# Minneapolis Firefighters' Relief Association

# SPECIAL FUND

*December 31, 2002*
*Actuarial Valuation*

April, 2003

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Van Iwaarden

**MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION**

*December 31, 2002 Actuarial Valuation of the Special Fund*

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**MINNEAPOLIS FIREFIGHTERS' RELIEF ASSOCIATION**

*December 31, 2002 Actuarial Valuation of the Special Fund*

## Introduction

### *Purpose*

This report presents the results of the December 31, 2002 valuation for the Minneapolis Firefighters' Relief Association. Its primary purposes are:

- to determine the funded status as of December 31, 2002,
- to determine the normal cost for 2002, and
- to present information required to be disclosed under Governmental Accounting Standards Board Statement No. 25 (GASB 25) as of December 31, 2002.

### *Sources of Data*

The Relief Association supplied December 31, 2002 data for all active and inactive members. The market value of assets came from the State Auditor's report. The book value of assets came from the Standard Valuations, Inc. report. 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, 2001. The actuarial assumptions and methods used to prepare this report are the same as those used in the 2001 report (see page 17). A unit value of 73.0107, effective as of January 1, 2002 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% (the salary increase assumption provided in Minnesota Statutes) to 75.9311 as of January 1, 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*

The funded ratio has fallen below 100% for the first time since 1997 when the funded ratio was 89.5%. As of December 31, 2002, the funded status of the plan (actuarial accrued liabilities divided by the actuarial value of assets) is 87%, down from 104% on December 31, 2001. The same ratio computed on the basis of *market* value declined from 94.3% to 77.4%.

The current year results are a "snapshot" of the current actuarial status of the plan and are not necessarily indicative of long-term expectations. The United States stock market has declined for three consecutive years in 2000-2002 for the first time since 1931 through 1933.

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 in 2003.

## Introduction (continued)

### *Impact of Unfunded Actuarial Accrued Liability*

For the first time since 1997, there is an Unfunded Actuarial Accrued Liability (UAAL) for this plan. The amount of the UAAL is over $37 million. Minnesota Statutes §423C.15(3) provides for a 15-year amortization of unfunded liabilities, replacing the old provision which would have required amortization in 7 years as of this report. Given the 15-year period, generally accepted actuarial principles would normally require an amortization payment of $3,640,954. The new provisions (Minn. Stat. §423C.06(6)) also provide however, to facilitate budgeting by the City of Minneapolis, that no amortization payment is payable until the second consecutive year below 100% funding. The UAAL on December 31, 2003, is expected to be approximately $41 million. This will result in a required amortization payment of $4.0 million that will affect the city budget and levy for 2005.

### *Actuarial Gains and Losses*

There was an actuarial loss on investments of more than $43 million or 17%. There was an additional loss on liabilities of about $0.5 million. The total actuarial loss was about $44 million that completely wiped out the "surplus" of $11 million that existed on December 31, 2001. There have been consistent losses on assets for the past three years and on liabilities for the past five years. We recommend that a review of the mortality assumption be conducted to make sure that it is consistent with actual plan experience and with reasonable expectations.

### *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 | Paul D. Krueger, JD, EA |
| Consulting Actuary | Consulting Actuary |

## Summary of Results

| *A. Plan participant data* | December 31, 2001 | December 31, 2002 |
|---|---|---|
| 1. Number of participants | | |
| a. Active employees | 84 | 76 |
| b. Terminated vested employees | 2 | 2 |
| c. Retirees | 441 | 436 |
| d. Disability | 6 | 8 |
| e. Survivng spouses | 196 | 188 |
| f. Surviving children | 2 | 2 |
| g. Total | 731 | 712 |

| *B. Normal costs* | 2001 Plan Year | 2002 Plan Year |
|---|---|---|
| 1. Total normal cost | | |
| a. Amount | $1,251,925 | $1,157,861 |
| b. Percentage of active payroll | 22.11% | 21.74% |
| 2. Employer normal cost | | |
| a. Amount | 799,034 | 731,713 |
| b. Percentage of active payroll | 14.11% | 13.74% |

| *C. Amortization payments* | | |
|---|---|---|
| 1. Unfunded actuarial accrued liability | ($11,490,571) | $37,483,562 |
| 2. Amortization payment | 0 | 0* |

| *D. Value of plan assets* | December 31, 2001 | December 31, 2002 |
|---|---|---|
| 1. Market value | 276,816,114 | 226,580,976 |
| 2. Actuarial value (for calculating contributions) | 304,886,680 | 255,194,400 |

| *E. Benefit liabilities* | | |
|---|---|---|
| 1. Present value of future benefits | 298,194,767 | 296,475,510 |
| 2. Actuarial accrued liability | 293,396,109 | 292,677,962 |

| *F. Funded status* | | |
|---|---|---|
| 1. Actuarial value of assets as a % of liabilities | 103.9% | 87.2% |
| 2. Market value of assets as a % of liabilities | 94.3% | 77.4% |

*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) |
|---|---|---|---|
| 2000 | $310,820,185 | $231,468,670 | $79,351,515 |
| 2001 | 276,816,114 | 230,813,330 | 46,002,784 |
| 2002 | 226,580,976 | 206,823,963 | 19,757,013 |
| | | Average: | 48,370,437 |

***B. Book value of assets December 31, 2002*** 206,823,963

***C. Excess investment income***

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

| Fiscal Year | Salary Increase | Asset Return |
|---|---|---|
| 1998 | 7.420% | 20.735% |
| 1999 | 6.833% | 18.278% |
| 2000 | 3.037% | -2.698% |
| 2001 | 3.335% | -3.302% |
| 2002 | 4.000% | -9.650% |
| Arithmetic average: | 4.925% | 4.673% |

2. Determination of excess investment income

| | |
|---|---|
| a. Excess of asset return over salary increase | -0.25% |
| 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, 2002*** $255,194,400

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

## Summary of Member Data

| | December 31, 2001 | December 31, 2002 |
|---|---|---|
| ***A. Active members*** | | |
| 1. Number | | |
| a. Fully vested | 84 | 76 |
| b. Nonvested | 0 | 0 |
| c. Total | 84 | 76 |
| 2. Average age | 52.3 | 53.2 |
| 3. Average years of service | 26.3 | 27.2 |
| 4. Total annual payroll for the year ending on valuation date | $5,887,582 | $5,539,933 |
| 5. Average annual salary | $70,090 | $72,894 |
| ***B. Vested terminated members*** | | |
| 1. Number | 2 | 2 |
| 2. Total annual deferred benefits | $56,587 | $58,850 |
| 3. Average annual benefit | $28,294 | $29,425 |
| 4. Average age | 47.0 | 48.0 |
| ***C. Retirees*** | | |
| 1. Number | 441 | 436 |
| 2. Total annual benefits | $15,813,925 | $16,275,339 |
| 3. Average annual benefit | $35,859 | $37,329 |
| 4. Average age | 68.1 | 68.7 |
| ***D. Disabilitants*** | | |
| 1. Number | 6 | 8 |
| 2. Total annual benefits | $220,022 | $298,865 |
| 3. Average annual benefit | $36,670 | $37,358 |
| 4. Average age | 51.0 | 52.0 |
| ***D. Surviving spouses*** | | |
| 1. Number | 196 | 188 |
| 2. Total annual benefits | $3,871,743 | $3,862,326 |
| 3. Average annual benefit | $19,754 | $20,544 |
| 4. Average age | 77.5 | 77.5 |
| ***E. Dependent children*** | | |
| 1. Number | 2 | 2 |
| 2. Total annual benefits | $14,018 | $14,579 |
| 3. Average annual benefit | $7,009 | $7,289 |
| 4. Average age | 18.6 | 19.6 |
| ***F. Total number of members*** | 731 | 712 |

## Summary of Changes in Membership

| | Actives | Vested Terminees | Retirees | Disabled | Spouses | Children | Total |
|---|---|---|---|---|---|---|---|
| ***A. Number of members on December 31, 2001*** | 84 | 2 | 441 | 6 | 196 | 2 | 731 |
| ***B. Changes in membership*** | | | | | | | |
| 1. Retirements | (6) | | 6 | | | | 0 |
| 2. Vested terminations | | | | | | | 0 |
| 3. Member deaths | | | (11) | | 8 | | (3) |
| 4. Beneficiary deaths | | | | | (16) | | (16) |
| 5. Expiration of surviving child benefits | | | | | | | 0 |
| 6. Separations due to disability | (2) | | | 2 | | | 0 |
| 7. Corrections | | | | | | | 0 |
| 8. Total changes | (8) | 0 | (5) | 2 | (8) | 0 | (19) |
| ***C. Number of members on December 31, 2002*** | 76 | 2 | 436 | 8 | 188 | 2 | 712 |

***Funding Basis***

## Actuarial Values Used to Determine Contribution

| | December 31, 2001 | December 31, 2002 |
|---|---|---|
| ***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 | $49,593,917 | $47,050,078 |
| 2. Vested terminated members | 1,177,794 | 1,251,661 |
| 3. Retired members | 209,547,782 | 208,804,196 |
| 4. Spouses and children receiving benefits | 33,876,096 | 33,865,550 |
| 5. Disabled members receiving benefits | 3,999,178 | 5,504,025 |
| 6. Total present value of projected benefits | 298,194,767 | 296,475,510 |
| ***B. Actuarial accrued liability (the cost allocated to all prior years)*** | | |
| 1. Active members | $44,795,259 | $43,252,530 |
| 2. Vested terminated members | 1,177,794 | 1,251,661 |
| 3. Retired members | 209,547,782 | 208,804,196 |
| 4. Spouses and children receiving benefits | 33,876,096 | 33,865,550 |
| 5. Disabled members receiving benefits | 3,999,178 | 5,504,025 |
| 6. Total actuarial accrued liability | 293,396,109 | 292,677,962 |
| ***C. Amortization of unfunded actuarial accrued liability*** | | |
| 1. Total actuarial accrued liability (A.7.) | $293,396,109 | $292,677,962 |
| 2. Actuarial value of assets | 304,886,680 | 255,194,400 |
| 3. Unfunded actuarial accrued liability (1. - 2.) | (11,490,571) | 37,483,562 |
| 4. Funded status (2. / 3.) | 103.9% | 87.2% |
| 5. Years left in amortization period | 8 | 0 |
| 6. Amortization payment | 0 | 0* |

| ***D. Normal cost (the cost allocated to the current year)*** | December 31, 2001 | December 31, 2002 |
|---|---|---|
| 1. Present value of future normal costs | $4,798,658 | $3,797,548 |
| 2. Normal cost as a dollar amount | | |
| a. Total normal cost | 1,251,925 | 1,157,861 |
| b. Expected member contributions | 452,891 | 426,149 |
| c. Employer normal cost (a. - b.) | 799,034 | 731,713 |
| 3. Payroll for year ending on valuation date | 5,661,137 | 5,326,859 |
| 4. Normal cost as a percent of active payroll | | |
| a. Total normal cost | 22.11% | 21.74% |
| b. Expected member contributions | 8.00% | 8.00% |
| c. Employer normal cost (a. - b.) | 14.11% | 13.74% |

*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, 2002*** | |
| 1. Expected actuarial accrued liability (AAL) | |
| a. AAL as of December 31, 2001 | $293,396,109 |
| b. Normal cost as of December 31, 2001 (excluding expenses) | 1,251,925 |
| c. Interest to December 31, 2002 on the AAL and normal cost | 17,681,887 |
| d. Expected benefit payments for the year (excluding post-retirement benefits) | (19,603,017) |
| e. Interest on benefit payments (1/2 year) | (588,091) |
| f. Expected AAL on December 31, 2002 (sum of a. through e.) | 292,138,812 |
| 2. Actual AAL on December 31, 2002 | |
| a. Before any assumption or plan changes | 292,677,962 |
| b. After assumption changes, but before any plan changes | 292,677,962 |
| 3. Liability (gain) or loss | |
| a. Due to plan experience different from that expected (2a. - 1f.) | 539,150 |
| b. Due to changes in actuarial assumptions (2b. - 2a.) | 0 |
| c. Total (a. + b.) | 539,150 |
| ***B. Asset gain or loss for the year ending on December 31, 2002*** | |
| 1. Expected actuarial value of assets | |
| a. Actuarial value of assets on December 31, 2001 | 304,886,680 |
| b. Actual benefit payments and expenses for the year (including post-ret benefits) | (24,771,736) |
| c. Contributions for the year | 1,180,416 |
| d. Expected return on assets | 17,585,461 |
| e. Expected actuarial value of assets on December 31, 2002 (sum of a. through d.) | 298,880,821 |
| 2. Actual actuarial value of assets on December 31, 2002 | 255,194,400 |
| 3. Asset (gain) or loss (1e. - 2.) | 43,686,421 |
| ***C. Changes in the unfunded AAL*** | |
| 1. Expected unfunded AAL on December 31, 2002 | (6,742,009) |
| 2. Changes | |
| a. Actuarial (gain) or loss other than change in unit value | 44,225,571 |
| b. Change in unit value different from expected | 0 |
| c. Changes in actuarial methods and assumptions | 0 |
| d. Total change | 44,225,571 |
| 3. Unfunded AAL on December 31, 2002 | 37,483,562 |

*Accounting Basis*

**Statement of Plan Net Assets as of December 31, 2002**

| | Market Value | Book Value |
|---|---|---|
| ***A. Investment assets*** | | |
| 1. JMB Group Trust | 9,997 | 5,480 |
| 2. White Pine Capital | 16,387,218 | 18,952,299 |
| 3. Voyageur Asset Management | 9,183,012 | 9,592,445 |
| 4. US Bancorp Asset Management | 22,653,387 | 23,352,231 |
| 5. State Board of Investment | 54,705,171 | 47,089,429 |
| 6. Regent Investor Services | 8,903,389 | 9,558,820 |
| 7. Kayne Anderson Investment Management | 16,426,286 | 19,063,196 |
| 8. Marque Millennium Capital Management | 12,513,154 | 13,532,249 |
| 9. American Express Asset Management Group, Inc. | 8,115,086 | 7,855,739 |
| 10. Alliance Captial Management, L.P. | 75,808,809 | 55,737,090 |
| 11. Total | 224,705,509 | 204,738,978 |
| ***B. Checking account*** | 1,782,678 | 1,782,678 |
| ***C. Accrued/payable*** | | |
| 1. Accrued contributions | 321,269 | 321,269 |
| 2. Accounts receivable | 195,233 | 195,233 |
| 3. Accrued income | 651,376 | 651,376 |
| 4. Accounts payable | (865,571) | (865,571) |
| 5. Total | 302,307 | 302,307 |
| ***D. Net assets held in trust for pension benefits*** | 226,790,494 | 206,823,963 |

*Accounting Basis*

**Statement of Changes in Plan Net Assets**

| | December 31, 2001 | December 31, 2002 |
|---|---|---|
| ***A. Additions*** | | |
| 1. Contributions | | |
| a. Employer | $1,232,252 | 1,030,019 |
| b. Plan members | 133,031 | 149,260 |
| c. Total | 1,365,283 | 1,179,279 |
| 2. Investment income | (9,623,293) | (26,643,818) |
| 3. Other | 0 | 1,137 |
| 3. Total additions | (8,258,010) | (25,463,402) |
| ***B. Deductions*** | | |
| 1. Benefits paid | 24,318,080 | 24,064,274 |
| 2. Refund of contributions | 0 | 0 |
| 3. Expenses | 1,427,981 | 707,462 |
| 4. Total deductions | 25,746,061 | 24,771,736 |
| ***C. Net increase*** | (34,004,071) | (50,235,138) |
| ***D. Net assets held in trust for pension benefits*** | | |
| 1. Beginning of year | $310,820,185 | 276,816,114 |
| 2. End of year | 276,816,114 | 226,580,976 |

### *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% |

* 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**

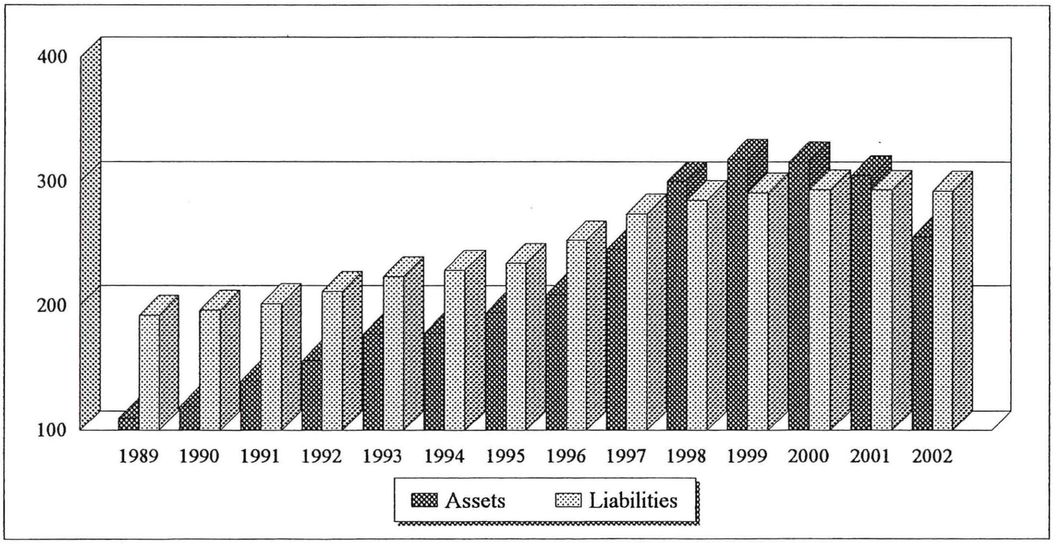
| Year Ended December 31: | Employer Contributions Paid During the Year |
|---|---|
| 1992 | $7,667,121 |
| 1993 | 6,871,984 |
| 1994 | 6,878,398 |
| 1995 | 7,405,980 |
| 1996 | 6,328,580 |
| 1997 | 4,844,823 |
| 1998 | 3,541,518 |
| 1999 | 1,177,332 |
| 2000 | 1,938,365 |
| 2001 | 1,232,252 |
| 2002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

***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% |

*#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* |

*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 | 27.2 | 72,894 |

* 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

| | Number of Retirees and Beneficiaries | | | | |
|---|---|---|---|---|---|
| As of December 31: | 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 |

## 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 $75.9311 as of January 1, 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 Providers

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| 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. |