

The Report of the
GAIN/LOSS ANALYSIS OF FINANCIAL EXPERIENCE
During calendar 1979 and 1980
CITY OF ROCHESTER
POLICE RELIEF ASSOCIATION
Rochester, Minnesota

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ACTUARIES & CONSULTANTS

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May 22, 1981

City of Rochester
Police Relief Association
Rochester, Minnesota

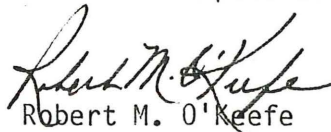
Submitted in this report are the results of the 1979-80 gain/loss analysis of the financial experiences of the City of Rochester Police Relief Association.

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 casulaty 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.

ROCHESTER POLICE 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>	<u>Normal Cost % of Payroll</u> (\$ in 1,000)	<u>\$ Payment on UAL</u>
<u>Age & Service Retirements</u>	\$283.58	\$ N/A	N/A	\$14.00
<u>Disability & Death-in-Service</u>				
a. <u>Disability</u>	(24.49)	N/A	N/A	(1.21)
b. <u>Death-in Service</u>	(47.09)	N/A	N/A	(2.33)
<u>Withdrawal</u>	(30.02)	N/A	N/A	(1.48)
<u>Salary Increases</u>	259.18	409.69	N/A	33.03
<u>Investment Income</u>	(8.70)	(32.29)	N/A	(2.02)
<u>Post Retirement Mortality</u>	N/A	(34.31)	N/A	(1.69)
<u>Contributions</u>	(4.46)	(3.85)	N/A	(0.41)
<u>Miscellaneous</u>	<u>6.78</u>	<u>2.67</u>	<u>N/A</u>	<u>0.46</u>
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$434.78	\$341.91	N/A	\$38.35
<u>Changes due to plan amendments</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>TOTAL (GAIN)/LOSS DURING YEAR</u>	<u>\$434.78</u>	<u>\$341.91</u>	<u>N/A</u>	<u>\$38.35</u>

ROCHESTER POLICE 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	Retirants &	Normal Cost	\$ Payment
	Members	Beneficiaries	% of Payroll	on UAL
	(\$ in 1,000)		(\$ in 1,000)	
<u>Age & Service Retirements</u>	\$ 89.88	\$ N/A	(0.52)%	\$ 4.44
<u>Disability & Death-in-Service</u>				
a. <u>Disability</u>	(26.68)	N/A	(0.21)	(1.32)
b. <u>Death-in Service</u>	(52.44)	N/A	(0.13)	(2.59)
<u>Withdrawal</u>	(16.71)	N/A	0.24	(0.83)
<u>Salary Increases</u>	243.20	239.95	N/A	23.87
<u>Investment Income</u>	(41.25)	(183.80)	N/A	(11.12)
<u>Post Retirement Mortality</u>	N/A	6.25	N/A	0.31
<u>Contributions</u>	(0.23)	(0.20)		(0.02)
<u>Miscellaneous</u>	<u>8.74</u>	<u>2.77</u>	<u>N/A</u>	<u>0.57</u>
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$204.51	\$ 64.97	(0.62)%	\$ 13.31
<u>Conversion to UAL Amortization</u>	N/A	N/A	N/A	111.24
<u>Change in Funding Method For Death & Disability</u>	280.62	N/A	0.22	13.86
<u>Changes due to plan amendments</u>	<u>187.12</u>	<u>0</u>	<u>0.64</u>	<u>9.24</u>
TOTAL (GAIN)/LOSS DURING YEAR	<u>\$672.25</u>	<u>\$ 64.97</u>	<u>0.24%</u>	<u>\$147.65</u>

ROCHESTER POLICE 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>
20-24	3	\$ 51,696	\$ 56,340	9.0%
25-29	19	327,408	356,820	9.0
30-34	14	241,248	262,920	9.0
35-39	21	361,872	394,380	9.0
40-44	13	224,016	244,140	9.0
45-49	8	137,856	150,240	9.0
50-54	11	189,552	206,580	9.0
55-59	1	17,232	18,780	9.0
60-64	<u>1</u>	<u>17,232</u>	<u>18,780</u>	9.0
TOTALS	91	\$1,568,112	\$1,708,980	9.0%

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	5
1	17	3
2	0	16
3	6	0
4	3	6
5 or more	71	68

Average Age: 37.4 years.

Average Service: 9.7 years.

ROCHESTER POLICE 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	6	\$ 112,680	\$ 121,680	8.0%
25-29	18	338,040	365,040	8.0
30-34	11	206,580	223,080	8.0
35-39	22	413,160	446,160	8.0
40-44	14	262,920	283,920	8.0
45-49	9	169,020	182,520	8.0
50-54	9	169,020	182,520	8.0
55-59	3	56,340	60,840	8.0
60-64	<u>1</u>	<u>18,780</u>	<u>20,280</u>	8.0
TOTALS	93	\$1,746,540	\$1,886,040	8.0%

Employees Active at Either Beginning or End of 1980

<u>Years Service</u>	<u>Beginning of Year</u>	<u>End of Year</u>
0	5	0
1	3	6
2	16	3
3	0	15
4	6	0
5 or more	68	71

Average Age: 38.4 years.

Average Service: 12.2 years.

ROCHESTER POLICE RELIEF ASSOCIATION

Schedule 3(A)

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

<u>Age at Termination</u>	<u>Withdrawal</u>		<u>Disability</u>		<u>Death</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
20-24		0.1		*		*
25-29	1	0.5		*		*
30-34		0.2		*		*
35-39		0.3		*		*
40-44		0.1		*		0.1
45-49	1			*		0.1
50-54				*		0.1
55-59				*		*
60-64	—	—	—	*	—	*
TOTALS	2	1.2	0	0.2	0	0.5

* Less than 0.1%

<u>Years Service at Termination</u>	<u>Actual</u>	<u>Expected</u>
0		0.1
1		0.4
2	1	
3		0.2
4		
5 of more	<u>1</u>	<u>0.5</u>
TOTALS	2	1.2

Average age at separation: 37.0 years.

Average service at separation: 8.7 years.

ROCHESTER POLICE 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	1	0.1		*		*
25-29	2	0.5		*		*
30-34	1	0.2		*		*
35-39		0.3		*		*
40-44		0.1		*		0.1
45-49		*		*		0.1
50-54		*		*		0.1
55-59				*		*
60-64	—	—	—	*	—	*
TOTALS	4	1.3	0	0.2	0	0.5

* Less than 0.1%

Years Service at Termination	Actual	Expected
0		0.2
1	1	0.1
2		0.3
3	1	
4		0.2
5 of more	2	0.5
TOTALS	4	1.3

Average age at separation: 29.3 years.

Average service at separation: 4.0 years.

ROCHESTER POLICE 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	1			
51	1		1	
53	1			
56	1			
59	1			
60		1.0		
61	—	—	—	<u>1.0</u>
TOTALS	5	1.0	1	1.0

Average age at retirement during period examined: 53.3 years.

Average service at retirement during period examined: 23.7 years.

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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>
30-34		0.0017		0.0018
50-54		0.0808		0.0839
55-59		0.1193		0.1007
60-64		0.2052	1	0.1750
65-69		0.0734		0.1443
70-74	1	0.1446		0.1553
75-79	1	0.1591		0.1726
80-84		0.2261		0.2467
90-94	—	<u>0.2613</u>	—	<u>0.2779</u>
TOTALS	2	1.2715	1	1.3582

Average age at death: 71.3

Comments

Salary Increases, 1979

The salary increase in liabilities for retirants and beneficiaries for 1979 represents a two year increase.

APPENDICES

ROCHESTER POLICE 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			
	For Life		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

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

Rochester Police Relief Association

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

Age & Service Retirement

Eligibility. 20 years of service and 50 years of age if hired before July 1, 1969. 20 years of service and 55 years of age if hired after June 30, 1969.

Amount. For first 20 years of service, 33/75 of base pay. For each year in excess of 20 an additional 1/75 is added up to a maximum of 42/75 of base pay for 27 or more years of service. For each year over 25 an additional 1/2% of base pay is added to the benefit. (The latter additional benefit is not subject to the post retirement adjustment provisions.)

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

Disability Retirement

Eligibility. Permanently disabled to the extent that no longer able to perform the duties of a police officer before being eligible for age & service retirement.

Amount. 36/75 of base pay.

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

Eligibility.

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

Child. Younger than age 18.

Amount.

Spouse. 18/75 of base pay.

Child. 6/75 of base pay per child. Children's maximum is 18/75 if spouse is receiving or 36/75 if no spouse is receiving.

Vested Deferred. 20 years of service and separated before reaching eligible retirement age. Payment beginning is deferred to attainment of age 50 or 55 depending on date hired.

Post Retirement Adjustments ("Escalator"). If hired before July 1, 1969, each time base pay is changed, payments to benefit recipients are simultaneously changed by the same percent that base pay is changed. If hired after June 30, 1969, changes in benefits are equal to 1/2 of the changes for those hired before July 1, 1969.

Member Contributions. 8% of base pay. 75% of total member contributions is refundable, without interest, if no monthly benefit is payable upon separation from service.