cost	2,585,552	2,323,102
b. Expected member contributions	443,308	381,529
c. Employer normal cost (a. - b.)	2,142,244	1,941,573
3. Payroll for year ending on valuation date	10,919,818	9,652,982
4. Normal cost as a percent of active payroll		
a. Total normal cost	23.68%	24.07%
b. Expected member contributions	4.06%	3.95%
c. Employer normal cost (a. - b.)	19.62%	20.11%

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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*December 31, 1999 Actuarial Valuation****Accounting Basis*****Statement of Plan Net Assets as of December 31, 1999**

	<u>Market Value</u>	<u>Book Value</u>
<u>A. Investment assets</u>		
1. Alliance Capital	193,507,346	101,793,668
2. State Board of Investment	87,918,800	81,187,438
3. Alliance Capital Group Trust	44,860,273	34,975,033
4. Miscellaneous real estate	249,678	89,797
5. Brinson Partners	14,311,663	13,479,348
6. Morgan Stanley Dean Witter	40,943	40,943
7. Total	340,888,703	231,566,227
<u>B. Checking account</u>	1,313,238	1,313,238
<u>C. Accrued/payable</u>		
1. Accrued contributions	201,630	201,630
2. Accounts payable	(197,871)	(197,871)
3. Adjustments	(787)	(787)
4. Total	2,972	2,972
<u>E. Net assets held in trust for pension benefits</u>	342,204,913	232,882,437

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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December 31, 1999 Actuarial Valuation

Accounting Basis

Statement of Changes in Plan Net Assets

	December 31, 1998	December 31, 1999
<u>A. Additions</u>		
1. Contributions		
a. Employer	\$3,541,518	1,177,332
b. Plan members	505,283	319,004
c. Total	4,046,801	1,496,336
2. Investment income	57,034,721	53,115,673
3. Total additions	61,081,522	54,612,009
<u>B. Deductions</u>		
1. Benefits paid	17,184,593	21,229,325
2. Refund of contributions	0	0
3. Expenses	1,044,664	1,097,438
4. Total deductions	18,229,257	22,326,763
<u>C. Net increase</u>	42,852,265	32,285,246
<u>D. Net assets held in trust for pension benefits</u>		
1. Beginning of year	\$267,177,580	\$309,919,667*
2. End of year	310,029,845	342,204,913

*Differs from 12/31/1998 value by \$(110,178) in adjustments recommended by the State Auditor.

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

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December 31, 1999 Actuarial Valuation

Accounting Basis

Schedule of Funding Progress
(Dollar amounts in thousands)

<u>As of December 31:</u>	<u>Actuarial Value of Assets</u>	<u>Actuarial Accrued Liability (AAL)</u>	<u>Unfunded AAL (UAAL)</u>	<u>Funded Ratio</u>	<u>Covered Payroll</u>	<u>UAAL as a % of Covered Payroll</u>
1992	\$156,279	\$211,558	\$55,279	73.9%	\$13,614	406.0%
1993	177,529	223,357	45,828	79.5%	13,395	342.1%
1994	178,003	228,567	50,564	77.9%	13,073	386.8%
1995	194,611	234,386	39,775	83.0%	11,839	336.0%
1996	208,969	252,540	43,571	82.7%	12,298	354.3%
1997	245,306	274,030	28,724	89.5%	12,079	237.8%
1998	300,150	284,874	(15,276)	105.4%	11,357	-134.5%
1999	318,043	291,168	(26,875)	109.2%	10,039	-267.7%

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION
December 31, 1999 Actuarial Valuation

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Accounting Basis

Schedule of Employer Contributions

<u>Year Ended December 31:</u>	<u>Annual Employer Contributions</u>
1992	\$7,667,121
1993	6,871,984
1994	6,878,398
1995	7,405,980
1996	6,328,580
1997	4,844,823
1998	3,541,518
1999	1,177,332

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION
December 31, 1999 Actuarial Valuation

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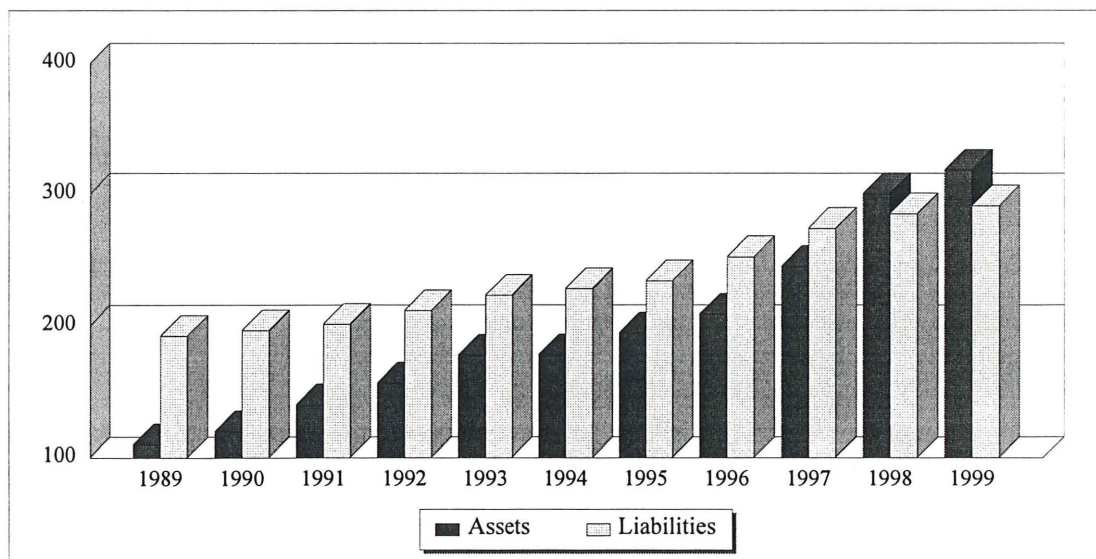
Historical Tables

Historical Funding Ratio Schedule
(Dollar amounts in thousands)

As of December 31:	Actuarial Accrued Liability	Actuarial Value of Assets	Percent Funded
1988*#	\$188,014	\$93,601	49.8%
1989	192,264	110,092	57.3%
1990#	196,491	119,652	60.9%
1991	201,461	139,891	69.4%
1992#	211,558	156,279	73.9%
1993#	223,357	177,529	79.5%
1994	228,567	178,003	77.9%
1995	234,386	194,611	83.0%
1996	252,540	208,969	82.7%
1997	274,030	245,306	89.5%
1998	284,874	300,150	105.4%
1999	291,168	318,043	109.2%

#After change in actuarial assumptions

*After change in benefit provisions



Historical Tables

History of Employer Contributions

<u>Valuation December 31:</u>	<u>Normal Cost as a Percent of Payroll</u>	<u>Amortization of Unfunded Actuarial Liability</u>
1988	23.37%	\$7,793,970
1989	23.33%	6,957,374
1990	23.95%	6,687,685
1991	23.85%	5,538,556
1992	23.90%	5,123,898
1993	23.98%	4,403,949
1994	23.99%	5,056,000
1995	23.94%	4,155,683
1996	23.91%	4,779,811
1997	23.88%	3,327,287
1998	23.66%	0
1999	24.07%	0

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION
December 31, 1999 Actuarial Valuation

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Historical Tables

Comparative Schedule of Active Members

Valuation December 31:	Number of Active Members	Projected Payroll	Averages		
			Age	Service	Pay
1988	364	\$14,045,668	46.7	19.4	\$38,587
1989	351	14,067,027	47.4	20.0	40,077
1990	337	13,854,744	48.0	20.8	41,112
1991	321	13,664,649	48.6	21.5	42,569
1992	309	13,614,231	49.2	22.2	44,059
1993	285	13,395,285	49.5	22.6	47,001
1994	267	13,073,121	50.2	23.2	48,963
1995	236	11,838,704	50.3	23.5	50,164*
1996	220	12,297,560	50.8	24.1	55,898
1997	198	12,078,990	51.4	24.7	61,005
1998	179	11,356,611	51.2	24.5	63,445
1999**	153	10,039,101	51.5	25.2	65,615

* Labor agreement settled in late 1996 with the 1996 single salary of \$53,175

**Payroll used to calculate normal cost for calendar year 1999 is \$9,652,982.

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION
December 31, 1999 Actuarial Valuation

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Historical Tables

Comparative Schedule of Inactive Members

<u>As of December 31:</u>	<u>Number of Retirees and Beneficiaries</u>			<u>Annual Benefits</u>	<u>Present Value of Benefits</u>
	<u>Added to Rolls</u>	<u>Removed from Rolls</u>	<u>On Valuation Date</u>		
1987	25	29	555	\$8,337,959	\$110,331,396
1988	32	25	562	8,894,721	111,904,800
1989	18	25	555	9,118,089	113,227,692
1990	24	22	557	9,364,461	115,174,188
1991	19	22	554	9,717,991	117,998,856
1992	34	24	564	10,418,854	125,708,460
1993	32	22	574	11,350,689	135,712,458
1994	32	31	575	12,845,678	143,862,253
1995	39	18	596	13,417,874	153,032,140
1996	27	27	596	14,091,016	166,750,488
1997	41	34	603	15,441,956	184,855,572
1998	20	12	611	16,759,837	200,745,351
1999	38	27	622	18,001,012	212,743,795

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

December 31, 1999 Actuarial Valuation

Actuarial Methods and Assumptions

1. Mortality The UP-1984 Mortality Table set forward 2 years for males and set back 3 years for females.

2. Withdrawal The rate of withdrawal is 6% at age 20 decreasing uniformly to zero at age 50 with no withdrawal after that age.

3. Disability Rates varying by age. Sample disability rates are as follows:

<u>Age</u>	<u>Rate</u>
25	0.08%
30	0.08
35	0.08
40	0.20
45	0.26
50	0.49
55	0.89

4. Retirement Age Members are assumed to retire at age 57, or attained age if older.

5. Interest Rate 6% compounded annually.

6. Salary Scale 4% annually.

7. Actuarial Cost Method The Entry Age Normal Cost Method. Under this method, the normal cost for an individual member is the level annual dollar amount required, beginning on the date of joining the association, to accumulate the funds needed to pay the member's accrued benefits by their assumed retirement age. The actuarial accrued liability is the accumulated value of these annual normal costs on a given date. The normal cost and accrued liability for the plan is the total of these values for all members.

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION*December 31, 1999 Actuarial Valuation***Summary of Plan Provisions**

- | | |
|---------------------------------|--|
| 1. Normal Retirement Benefit | Annual benefit of 1.6/80 of base pay for each year of service up to 25 years. An additional 2 units are awarded for the 20th year of service, for a maximum of 42 units. "Base pay" for this purpose means the maximum monthly salary of a first grade firefighter. Members must be at least age 50 with 5 years of service to receive this benefit. |
| 2. Deferred Vested Benefit | Annual benefit equal to the accrued normal retirement benefit, deferred to age 50 for members with at least 5 years of service. |
| 3. Disability Benefit | Annual benefit of 41/80 of base pay for members no longer able to perform the duties of a firefighter due to disability. |
| 4. Surviving Spouse's Benefit | Annual benefit of 22/80 of base pay for the surviving spouse of an active or retired member. Members on retirement may choose an alternate form of payment that provides 50%, 75% or 100% of their benefit to their spouse after their death. |
| 5. Surviving Children's Benefit | Annual benefit of 8/80 of base pay for each surviving child of an active or retired member. Benefits continue to age 18 or if the child is a full-time student, to age 22. The total benefit for surviving children and spouse combined is limited to 41/80 of base pay. |
| 6. Member Contributions | Members are required to contribute 8% of base pay. After 25 years of service, member contributions are paid to a separate health insurance account. Member contributions are non-refundable. |