

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

TABLE OF CONTENTS

<u>Pages</u>	<u>Item</u>
1	Signature Page
2	Purpose of Gain/Loss Analysis
3	Activity Which Results in Gains or Losses
	Composite Results of Gain/Loss Analysis
4	1979
5	1980
	Schedules of Active Employees
6	1979
7	1980
	Schedules of Separations From Active Service
8	1979
9	1980
10	Schedule of Age & Service Retirement
11	Schedule of Death After Retirement
12	Comments

Appendices

Valuation Methods and Assumptions

Summary of Benefit Provisions

GABRIEL, ROEDER, SMITH & COMPANY

ACTUARIES & CONSULTANTS

2090 First National Building
Detroit, Michigan 48226
Area 313: 961-3346

June 8, 1981

City of Hibbing
Police Relief Association
Hibbing, Minnesota

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

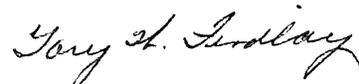
The composite results of this study are reported on Schedules 1(A) and 1(B) and comments regarding the results are on page 12.

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 casuality 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.

HIBBING 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> (\$ 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	\$ 0.0
<u>Disability & Death-in-Service</u>				
a. <u>Disability</u>	(0.3)	N/A	N/A	0.0
b. <u>Death-in Service</u>	3.8	N/A	N/A	0.2
<u>Withdrawal</u>	(4.1)	N/A	N/A	(0.2)
<u>Salary Increases</u>	17.8	16.3		1.7
<u>Investment Income</u>	N/A	N/A		0.0
<u>Post Retirement Mortality</u>	N/A	24.2	N/A	1.2
<u>Contributions</u>	N/A	N/A		
<u>Miscellaneous</u>	(182.5)	0.0	—	(8.9)
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$(165.3)	\$40.5	N/A	\$(6.0)
<u>Changes due to plan amendments</u>	—	—	—	—
TOTAL (GAIN)/LOSS DURING YEAR	<u>\$(165.3)</u>	<u>\$40.5</u>	<u>N/A</u>	<u>\$(6.0)</u>

HIBBING POLICE RELIEF ASSOCIATION

Schedule 1(B)

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

<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>	\$122.6	\$ N/A	0.34 %	\$ 5.9
<u>Disability & Death-in-Service</u>				
a. <u>Disability</u>	(0.3)	N/A	0.02	0.0
b. <u>Death-in Service</u>	(28.3)	N/A	0.25	(1.4)
<u>Withdrawal</u>	(3.4)	N/A	(0.29)	(0.2)
<u>Salary Increases</u>	170.6	83.0		12.3
<u>Investment Income</u>	(5.4)	(10.0)		(0.8)
<u>Post Retirement Mortality</u>	N/A	41.0	N/A	2.0
<u>Contributions</u>	(27.9)	(29.2)		(2.8)
<u>Miscellaneous</u>	<u>(4.8)</u>	<u>1.2</u>		<u>0.1</u>
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$223.1	\$86.0	0.32%	\$15.1
<u>Conversion to UAL Amortization</u>			N/A	16.6
<u>Change in Funding Method For Death & Disability</u>	(162.7)	N/A	(2.77)	(7.9)
<u>Changes due to plan amendments</u>	<u>40.1</u>	<u>0.0</u>	<u>0.62</u>	<u>1.9</u>
TOTAL (GAIN)/LOSS DURING YEAR	<u>\$100.5</u>	<u>\$86.0</u>	<u>(1.83)%</u>	<u>\$25.7</u>

HIBBING 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	1	\$ 12,780	\$ 13,020	1.9%
25-29	6	76,920	80,160	4.2
30-34	4	52,560	55,920	6.4
35-39	3	39,420	41,940	6.4
40-44	5	68,700	72,900	6.1
45-49	5	69,060	73,260	6.1
50-54	3	48,774	50,454	3.4
55-59	<u>1</u>	<u>14,220</u>	<u>15,060</u>	5.9
TOTALS	28	\$382,434	\$402,714	5.3%

Employees Active at Either Beginning or End of 1979

<u>Years Service</u>	<u>Beginning of Year</u>	<u>End of Year</u>
0	4	0
1	0	5
2	2	0
3	4	0
4	2	4
5 or more	19	21

Average Age: 38.9 years.

Average Service: 10.7 years.

HIBBING 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	1	\$ 13,344	\$ 16,680	25.0%
25-29	7	94,476	117,480	24.3
30-34	2	27,540	34,320	24.6
35-39	4	57,452	71,440	24.3
40-44	4	57,900	70,960	22.6
45-49	6	87,120	106,200	21.9
50-54	<u>2</u>	<u>36,660</u>	<u>45,320</u>	23.6
TOTALS	26	\$374,492	\$462,400	23.5

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	5	4
2	0	5
3	0	0
4	4	0
5 or more	21	21

Average Age: 37.8 years.

Average Service: 9.2 years.

HIBBING 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	2	0.1		*		*
25-29	1	0.2		*		*
30-34		0.1		*		*
35-39		*		*		*
40-44		0.1		0.1		0.1
45-49		*		*		*
TOTALS	3	0.5	0	0.1	0	0.1

* Less than 0.1%

<u>Years Service at Termination</u>	<u>Actual</u>	<u>Expected</u>
0	0	0.1
1	1	0.0
2	1	0.1
3	1	0.0
4	0	0.0
5 or more	<u>0</u>	<u>0.2</u>
TOTALS	3	0.4

Average age at separation: 24.7 years.

Average service at separation: 1.9 years.

HIBBING POLICE RELIEF ASSOCIATION

Schedule 3(B)

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

<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>
25-29	1	0.2		*		*
30-34		0.1		*		*
35-39		0.1		*		*
40-44		*		0.1		0.1
45-49		*		*		*
55-59					1	
TOTALS	1	0.4	0	0.1	1	0.1

* Less than 0.1%

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

Average age at separation: 27.0 years.

Average service at separation: 4.3 years.

HIBBING 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>
57			1	
58	<u>—</u>	<u>—</u>	<u>1</u>	<u>—</u>
TOTALS	0	0.0	2	0.0

Average age at retirement during period examined: 56.5 years.

Average service at retirement during period examined: 26.9 years.

HIBBING POLICE 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>
55-59		0.0198		0.0334
60-64				0.0217
65-69		0.0438		
70-74		0.1525		0.2111
90-94	<u>—</u>	<u>0.2444</u>	<u>—</u>	<u>0.2613</u>
TOTALS	0	0.4605	0	0.5275

Average age at death: N/A.

Comments

The asset information provided for 1979 was for the period from October, 1978 to September, 1979 instead of for the calendar year. This did not permit the calculation of gains or losses attributable to Investments and Contributions.

APPENDICES

HIBBING 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 For Life		Increasing 3.5% Yearly		Men	Women
	Men	Women	Men	Women		
	45	\$169.61	\$186.84	\$263.23	\$304.86	27.33
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 62, 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

Hibbing Police Relief Association

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

Age & Service Retirement

Eligibility. 20 years of service and 55 years of age.

Amount. For first 20 years of service, 53% of average annual earnings during last six months prior to retirement. For each year of service in excess of 20 years an additional annual benefit of \$120 is added with the maximum additional annual amount being \$600.

Disability Retirement.

Eligibility. One year of service and disabled to the extent that no longer able to perform any work requiring physical or mental effort.

Amount. \$1,400 per year.

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

Eligibility.

Spouse. Legally married to member at separation from service.

Benefits terminate upon remarriage.

Child. Younger than age 16.

Amount.

Spouse. \$1,800 per year.

Child. \$180 per year per child if spouse is receiving - maximum children's benefit of \$360 per year. If no spouse is receiving benefits, maximum payment to support children is \$2,160 per year.

Vested Deferred. 20 years of service and separated before age 55. Payment beginning is deferred to attainment of age 55.

Post Retirement Adjustments ("Escalator"). Benefits are increased by 1/2 of any increases in salary of active member holding rank which retirant held when active. (Member's benefit only.)

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