The Report of the
GAIN/LOSS ANALYSIS OF FINANCIAL EXPERIENCE
During calendar 1981
City of Richfield
Firemen's Relief Association
Richfield, Minnesota

GABRIEL, ROEDER, SMITH & COMPANY

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Board of Trustees
City of Richfield Firemen's Relief Association
Richfield, Minnesota

Submitted in this report are the results of the 1981 gain/loss analysis of the financial experiences of the Richfield Firemen's Relief Association.

The composite results of this study are reported on Schedule 1, and comments regarding the results are on page 10.

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. A brief summary of the Association's benefits is also included in the appendix.

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.

Richfield Firemen's Relief Association

Schedule 1.

Gains & Losses in Accrued Liabilities
and Changes in Contribution Requirements
During Calendar 1981

Type of Activity	Accrued Liabilities (Gai or Loss *)		Contribution Requirements (Gain) or Loss*	
	Active Members	Retirants & Beneficiaries	Normal Cost % of Payroll	$ Payment on UAL
	($ in 1,000)		($ in 1,000)	
Age & Service Retirements	$ 0.00	$ N/A	0.06%	$ 0.00
Disability & Death-in-Service				
a. Disability	178.76	N/A	0.01	11.71
b. Death-in Service	(13.14)	N/A	0.01	(0.86)
Withdrawal	1.53	N/A	0.00	0.10
Salary Increases	84.50	285.70	N/A	24.25
Investment Income	(5.32)	(68.08)	N/A	(4.81)
Post Retirement Mortality	N/A	31.91	N/A	2.09
Contribution	0.71	81.46	N/A	5.38
Miscellaneous	5.44	7.29	0.00	0.83
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	$252.48	$338.28	0.08%	$38.69
Changes due to plan amendments	0.00	0.00	0.00	0.00
TOTAL (GAIN)/LOSS DURING YEAR	$252.48	$338.28	0.08%	$38.69

* Accrued liabilities and contribution requirements are affected by gains and losses. Gains result in reductions in both and losses result in increases in both.

Richfield Firemen's Relief Association

Schedule 2.

Gains & Losses in Accrued Liabilities
From January 1, 1979 thru December 31, 1981

Type of Activity	1/1/79 - 12/31/79 Accrued Liabilities (Gain) or Loss		1/1/80 - 12/31/80 Accrued Liabilities (Gain) or Loss		1/1/81 - 12/31/81 Accrued Liabilities (Gain) or Loss	
	Active Members	Retirants & Beneficiaries	Active Members	Retirants & Beneficiaries	Active Members	Retirants & Beneficiaries
	($ in 1,000)		($ in 1,000)		($ in 1,000)	
Age & Service Retirements	$(22.88)	$ N/A	$ 49.88	$ N/A	$ 0.00	$ N/A
Disability & Death-in-Service						
a. Disability	305.10	N/A	(9.65)	N/A	178.76	N/A
b. Death-in Service	(30.08)	N/A	(32.53)	N/A	(13.14)	N/A
Withdrawal	4.46	N/A	5.58	N/A	1.53	N/A
Salary Increases	100.34	350.94	68.06	220.82	84.50	285.70
Investment Income	N/A	N/A	(6.73)	(64.13)	(5.32)	(68.08)
Post Retirement Mortality	N/A	40.76	N/A	11.57	N/A	31.91
Contribution	N/A	N/A	26.93	51.82	0.71	81.46
Miscellaneous	29.52	32.39	6.39	13.85	5.44	7.29
EXPERIENCE RELATED (GAIN)/LOSS	$386.46	$424.09	$107.93	$233.93	$252.48	$338.28
Method Change for Casualty Cost			109.95			
Changes Due to Plan Amendments	N/A	N/A	13.69	0.00	0.00	0.00
TOTAL (GAIN)/LOSS DURING 3 YEAR PERIOD	$386.46	$424.09	$231.57	$233.93	$252.48	$338.28

Richfield Firemen's Relief Association

Schedule 3.

Employees Active at Both Beginning & End of 1981

Age Group Beg. Year	No.	Beginning Salary	Ending Salary	% Increase In Salary
20-24	1	$ 23,220	$ 25,543	10.0%
25-29	3	69,660	76,629	10.0
30-34	4	92,880	102,172	10.0
35-39	1	23,220	25,543	10.0
40-44	3	69,660	76,629	10.0
45-49	4	92,880	102,172	10.0
50-54	2	46,440	51,086	10.0
TOTALS	18	$417,960	$459,774	10.0%

Employees Active at Either Beginning or End of 1981

Years Service	Beginning of Year	End of Year
0	0	0
1	3	0
2	2	3
3	0	2
4	1	0
5 or more	13	13

Average Age: 38.9 years.

Average Service: 11.0 years.

Richfield Firemen's Relief Association

Schedule 4.

Separations From Active Service (Other Than Age & Service Retirement)
During 1981

Age at Termination	Withdrawal		Disability		Death	
	Actual	Expected	Actual	Expected	Actual	Expected
20-24						*
25-29		0.1				*
30-34		0.1				*
35-39						*
40-44						*
45-49			1			*
50-54						*
TOTALS	0	0.2	1	0.0	0	0.1

* Less than 0.1%

Years Service at Termination	Actual	Expected
0	0	0.0
1	0	0.0
2	0	0.0
3	0	0.0
4	0	0.0
5 or more	0	0.2
TOTALS	0	0.2

Average age at separation: N/A years.

Average service at separation: N/A years.

Richfield Firemen's Relief Association

Schedule 5.

Separations From Active Service
For Age & Service Retirement

Age at Termination	1979		1980		1981	
	Actual	Expected	Actual	Expected	Actual	Expected
53	1					
57	—		1			
TOTALS	1		1			

Average age at retirement during period examined was 56.0 years.

Average service at retirement during period examined was 19.85 years.

Richfield Firemen's Relief Association

Schedule 6.

Death After Retirement
(Disability and Service Retirants)

Age at Death	1979		1980		1981	
	Actual	Expected	Actual	Expected	Actual	Expected
45-49		0.0197		0.0219		0.0219
50-54		0.0502		0.0405		0.0323
55-59		0.0962		0.1354		0.1468
60-64		0.0258		0.0280		0.0520
65-69		0.1790		0.1928		0.2072
70-74		0.0470		0.0505		0.0543
75-79		0.1802	1	0.0978		
80-84		0.1235	1	0.1026		0.1127
TOTALS	0	0.7216	2	0.6695	0	0.6272

COMMENTS

Economic Assumptions and Financing Method

The economic assumptions of 5% annual investment return and 3 1/2% annual salary increases are established by state law. State law also specifies that the annual minimum obligation of the municipality shall be determined by adding (i) the employer normal cost percent times covered payroll to (ii) the level dollar amount required to amortize the unfunded accrued liability by December 31, 2010.

Over the past few years, both the actual rates of salary increase and investment return have generally exceeded the assumed rates, resulting in increases in the dollar amount of unfunded accrued liabilities. If the financial experiences of recent years persist, and the economic assumptions and financing method are not changed, it is reasonable to expect that unfunded accrued liabilities will increase in actual dollar amount for a number of years. This is true even though a level dollar amortization schedule is being followed. Accordingly, it is reasonable to expect that under the described conditions the actual dollar contributions required to make amortization payments will increase for a number of years. The notion that amortization dollar amounts will be increasing is not necessarily cause for alarm. If adjusted for changes in purchasing power, future increases in the dollar contributions may or may not reflect increases in terms of real dollars (inflation adjusted dollars).

It is also worth noting that when the same assumptions and methods are applied to plans which differ in nature, the valuation results may not be comparable (for example, it is currently not valid to compare valuation results for a plan having full escalation to valuation results for a plan having a 3 1/2% cap on escalation.) Caution should be exercised when attempting to assess the financial condition of one Association relative to another on the basis of valuation results produced using the assumptions and methods mandated by state law.

APPENDICES

Richfield Firemen's Relief Association

Valuation Methods and Assumptions

The Entry Age Normal Cost method was used to determine the normal cost of all benefits.

The rate of investment return (interest) used in making the valuation was 5.0 percent per annum, compounded annually. State law requires use of this assumption.

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 For Life		Increasing 3.5% Yearly			
	Men	Women	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 60, 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

Pay Adjustment Factor used to Project Current Pays

Sample Ages	Present Pay Resulting in Pay of $1,000 at Age 60	Percent Increase in Pay During Next Year
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

Use of the pay adjustment factor illustrated above is required by state law.

Disability retirements were assumed to occur as indicated below:

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

Richfield Fire Department Relief Association

Brief Summary (12/31/81) of Benefit Provisions Evaluated and/or Considered

Age & Service Retirement

Eligibility. 20 years of service and 50 years of age if hired before 1/1/68. 20 years of service and 55 years of are if hired after 12/31/67.

Amount. 51% of base pay.

Pay Used For Plan Purposes. "Base pay" means the salary of a first grade firefighter.

Disability Retirement

Eligibility. Disabled to the extent that unable to perform the duties of a firefighter 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 before separation from service and residing with member at time of death. Benefits terminate upon remarriage.

Child. Younger than age 18.

Amount.

Spouse. 40% of base pay.

Child. 5% of base pay per child if mother is living. 15% of base pay per child if mother is deceased.

Maximum Family Benefit. 50% of base pay.

Funeral Expenses. $500 lump sum payment.

Vested Deferred. Separated before reaching eligible retirement age. Payment beginning is deferred to attainment of age 50 or 55 depending on the date hired. For member with less than 20 years service, benefit amount is 51% of base pay times total years service divided by 20.

Post Retirement Adjustments ("Escalator"). Each time base pay is changed, benefit payments to all benefit recipients are simultaneously changed by the same percent that base pay is changed.

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