

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

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April 20, 1981

City of Austin  
Police Relief Association  
Austin, Minnesota

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

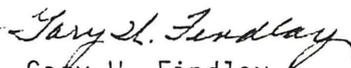
The composite results of this study are reported on Schedules 1(A) and 1(B) and comments regarding the results are on page 12.

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

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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

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### 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.

AUSTIN 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 &amp; Beneficiaries</u>	<u>Normal Cost % of Payroll</u> (\$ in 1,000)	<u>\$ Payment on UAL</u>
<u>Age &amp; Service Retirements</u>	\$(13.4)	\$ N/A	N/A%	\$(0.9)
<u>Disability &amp; Death-in-Service</u>				
a. <u>Disability</u>	(5.8)	N/A	N/A	(0.4)
b. <u>Death-in Service</u>	(14.1)	N/A	N/A	(0.9)
<u>Withdrawal</u>	(21.6)	N/A	N/A	(1.4)
<u>Salary Increases</u>	285.3	300.4	N/A	37.2
<u>Investment Income</u>	(5.0)	(22.4)	N/A	(1.7)
<u>Post Retirement Mortality</u>	N/A	0.8	N/A	0
<u>Contribution</u>	(1.6)	(3.7)	N/A	(0.3)
<u>Miscellaneous</u>	<u>(3.9)</u>	<u>(4.8)</u>	<u>N/A</u>	<u>(0.5)</u>
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$219.9	\$270.3	N/A%	\$31.1
<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>\$219.9</u>	<u>\$270.3</u>	<u>N/A%</u>	<u>\$31.1</u>

AUSTIN 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 &amp; Beneficiaries</u>	<u>Normal Cost % of Payroll</u> (\$ in 1,000)	<u>\$ Payment on UAL</u>
<u>Age &amp; Service Retirements</u>	\$(15.3)	\$ N/A	(0.15)%	\$(1.0)
<u>Disability &amp; Death-in-Service</u>				
a. <u>Disability</u>	(6.4)	N/A	(0.13)	(0.4)
b. <u>Death-in Service</u>	(14.9)	N/A	0.20	(1.0)
<u>Withdrawal</u>	(13.3)	N/A	0.05	(0.8)
<u>Salary Increases</u>	181.7	181.8	0	23.4
<u>Investment Income</u>	(8.5)	(43.5)	0	(3.3)
<u>Post Retirement Mortality</u>	N/A	48.0	N/A	3.1
<u>Contribution</u>	(2.6)	(6.1)	0	(0.6)
<u>Miscellaneous</u>	<u>4.5</u>	<u>6.6</u>	<u>0</u>	<u>0.7</u>
EXPERIENCE RELATED (GAIN)/LOSS & CORRESPONDING CHANGE IN CONTRIBUTION REQUIREMENTS	\$125.2	\$186.8	(0.3)%	\$20.1
<u>Conversion to UAL Amortization</u>	N/A	N/A	N/A	N/A
<u>Change in Funding Method For Death &amp; Disability</u>	66.5	N/A	1.67	4.3
<u>Changes due to plan amendments</u>	<u>47.0</u>	<u>0</u>	<u>0.33</u>	<u>3.0</u>
TOTAL (GAIN)/LOSS DURING YEAR	<u>\$238.7</u>	<u>\$186.8</u>	<u>1.97%</u>	<u>\$27.4</u>

AUSTIN 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>
25-29	2	\$ 30,867	\$ 35,360	14.6%
30-34	8	123,469	141,440	14.6
35-39	5	77,168	88,400	14.6
40-44	7	108,035	123,760	14.6
45-49	4	61,734	70,720	14.6
50-54	1	15,434	17,680	14.6
55-59	<u>1</u>	<u>15,434</u>	<u>17,680</u>	14.6
TOTALS	28	\$432,141	\$495,040	14.6%

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		
2		
3		
4	2	
5 or more	27	28

Average Age: 40.3 years.

Average Service: 14.9 years.

AUSTIN 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>
25-29	1	\$ 17,680	\$ 19,365	9.5%
30-34	7	123,760	135,555	9.5
35-39	5	88,400	96,825	9.5
40-44	5	88,400	96,825	9.5
45-49	7	123,760	135,555	9.5
55-59	<u>2</u>	<u>35,360</u>	<u>38,730</u>	9.5
TOTALS	27	\$477,360	\$522,855	9.5%

Employees Active at Either Beginning or End of 1980

<u>Years Service</u>	<u>Beginning of Year</u>	<u>End of Year</u>
0		
1		
2		
3		
4		
5 or more	28	27

Average Age: 41.6 years.

Average Service: 16.3 years.

AUSTIN POLICE RELIEF ASSOCIATION

Schedule 3(A)

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

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<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						*
30-34	1	0.2				*
35-39		0.1				*
40-44						*
45-49						*
TOTALS	1	0.3	0	0.0	0	0.1

\* Less than 0.1%

<u>Years Service at Termination</u>	<u>Actual</u>	<u>Expected</u>
0		
1		
2		
3		
4		
5 of more	<u>1</u>	<u>0.3</u>
TOTALS	1	0.3

Average age at separation: 34.0 years.

Average service at separation: 8.9 years.

AUSTIN POLICE RELIEF ASSOCIATION

Schedule 3(B)

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

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Age at Termination	Withdrawal		Disability		Death	
	Actual	Expected	Actual	Expected	Actual	Expected
30-34	1	0.2				*
35-39		0.1				*
40-44						*
45-49						*
TOTALS	1	0.3	0	0.0	0	0.1

\* Less than 0.1%

Years Service at Termination	Actual	Expected
0		
1		
2		
3		
4		
5 of more	<u>1</u>	<u>0.3</u>
TOTALS	1	0.3

Average age at separation: 31.0 years.

Average service at separation: 5.0 years.

AUSTIN POLICE RELIEF ASSOCIATION

Schedule 4

Separations From Active Service  
For Age & Service Retirement

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<u>Age at Termination</u>	<u>1979</u>		<u>1980</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
54		1.0		
55		1.0		1.0
56	<u>—</u>	<u>—</u>	<u>—</u>	<u>1.0</u>
TOTALS	0	2.0	0	2.0

Average age at retirement during period examined: N/A

Average service at retirement during period examined: N/A

AUSTIN POLICE RELIEF ASSOCIATION

Schedule 5

Death After Retirement  
(Disability and Service Retirants)

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<u>Age at Death</u>	<u>1979</u>		<u>1980</u>	
	<u>Actual</u>	<u>Expected</u>	<u>Actual</u>	<u>Expected</u>
50-54		0.0374		0.0263
55-59		0.0703		0.0692
60-64	1	0.1015		0.0992
65-69	—	<u>0.1493</u>	—	<u>0.1932</u>
TOTALS	1	0.3585	0	0.3879

	<u>Male</u>	<u>Female</u>
Average age at death	61	N/A

## Comments

### Miscellaneous Gain

A portion of the miscellaneous gain (loss) shown on pages 4 and 5 are due to investments. The asset information we received did not balance, and resulted in miscellaneous gains of approximately \$11,000 in 1979, and approximately \$5,000 in 1980.

### Salary Loss

State law requires the use of salary amounts effective in the year following the valuation. The actuarial valuation as of December 31, 1978 did not use this amount. The salary loss for 1979, therefore, reflects the increase in salary for two years.

APPENDICES

AUSTIN 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	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 53, 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

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<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

Austin 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.

Amount. 50% of base pay at retirement. For each year over 25 an additional 1/2% of base pay is added to the benefit. (The 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. Disabled to the extent that no longer able to perform duties of a policeman.

Amount. Same as age & service retirement.

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

Eligibility.

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

Child. Younger than age 18.

Amount.

Spouse. 30% of base pay at separation.

Child. \$300 each per year.

Maximum Family Benefit. 50% of base pay.

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

Post Retirement Adjustments ("Escalator"). Each time base pay is changed, retired member and surviving spouse benefits are simultaneously changed by the same percent that base pay changes. Children's benefits are not escalated.

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