04-0308

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

SPECIAL FUND

December 31, 2003
Actuarial Valuation

May, 2004

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VAN IWAARDEN

MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION

December 31, 2003 Actuarial Valuation of the Special Fund

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MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION
December 31, 2003 Actuarial Valuation of the Special Fund

Introduction

Purpose

This report presents the results of the December 31, 2003 valuation for the Minneapolis Firefighters' Relief Association. Its primary purposes are:

- to determine the funded status as of December 31, 2003,
- to determine the normal cost for 2003, and
- to present information required to be disclosed under Governmental Accounting Standards Board Statement No. 25 (GASB 25) as of December 31, 2003.

Sources of Data

The Relief Association supplied December 31, 2003 data for all active and inactive members, and asset information, including the market and book value of investments as of December 31, 2003, and the amount of receivables and payables at year end. The Relief Association also provided historical salary increase rate and investment return values used in determining the actuarial value of assets. 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, 2002. The actuarial assumptions and methods used to prepare this report are the same as those used in the 2002 report (see page 17). A unit value of 73.0107, effective as of December 31, 2001 was used for the 2001 valuation. Since the most recent contract had expired as of the date of this report, we have projected the 73.0107 unit value by 4% annually (the salary increase assumption provided in Minnesota Statutes) to 78.9683 as of December 31, 2003. All future unit values are projected at 4%. The salary rate provided under the new contract will be reflected in future reports.

Summary of Valuation Results

As of December 31, 2003, the funded status of the plan (actuarial accrued liabilities divided by the actuarial value of assets) is 80.6%, down from 87.2% on December 31, 2002. The same ratio computed on the basis of *market* value increased from 77.4% to 85.2%.

Because the five-year average rate of return on investments did not exceed the five-year average salary increase rate, no post-retirement benefit will be payable for 2003.

Introduction (continued)

Impact of Unfunded Actuarial Accrued Liability

For the second year in a row, the funded ratio is below 100%. Under Minnesota Statutes §423C.06(6), the City will be required to fund the deficit. Minnesota Statutes §423C.15(3) provides for a 15-year amortization of unfunded liabilities, replacing the old provision which would have required amortization in 6 years as of this report. The 15-year amortization payment is $5,521,173, down from the payment of $10,928,716 that would have been required under the old six-year amortization for this year.

Actuarial Gains and Losses

There was an actuarial loss on investments of about $13.8 million or 5.5%. There was an additional loss on liabilities of about $3.2 million. There have been consistent losses on assets for the past four years and on liabilities for the past six years. The mortality loss this year confirms our previous recommendation that the mortality table used to measure actuarial liabilities should be reviewed.

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

Summary of Results

A. Plan participant data	December 31, 2002	December 31, 2003
1. Number of participants		
a. Active employees	76	58
b. Terminated vested employees	2	2
c. Retirees	436	439
d. Disability	8	8
e. Survivng spouses	188	181
f. Surviving children	2	2
g. Total	712	690

B. Normal costs	2002 Plan Year	2003 Plan Year
1. Total normal cost		
a. Amount	$1,157,861	$906,523
b. Percentage of active payroll	21.74%	21.44%
2. Employer normal cost		
a. Amount	731,712	568,295
b. Percentage of active payroll	13.74%	13.44%

C. Amortization payments		
1. Unfunded actuarial accrued liability	$37,483,562	$56,964,445
2. Amortization payment	0*	5,533,223

D. Value of plan assets	December 31, 2002	December 31, 2003
1. Market value	226,580,976	250,352,620
2. Actuarial value (for calculating contributions)	255,194,400	236,990,860

E. Benefit liabilities		
1. Present value of future benefits	296,475,510	297,712,132
2. Actuarial accrued liability	292,677,962	293,955,306

F. Funded status		
1. Actuarial value of assets as a % of liabilities	87.2%	80.6%
2. Market value of assets as a % of liabilities	77.4%	85.2%

*Minn. Stat. §423C.06(6) provides that the City is not required to fund a deficit until the funded ratio has been under 100% for two successive years.

Funding Basis

Actuarial Value of Assets

A. Average unrealized gain

Year Ending December 31:	Market Value	Book Value	Unrealized Gain (Market - Book)
2001	$276,816,114	$230,813,330	$46,002,784
2002	226,580,976	206,823,963	19,757,013
2003	250,352,620	197,430,082	52,922,538
		Average:	39,560,778

B. Book value of assets December 31, 2003 197,430,082

C. Excess investment income

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

Fiscal Year	Salary Increase	Asset Return
1999	6.833%	18.278%
2000	3.037%	-2.698%
2001	3.335%	-3.302%
2002	0.838%	-9.650%
2003	0.000%	20.000%
Arithmetic average:	2.809%	4.526%

2. Determination of excess investment income

a. Excess of asset return over salary increase	1.72%
b. Excess minus 2%	0.00%
c. Lesser of 0.5% or 2.b. times market value of assets	0

D. Actuarial value of assets as of December 31, 2003 $236,990,860

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

Summary of Member Data

	December 31, 2002	December 31, 2003
A. Active members		
1. Number		
a. Fully vested	76	58
b. Nonvested	0	0
c. Total	76	58
2. Average age	53.2	53.1
3. Average years of service	27.2	27.3
4. Total annual payroll for the year ending on valuation date	$5,539,933	$4,396,958
5. Average annual salary	$72,894	$75,810
B. Vested terminated members		
1. Number	2	2
2. Total annual deferred benefits	$58,850	$61,204
3. Average annual benefit	$29,425	$30,602
4. Average age	48.0	49.0
C. Retirees		
1. Number	436	439
2. Total annual benefits	$16,275,339	$17,051,571
3. Average annual benefit	$37,329	$38,842
4. Average age	68.7	68.8
D. Disabilitants		
1. Number	8	8
2. Total annual benefits	$298,865	$310,819
3. Average annual benefit	$37,358	$38,852
4. Average age	52.0	53.0
D. Surviving spouses		
1. Number	188	181
2. Total annual benefits	$3,862,326	$3,871,123
3. Average annual benefit	$20,544	$21,387
4. Average age	77.5	77.9
E. Dependent children		
1. Number	2	2
2. Total annual benefits	$14,579	$15,162
3. Average annual benefit	$7,289	$7,581
4. Average age	19.6	20.6
F. Total number of members	712	690

Summary of Changes in Membership

	Actives	Vested Terminees	Retirees	Disabled	Spouses	Children	Total
A. Number of members on December 31, 2002	76	2	436	8	188	2	712
B. Changes in membership							
1. Retirements	(18)		18				0
2. Vested terminations							0
3. Member deaths			(15)		7		(8)
4. Beneficiary deaths					(14)		(14)
5. Expiration of surviving child benefits							0
6. Separations due to disability							0
7. Corrections							0
8. Total changes	(18)	0	3	0	(7)	0	(22)
C. Number of members on December 31, 2003	58	2	439	8	181	2	690

Funding Basis

Actuarial Values Used to Determine Contribution

	December 31, 2002	December 31, 2003
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	$47,050,078	$38,646,348
2. Vested terminated members	1,251,661	1,330,519
3. Retired members	208,804,196	218,867,288
4. Spouses and children receiving benefits	33,865,550	33,297,998
5. Disabled members receiving benefits	5,504,025	5,569,979
6. Total present value of projected benefits	296,475,510	297,712,132
B. Actuarial accrued liability (the cost allocated to all prior years)		
1. Active members	$43,252,530	$34,889,522
2. Vested terminated members	1,251,661	1,330,519
3. Retired members	208,804,196	218,867,288
4. Spouses and children receiving benefits	33,865,550	33,297,998
5. Disabled members receiving benefits	5,504,025	5,569,979
6. Total actuarial accrued liability	292,677,962	293,955,306
C. Amortization of unfunded actuarial accrued liability		
1. Total actuarial accrued liability (A.7.)	$292,677,962	$293,955,306
2. Actuarial value of assets	255,194,400	236,990,860
3. Unfunded actuarial accrued liability (1. - 2.)	37,483,562	56,964,445
4. Funded status (2. / 3.)	87.2%	80.6%
5. Years left in amortization period	0	15
6. Amortization payment	0*	5,533,223

D. Normal cost (the cost allocated to the current year)	December 31, 2002	December 31, 2003
1. Present value of future normal costs	$3,797,548	$3,756,827
2. Normal cost as a dollar amount		
a. Total normal cost	1,157,861	906,523
b. Statutory adjustment for member contributions	426,149	338,228
c. Employer normal cost (a. - b.)	731,712	568,295
3. Payroll for year ending on valuation date	5,326,859	4,227,844
4. Normal cost as a percent of active payroll		
a. Total normal cost	21.74%	21.44%
b. Statutory adjustment for member contributions	8.00%	8.00%
c. Employer normal cost (a. - b.)	13.74%	13.44%

*Minn. Stat. §423C.06(6) provides that the City is not required to fund a deficit until the funded ratio has been under 100% for two successive years.

Funding Basis

Changes in the Unfunded Actuarial Accrued Liability

A. Liability gain or loss for the year ending on December 31, 2003	
1. Expected actuarial accrued liability (AAL)	
a. AAL as of December 31, 2002	$292,677,962
b. Normal cost as of December 31, 2002 (excluding expenses)	1,157,861
c. Interest to December 31, 2003 on the AAL and normal cost	17,632,928
d. Expected benefit payments for the year (excluding post-retirement benefits)	(20,092,693)
e. Interest on benefit payments (1/2 year)	(602,781)
f. Expected AAL on December 31, 2003 (sum of a. through e.)	290,773,277
2. Actual AAL on December 31, 2003	
a. Before any assumption or plan changes	293,955,306
b. After assumption changes, but before any plan changes	293,955,306
3. Liability (gain) or loss	
a. Due to plan experience different from that expected (2a. - 1f.)	3,182,029
b. Due to changes in actuarial assumptions (2b. - 2a.)	0
c. Total (a. + b.)	3,182,029
B. Asset gain or loss for the year ending on December 31, 2003	
1. Expected actuarial value of assets	
a. Actuarial value of assets on December 31, 2002	255,194,400
b. Actual benefit payments and expenses for the year (including post-ret benefits)	(20,651,726)
c. Contributions for the year	1,518,129
d. Expected return on assets	14,737,656
e. Expected actuarial value of assets on December 31, 2003 (sum of a. through d.)	250,798,459
2. Actual actuarial value of assets on December 31, 2003	236,990,860
3. Asset (gain) or loss (1e. - 2.)	13,807,599
C. Changes in the unfunded AAL	
1. Expected unfunded AAL on December 31, 2003	39,974,818
2. Changes	
a. Actuarial (gain) or loss other than change in unit value	16,989,627
b. Change in unit value different from expected	0
c. Changes in actuarial methods and assumptions	0
d. Total change	16,989,627
3. Unfunded AAL on December 31, 2003	56,964,445

Accounting Basis

Statement of Plan Net Assets as of December 31, 2003

	Market Value	Book Value
A. Investment assets		
1. Short term investments	7,714,556	7,714,556
2. U.S. government obligations	13,215,513	13,013,861
3. GNMA and mortgage-backed securities	15,342,942	14,665,697
4. Corporate bonds	11,600,926	11,305,677
5. Corporate bond funds	40,574,247	29,030,709
6. Foreign bonds, notes, debentures	317,352	309,666
7. U.S. corporate stock	143,630,857	104,096,531
8. Equity mutual funds	12,334,153	12,823,904
9. Foreign stock	4,060,961	2,881,357
10. Limited partnerships	1,486	28,497
11. Total	248,792,993	195,870,455
B. Checking account	1,104,789	1,104,789
C. Accrued/payable		
1. Accrued contributions	223,147	223,147
2. Accounts receivable	10,990	10,990
3. Accrued income	498,325	498,325
4. Accounts payable	(277,624)	(277,624)
5. Total	454,838	454,838
D. Net assets held in trust for pension benefits	250,352,620	197,430,082

Accounting Basis

Statement of Changes in Plan Net Assets

	December 31, 2002	December 31, 2003
A. Additions		
1. Contributions		
a. Employer	1,030,019	1,333,170
b. Plan members	149,260	136,209
c. Total	1,179,279	1,469,379
2. Investment income	(26,643,818)	42,905,241
3. Other	1,137	48,750
3. Total additions	(25,463,402)	44,423,370
B. Deductions		
1. Benefits paid	24,064,274	19,949,411
2. Refund of contributions	0	0
3. Expenses	707,462	702,315
4. Total deductions	24,771,736	20,651,726
C. Net increase	(50,235,138)	23,771,644
D. Net assets held in trust for pension benefits		
1. Beginning of year	$276,816,114	226,580,976
2. End of year	226,580,976	250,352,620

Accounting Basis

Schedule of Funding Progress
(Dollar amounts in thousands)

As of December 31:	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a % of Covered Payroll*
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%
2000	315,900	293,802	(22,098)	107.5%	7,054	-313.3%
2001	304,887	293,396	(11,491)	103.9%	5,888	-195.2%
2002	255,194	292,678	37,484	87.2%	5,540	676.6%
2003	236,991	293,955	56,964	80.6%	4,397	1295.5%

* This measure of funded status is meaningless for a closed group but is presented in order to meet the requirement of GASB No. 25.

Accounting Basis

Schedule of Employer Contributions

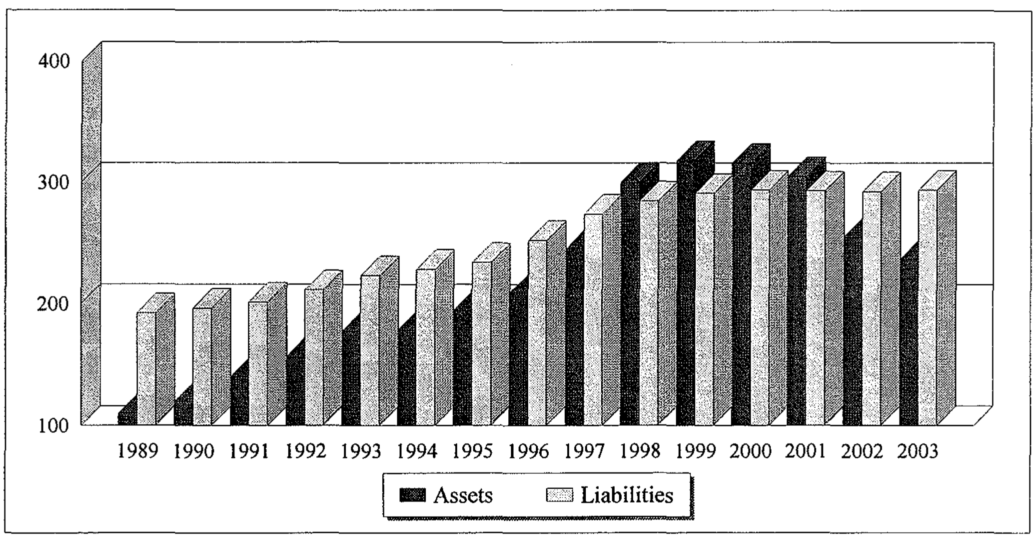
Year Ended December 31:	Employer Contributions
1992	$7,667,121
1993	6,871,984
1994	6,878,398
1995	7,405,980
1996	6,328,580
1997	4,844,823
1998	3,541,518
1999	1,177,332
2000	1,938,365
2001	1,232,252
2002	1,030,019
2003	1,333,170

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%
2000	293,802	315,900	107.5%
2001	293,396	304,887	103.9%
2002	292,678	255,194	87.2%
2003	293,955	236,991	80.6%

#After change in actuarial assumptions
**After change in benefit provisions*



Historical Tables

History of Employer Contributions

Valuation December 31:	Normal Cost as a Percent of Payroll	Amortization of Unfunded Actuarial Liability
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
2000	22.71%	0
2001	22.11%	0
2002	21.74%	0*
2003	21.44%	5,533,223

*Minn. Stat. §423C.06(6) provides that the City is not required to fund a deficit until the funded ratio has been under 100% for two successive years.

Historical Tables

Comparative Schedule of Active Members

Valuation December 31:	Number of Active Members	Projected Payroll	Averages Age	Averages Service	Averages 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
2000	104	6,782,803	52.0	25.8	67,828
2001	84	5,661,137	52.3	26.3	70,090
2002	76	5,326,859	53.2	27.1	72,894
2003	58	4,227,844	53.1	27.3	75,810

* 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.

Historical Tables

Comparative Schedule of Inactive Members

As of December 31:	Number of Retirees and Beneficiaries: Added to Rolls	Removed from Rolls	On Valuation Date	Annual Benefits	Present Value of Benefits
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
2000	62	34	653	19,610,997	240,364,062
2001	38	46	645	19,919,708	247,423,056
2002	16	27	634	20,451,109	248,173,771
2003	25	29	630	21,248,675	257,735,265

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:

Age	Rate
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. Unit value/Salary Scale — The unit value of 78.9683 as of December 31, 2003 was used in measuring active and inactive liabilities. The unit value is assumed to increase 4% annually. Inactive benefits are assumed to increase at the same rate.

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.

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. Members may choose among alternative survivor payment forms (see 4. below) which modify the number of units payable to the member and their spouse. A member who is single at the time of retirement and who has at least 25 years of service may choose to receive 42.3 units on the condition of a reduced survivor payment to any future spouse. "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. Upon retirement, members may choose an alternate form of payment that provides 50%, 75% or 100% of their benefit to their spouse after their death. The 22 units are adjusted if one of these alternate forms is selected. Retiring members who are unmarried may elect an actuarial increase.
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 42/80 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.