

The Report of the
GAIN/LOSS ANALYSIS OF FINANCIAL EXPERIENCE
During calendar 1979 and 1980
CITY OF FARIBAULT
FIRE DEPARTMENT RELIEF ASSOCIATION
Faribault, Minnesota

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May 27, 1981

City of Faribault
Fire Department Relief Association
Faribault, Minnesota

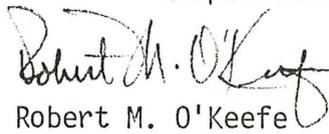
Submitted in this report are the results of the 1979-80 gain/loss analysis of the financial experiences of the Faribault Fire Department Relief Association.

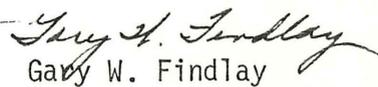
The composite results of this study are reported on Schedules 1(A) and 1(B) and comments regarding the results are on page 12.

The gain/loss analysis was based upon statistical data furnished by the Association regarding active and retired member changes and related financial transactions.

The actuarial assumptions used for regular valuation purposes and which produce "expected" experience data are shown in the appendix of this report.

Respectfully submitted,


Robert M. O'Keefe


Gary W. Findlay

PURPOSE OF GAIN/LOSS ANALYSIS

Actual financial experience will not coincide exactly with assumed financial experience--differences are to be expected since the future cannot be predicted with absolute precision. The changes in computed liabilities resulting from differences between actual and assumed experiences are called actuarial gains if the experience was financially favorable and actuarial losses if the experience was financially unfavorable. Actuarial gains result in decreases in contribution rates and actuarial losses result in increases.

Regular actuarial valuations provide information about aggregate computed liabilities. However, regular valuations do not develop the information needed to explain the year to year changes in computed liabilities attributable to each activity within the retirement system financial mechanism. The purpose of a gain/loss analysis is to determine the change in computed liabilities and contribution rates attributable to variations between actual and assumed experience.

Once a difference between actual and assumed experience in a risk area has been observed to be sizeable and persistent, the assumed experience should be changed to reflect the observed reality. However, gains and losses over a relatively short period of time may not be indicative of long term trends which provide the basis for selection of actuarial assumptions.

ACTIVITY WHICH RESULTS IN GAINS OR LOSSES

Age & Service Retirement.

If members retire at older ages than assumed, there is a gain. If retirements occur at younger ages than assumed there is a loss.

Disability & Death-in-Service.

If casualty claims are less than assumed, there is a gain. If there are more casualty losses than assumed, there is a loss.

Withdrawal.

If more liabilities are released by withdrawal than assumed, there is a gain. If there are fewer withdrawals than assumed, there is a loss.

Salary Increases.

If there are smaller salary increases than assumed, there is a gain. If salary increases are greater than assumed, there is a loss.

Investment Income.

If there is greater investment income than assumed, there is a gain. If investment income is less than assumed, there is a loss.

Post Retirement Mortality.

If benefit recipients die at younger ages than assumed, there is a gain. If they live longer than assumed, there is a loss.

Contribution.

Gains or losses arise due to the delay in implementing changes in the recommended contribution.

Miscellaneous.

Miscellaneous gains and losses include changes due to data adjustments, rounding and changes in the average age and service characteristics of the group.

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 1(A)

Gains & Losses in Accrued Liabilities
and Changes in Contribution Requirements
During Calendar 1979

<u>Type of Activity</u>	<u>Accrued Liabilities (Gain) or Loss</u>		<u>Contribution Requirements (Gain) or Loss</u>	
	<u>Active Members</u> (\$ in 1,000)	<u>Retirants & Beneficiaries</u> (\$ in 1,000)	<u>Normal Cost % of Payroll</u> (\$ in 1,000)	<u>\$ Payment on UAL</u> (\$ in 1,000)
<u>Age & Service Retirements</u>	\$ 0	\$ N/A	N/A	\$ 0
<u>Disability & Death-in-Service</u>				
a. <u>Disability</u>	171.52	N/A	N/A	8.37
b. <u>Death-in Service</u>	(11.88)	N/A	N/A	(0.58)
<u>Withdrawal</u>	5.88	N/A	N/A	0.29
<u>Salary Increases</u>	24.83	88.02	N/A	5.51
<u>Investment Income</u>	(3.94)	(21.60)	N/A	(1.25)
<u>Post Retirement Mortality</u>	N/A	26.65	N/A	1.30
<u>Contributions</u>	(14.43)	(20.44)	N/A	(1.70)
<u>Miscellaneous</u>	<u>11.55</u>	<u>4.88</u>	<u>N/A</u>	<u>0.80</u>
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$183.53	\$77.51	N/A	\$12.74
<u>Changes due to plan amendments</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
TOTAL (GAIN)/LOSS DURING YEAR	<u>\$183.53</u>	<u>\$77.51</u>	<u>N/A</u>	<u>\$12.74</u>

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 1(B)

Gains & Losses in Accrued Liabilities
and Changes in Contribution Requirements
During Calendar 1980

Type of Activity	Accrued Liabilities (Gain) or Loss		Contribution Requirements (Gain) or Loss	
	Active Members	Retirants & Beneficiaries	Normal Cost % of Payroll	\$ Payment on UAL
	(\$ in 1,000)		(\$ in 1,000)	
<u>Age & Service Retirements</u>	\$ 0	\$ N/A	0.15%	\$ 0
<u>Disability & Death-in-Service</u>				
a. <u>Disability</u>	(5.28)	N/A	(0.24)	(0.26)
b. <u>Death-in Service</u>	(13.11)	N/A	0.08	(0.64)
<u>Withdrawal</u>	(21.51)	N/A	0.24	(1.05)
<u>Salary Increases</u>	49.58	106.85	N/A	7.63
<u>Investment Income</u>	(5.61)	(34.09)	N/A	(1.94)
<u>Post Retirement Mortality</u>	N/A	16.90	N/A	0.83
<u>Contribution</u>	1.64	2.46	N/A	0.20
<u>Miscellaneous</u>	<u>2.69</u>	<u>84.00</u>	<u>N/A</u>	<u>4.23</u>
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$ 8.40	\$176.12	0.23%	\$ 9.00
<u>Conversion to UAL Amortization</u>	0	0	N/A	30.30
<u>Change in Funding Method For Death & Disability</u>	63.69	N/A	0.91	3.11
<u>Changes due to plan amendments</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
TOTAL (GAIN)/LOSS DURING YEAR	<u>\$72.09</u>	<u>\$176.12</u>	<u>1.14%</u>	<u>\$42.41</u>

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 2(A)

Employees Active at Both Beginning & End of 1979

<u>Age Group Beg. Year</u>	<u>No.</u>	<u>Beginning Salary</u>	<u>Ending Salary</u>	<u>% Increase In Salary</u>
25-29	3	\$ 48,047	\$ 52,453	7.1%
30-34	6	96,093	102,906	7.1
35-39	4	64,062	68,604	7.1
40-44	4	64,062	68,604	7.1
45-49	<u>1</u>	<u>16,016</u>	<u>17,151</u>	7.1
TOTALS	18	\$288,280	\$308,718	7.1%

Employees Active at Either Beginning or End of 1979

<u>Years Service</u>	<u>Beginning of Year</u>	<u>End of Year</u>
0	1	0
1	0	2
2	2	0
3	3	2
4	0	3
5 or more	13	12

Average Age: 35.5 years.

Average Service: 8.3 years.

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 2(B)

Employees Active at Both Beginning & End of 1980

<u>Age Group Beg. Year</u>	<u>No.</u>	<u>Beginning Salary</u>	<u>Ending Salary</u>	<u>% Increase In Salary</u>
20-24	1	\$ 17,151	\$ 18,802	9.6%
25-29	1	17,151	18,802	9.6
30-34	6	102,906	112,812	9.6
35-39	4	68,604	75,208	9.6
40-44	3	51,453	56,406	9.6
45-49	<u>2</u>	<u>34,302</u>	<u>37,604</u>	9.6
TOTALS	17	\$291,567	\$319,634	9.6%

Employees Active at Either Beginning or End of 1980

<u>Years Service</u>	<u>Beginning of Year</u>	<u>End of Year</u>
0	0	0
1	2	2
2	0	2
3	2	0
4	3	1
5 or more	12	14

Average Age: 36.1 years.

Average Service: 8.9 years.

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 3(A)

Separations From Active Service (Other Than Age & Service Retirement)
During 1979

Age at Termination	Withdrawal		Disability		Death	
	Actual	Expected	Actual	Expected	Actual	Expected
25-29		0.1				*
30-34		0.1				*
35-39		0.1				*
40-44			1			*
45-49						*
TOTALS	0	0.3	1	0.0	0	0.1

* Less than 0.1%

Years Service at Termination	Actual	Expected
0		
1		*
2		*
3		*
4		*
5 or more		0.3
TOTALS	0	0.3

Average age at separation: N/A.

Average service at separation: N/A.

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 3(B)

Separations From Active Service (Other Than Age & Service Retirement)
During 1980

Age at Termination	Withdrawal		Disability		Death	
	Actual	Expected	Actual	Expected	Actual	Expected
20-24						*
25-29	1	0.1				*
30-34	1	0.1				*
35-39		0.1				*
40-44						*
45-49						*
TOTALS	2	0.3	0	0.0	0	0.1

* Less than 0.1%

Years Service at Termination	Actual	Expected
0		
1		*
2		*
3	1	*
4	1	0.3
5 or more		
TOTALS	2	0.3

Average age at separation: 31.0 years.

Average service at separation: 3.7 years.

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 4

Separations From Active Service
For Age & Service Retirement

<u>Age at Termination</u>	<u>1979</u>		<u>1980</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65 & Over	<u> </u>	<u> </u>	<u> </u>	<u> </u>
TOTALS	0	0.0	0	0.0

Average age at retirement during period examined: N/A.

Average service at retirement during period examined: N/A.

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Schedule 5

Death After Retirement
(Disability and Service Retirants)

<u>Age at Death</u>	<u>1979</u>		<u>1980</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
40-44		0.0067		0.0074
50-54				0.0091
55-59		0.0352		0.0166
60-64		0.0258		0.0497
65-69		0.0327		0.0352
70-74		0.0543		0.0584
75-79		0.2521		0.2741
85-89	<u>—</u>	<u>0.1545</u>	<u>—</u>	<u>0.1667</u>
TOTALS	0	0.5613	0	0.6172

Average age at death: N/A.

Comments

Salary Gain (Loss)

State law requires the use of the benefit amounts effective in the year following the valuation. The actuarial valuation as of December 31, 1978 did not fully reflect these benefits for the retired lives. A portion of the salary loss in 1979 is attributable to this.

Miscellaneous Gain (Loss)

The miscellaneous loss in 1979 for retired lives is attributable to a refinement in the method of calculating the liability for deferred members.

APPENDICES

FARIBAULT FIRE DEPARTMENT RELIEF ASSOCIATION

Valuation Methods and Assumptions

The Entry Age Normal Cost method was used to determine the normal cost of all benefits. Disability and death before retirement benefits were valued in previous valuations on a terminal funding basis (one year term cost).

The rate of investment return (interest) used in making the valuation was 5.0 percent per annum, compounded annually.

The mortality table used was the United States Life Table, 1959-61, White Males and White Females.

Sample Ages	Single Life Values: Present Value of \$1 Monthly				Future Life Expectancy (Years)	
	Level		Increasing		Men	Women
	For Life		3.5% Yearly			
	Men	Women	Men	Women		
45	\$169.61	\$186.84	\$263.23	\$304.86	27.33	32.52
50	154.85	174.20	229.51	270.80	23.22	28.08
55	139.29	159.62	197.24	236.11	19.45	23.81
60	122.79	142.73	166.26	200.76	16.01	19.69
65	106.31	124.22	137.82	166.16	12.97	15.88
70	89.86	104.31	111.71	132.82	10.29	12.38
75	73.39	83.92	87.66	101.94	7.92	9.28
80	57.54	64.24	66.29	74.77	5.89	6.67

Age & service retirement was assumed to occur at age 58, or attained age if older.

Sample Rates of Separation From Active Employment Before Retirement, Death or Disability

Sample Ages	% of Active Members Separating Within Next Year
20	3.00%
25	2.50
30	2.00
35	1.50
40	1.00
45	0.50
50+	0.00

Sample Pay Adjustment Factors used to Project Current Pays

<u>Sample Ages</u>	<u>Present Pay Resulting in Pay of \$1,000 at Age 60</u>	<u>Percent Increase in Pay During Next Year</u>
20	\$ 253	3.5%
25	300	3.5
30	356	3.5
35	423	3.5
40	503	3.5
45	597	3.5
50	709	3.5
55	842	3.5
60	1,000	3.5

Disability retirements were assumed to occur as indicated below:

<u>Sample Ages</u>	<u>% of Active Members Becoming Disabled Within Next Year</u>
20	0.08%
25	0.08
30	0.08
35	0.08
40	0.20
45	0.26
50	0.49
55	0.89

Faribault Fire Department Relief Association

Brief Summary (12/31/80) of Benefit Provisions Evaluated and/or Considered

Age & Service Retirement

Eligibility. 20 yers of service and 50 years of age.

Amount. 50% of base pay.

Pay Used For Plan Purposes. "Base pay" means the salary of a first class fireman.

Disability Retirement

Eligibility. Disabled to the extent that no longer able to perform duties of a fireman before being eligible for age & service retirement.

Amount. 50% of base pay.

Member's Death While Active, Or In Deferred Status, Or Retired

Eligibility.

Spouse. Legally married to member at least 3 years before separation from service and residing with member at time of death. Benefits terminate upon remarriage.

Child. Younger than age 18. (For death after July 1, 1975, benefits may extend to age 21 if unmarried and full time student.)

Amount.

Death Prior to July 1, 1975.

Spouse. \$1,200 per year.

Child. \$240 per child per year for 2 children plus \$120 per year for each additional child.

Death After July 1, 1975.

Spouse. 30% of base pay.

Child. 10% of base pay per child. Children's maximum is 20% of base pay if spouse is receiving or 50% of base pay if no spouse is receiving.

Vested Deferred. 20 yers of service and separated before age 50. Payment beginning is deferred to attainment of age 50.

Post Retirement Adjustments ("Escalator"). Each time base pay is changed, payments to all retired members are simultaneously changed by the same percent that base pay is changed. (Escalator also applied to survivor benefits for death occuring after July 1, 1975.)

Member Contributions. 8% of base pay. Total member contributions are refundable, without interest, if no benefit is payable upon separation from service.