

REPORT ON THE ACTUARIAL VALUATION OF THE
BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION
PREPARED AS OF DECEMBER 31, 1978

 **FILE COPY**

**BUCK
CONSULTANTS**

JUL 18 1979 LCP&R

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REPORT ON THE ACTUARIAL VALUATION OF THE
BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION
PREPARED AS OF DECEMBER 31, 1978

SECTION I - SUMMARY OF THE PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation are summarized below:

<u>Valuation Date</u>	:	12/31/78
	:	
<u>Contributions for the Year</u>	:	1979
	:	
Number of active members included in the valuation	:	119
Current participating payroll used in the valuation	:	\$ 2,344,776
Average age of active members	:	36.7 years
Average service of active members	:	9.3 years
	:	
Number of vested terminated participants	:	1
	:	
Number of retired and disabled members and spouses	:	27
Annual pension benefits	:	\$ 159,744
	:	
Accrued liability	:	\$ 9,797,132
	:	
Assets	:	\$ 4,432,835
	:	
Unfunded accrued liability	:	\$ 5,364,297
	:	
Contributions for the year:	:	
Normal	:	\$ 577,982
Estimated administrative expenses	:	7,960
	:	
Total normal cost	:	\$ 585,942
	:	
Amortization of unfunded accrued liability	:	373,162
	:	
Total contribution	:	\$ 959,104

2. Comments on the valuation results as of December 31, 1978 are given in Section IV and further discussion of contributions is set out in Section V.

3. Schedule B of this report outlines the full set of actuarial methods and assumptions employed.
4. Provisions of the Plan as interpreted for the valuation are summarized in Schedule C.

SECTION II - MEMBERSHIP DATA

1. Membership data were furnished by the Association.
2. Table 1 of Section D summarizes and reconciles the data with respect to active members. Table 2 summarizes and reconciles the data with respect to terminated vested, disabled and retired members and surviving spouses.
3. There are currently no children receiving benefits.

SECTION III - ASSETS

The amount of assets is equal to the market value of the Special Fund as shown in the 1978 Report of the Financial Affairs of the Bloomington Fire Department Relief Association.

SECTION IV - COMMENTS ON THE VALUATION

1. Schedule A of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities for benefits as of December 31, 1978. The valuation balance sheet shows that as of the valuation date the Plan has total liabilities of \$16,625,374. Of this amount, \$13,247,942 is attributable to present active members, \$157,302 is attributable to the vested terminated member and \$3,220,130 is attributable to retired and disabled members and surviving spouses. Against these liabilities the Plan has assets of \$4,432,835 as of December 31, 1978. This leaves an amount of \$12,192,539 to be met from future contributions. Of this amount, \$6,828,242 will be met by payment of future normal contributions (including members' contributions), leaving \$5,364,297 as the unfunded accrued liability.

2. Normal contributions to cover the accruing cost for the calendar year following the valuation are required. The valuation shows that, exclusive of members' contributions, a total normal contribution of \$585,942 is required to cover this cost, including administrative expenses. This represents 24.989% of the participating payroll used in the valuation.

SECTION V - CONTRIBUTION REQUIREMENTS

1. On the basis of the valuation a normal contribution, in addition to members' contributions, of \$577,982 is required to support the accruing cost of benefits during the year. In addition, administrative expenses of \$7,960 have been estimated, resulting in a total normal cost of \$585,942.
2. The unfunded accrued liability was determined to be \$5,364,297. According to our understanding of the statute, this amount must be fully funded by 2005. In order to amortize this amount over 26 years an annual contribution of \$373,162 is required.
3. The contributions for the year 1979 on the bases described above are shown in the following table:

CONTRIBUTIONS FOR THE YEAR 1979

ITEM	AMOUNT
Normal	\$ 577,982
Administrative expenses	7,960
Total normal cost	\$ 585,942
Amortization of accrued liability	373,162
Total contribution	\$ 959,104

The above figures are exclusive of members' contributions.

SECTION VI - GAIN AND LOSS ANALYSIS

1. One of the statutory requirements is an analysis of the increase or decrease in unfunded accrued liability since the last valuation. Since we did not perform the previous actuarial valuation and were unable to duplicate exactly the prior actuary's results, the following figures are approximations.
2. The analysis of the increase in unfunded accrued liability of \$1,912,520 is approximately as follows:

1. Contributions in excess of normal cost and interest requirements	\$	6,021
2. Experience gain (loss) during the year:		
(a) Fund performance	\$	(95,230)
(b) Short term disability		(6,004)
(c) New members		(3,960)
(d) Decremental gains		176,393
(e) Strain on new retirements		<u>(11,023)</u>
Total		60,176
3. Salary increase and changes in valuation procedures		(677,706)
4. Change in actuarial assumptions		<u>(1,301,011)</u>
Total reduction (increase)	\$	(1,912,520)

SECTION VII - EXPERIENCE STUDY

1. An experience study is also specified by statute. We have conducted this study based only on the experience during calendar year 1978. It should be recognized that the experience of one year in a group of this size is not necessarily indicative of the underlying rates of mortality, retirement, withdrawal and disability.

2. The following figures are based on the rates assumed by the prior actuary (except for disability).

Cause of Decrement	Expected	Actual	Ratio Actual/ Expected
Withdrawal	1.76	5	2.841
Death	0.24	0	.000
Disability	0.20	0	.000
Retirement	1.00	2	2.000

SCHEDULE A

VALUATION BALANCE SHEET
SHOWING THE PRESENT AND PROSPECTIVE ASSETS
AND LIABILITIES UNDER THE BLOOMINGTON
FIRE DEPARTMENT RELIEF ASSOCIATION
AS OF DECEMBER 31, 1978

Assets

Present Assets		\$ 4,432,835
Present Value of Prospective Contributions:		
For future service:		
By members	\$ 155,781	
From other sources	<u>6,672,461</u>	
Total future service	\$ 6,828,242	
For prior service	<u>5,364,297</u>	
Total		<u>12,192,539</u>
Total Assets		<u><u>\$ 16,625,374</u></u>

Liabilities

Present value of prospective benefits payable on account of present active members		\$ 13,247,942
Present value of prospective benefits payable on account of terminated vested members		157,302
Present value of prospective benefits payable on account of retired and disabled members and surviving spouses.		<u>3,220,130</u>
Total Liabilities		<u><u>\$ 16,625,374</u></u>

SCHEDULE B

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

INTEREST RATE: 5% per annum, compounded annually.

SALARY SCALE: 3-1/2% per annum, compounded annually.

SEPARATIONS BEFORE NORMAL RETIREMENT: Representative values of the assumed rates of withdrawal, death and disability are as follows:

<u>Annual Rates of</u>			
<u>Age</u>	<u>Withdrawal*</u>	<u>Death</u>	<u>Disability</u>
25	2.50%	.11%	.08%
30	2.00	.11	.10
35	1.50	.14	.13
40	1.00	.19	.17
45	.50	.31	.25
49	.10	.45	.38

*Higher rates of withdrawal are used during the first, second and third years of employment.

DEATH AFTER RETIREMENT: According to the 1974 George B. Buck Mortality Table. A special mortality table was assumed for the period after disability retirement.

RETIREMENT: Retirements were assumed to occur after 20 years of service in accordance with the following table:

<u>Age</u>	<u>Rate of Retirement</u>
50	80%
51	25
52	25
53	25
54	25
55	100

SPOUSES AND ORPHANS: 95% of the members are assumed to be married, with wives 3 years younger. One child was assumed for members dying or becoming disabled before retirement; no children were assumed for members retiring for age. A spouse's remarriage rate was assumed in valuing spouse's benefits.

SHORT-TERM DISABILITY: An average of the number of month's payments during the last two years was assumed. This was multiplied by the current benefit rate to determine the expected payment.

EXPENSES: A provision was made for anticipated administrative expenses and actuarial fees.

LOADING OR CONTINGENCY RESERVES: None.

ASSET VALUATION METHOD: Assets are valued at market value.

ACTUARIAL COST METHOD: Entry age normal cost method; gains and losses reflected in unfunded accrued liability.

SCHEDULE C

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION
SUMMARY OF MAIN PLAN PROVISIONS
AS INTERPRETED FOR VALUATION PURPOSES

MEMBERSHIP

Every fireman is eligible after one month's service.

BENEFITS

Normal Pension Benefit

Condition for Retirement

A member may retire when he has completed 20 years of service and attained age 50.

Amount of Benefit

33-1/3% of the average of the highest Patrolman's pay over the last 3 years. Benefit is subject to escalator provision.

Disability Benefit

Condition for Retirement

A disabled member is eligible for a disability benefit after he has been disabled for 7 days.

Amount of Benefit

Same as for normal pension.

Vested Deferred Pension Benefit

Condition for Benefit

A member is eligible for a vested deferred benefit after he has completed 20 years of service. Benefit commences at age 50.

Amount of Benefit

Same as for normal pension.

Spouse's and Orphan's Benefits

The surviving spouse of a deceased member is entitled to a pension of 25% of the average of the highest Patrolman's pay over the last 3 years. Benefit ceases on remarriage. Orphans each receive 4% of average of highest Patrolman's pay over last 3 years. Maximum family benefit is 33-1/3% of such pay. All benefits are subject to escalator provision.

Lump Sum Death Benefit

A lump sum of \$500 is paid to the beneficiary of a deceased member.

Member Contributions

Each member contributes \$12.00 monthly to the Association, payable semi-annually.

Refund of Contributions

A member who resigns after 5 or more years of membership and who is not entitled to any other benefit is entitled to the return of his own contributions.

SCHEDULE DRECONCILIATION OF MEMBER DATA

TABLE 1 - ACTIVE MEMBERS

	<u>Number</u>	<u>Annual Payroll</u>
As of last valuation date	124	\$ 2,443,296
New entrants	<u>2</u>	<u>39,408</u>
Total	126	\$ 2,482,704
Separations from active service		
Refund of contributions	5	\$ 98,520
Separation with deferred annuity	0	-0-
Disability	0	-0-
Death	0	-0-
Retirement with service annuity	<u>2</u>	<u>39,408</u>
Total	7	\$ 137,928
As of current valuation date	119	\$ 2,344,776

TABLE 2 - RETIRED, TERMINATED AND DISABLED MEMBERS AND SURVIVING SPOUSES

	RETIRE		VESTED TERMINATED		DISABLED		SURVIVING SPOUSE	
	NUMBER	ANNUAL BENEFIT	NUMBER	ANNUAL BENEFIT	NUMBER	ANNUAL BENEFIT	NUMBER	ANNUAL BENEFIT
As of last valuation	18	\$110,592	1	\$6,144	3	\$ 18,432	4	\$18,432
New entrants	2	12,288	0	-0-	0	-0-	0	-0-
Total	20	\$122,880	1	\$6,144	3	\$ 18,432	4	\$18,432
Terminations								
Deaths	0	-0-	0	-0-	0	-0-	0	-0-
Other	0	-0-	0	-0-	0	-0-	0	-0-
Total terminations	0	-0-	0	-0-	0	-0-	0	-0-
As of current valuation	20	\$122,880	1	\$6,144	3	\$ 18,432	4	\$18,432

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

600 WEST 95th STREET
BLOOMINGTON, MINNESOTA 55420

April 17, 1980

*Mr Hayden called 4/29/80:
They have contacted Wyatt Co to
do new 4 year experience study.
Probably take 6 weeks.*

State of Minnesota
Legislative Commission on Pensions
and Retirement
147 State Office Building
St. Paul, Minnesota 55155

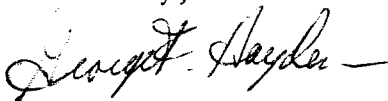
Attention: Karen Dudley

Dear Ms. Dudley:

In reply to your letter of April 14, 1980 enclosed is a copy of the actuarial valuation of the Bloomington Fire Department Relief Association as of December 31, 1978 prepared by Buck Consultants.

In your letter you stated we are 10 months past the due date in submitting this report. For your information our report was submitted in June 1979. We also sent a copy of the report in either November or December 1979. This is the third copy of the study we have sent to the Commission.

Sincerely,



George F. Hayden
Treasurer
Bloomington Fire Department Relief Association

GFH:rc

Enc.

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