BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Actuarial Valuation as of January 1, 1990

April 11, 1990



JUL 9 1990 LCP&R

THE Wyatt COMPANY

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BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Actuarial Valuation as of January 1, 1990

PURPOSE AND SUMMARY

The purpose of this report is to present the results of our January 1, 1990 actuarial valuation of the Bloomington Fire Department Relief Association performed in accordance with the provisions of Chapter 356 of the Minnesota State Statutes. In summary, our valuation indicates a required contribution of \$1,453,600 as of January 1, 1990. The contribution must be increased with interest, at the rate of 5% per annum until the date of payment. If payment is made as late as December 31, 1990, a contribution of \$1,526,300 is required. This contribution is in addition to estimated member contributions of \$19,100 for 1990. The results of the valuation are discussed in detail in later sections of the report.

We certify that this actuarial valuation has been prepared in accordance with Chapter 356 of the Minnesota State Statutes as it applies to the Bloomington Fire Department Relief Association.

EMPLOYEE DATA

The data provided by the Association is summarized in Table 2(a). The table sets forth a reconciliation from January 1, 1989 to January 1, 1990. There are 134 active members in the Association as of the valuation date. They have an average attained age of 37.1 and an average entry age of 27.9. Table 2(b) sets forth the prospective benefit each member may expect to receive if he remains in the Association to the normal retirement date assumed in the valuation, age 50 and completion of 20 years of service. These benefits assume 3-1/2% future pay increases per year.

The reported data includes 54 retired members, 3 disabled members, 10 surviving spouses and 2 surviving children receiving monthly benefits as of January 1, 1990. There are 12 terminated members entitled to receive benefits at age 50.

Table 2(c) sets forth a listing showing the benefit each inactive member is currently receiving or is entitled to receive upon attainment of age 50. No increase is

assumed in benefits of terminated vested members for this listing.

Monthly benefits payable from the plan are based on the most recent three year average salary rates of the highest paid non-officer policeman in the City of Bloomington. Consequently, benefits to all inactive members are increased each year. January 1, 1990 benefit levels are determined as follows:

1.	Average Monthly Salary (a) January 1, 1988 (b) January 1, 1989 (c) January 1, 1990 (d) Average	3,019 3,140 3,250 3,136
2.	Monthly Benefits (a) Retirees (1(d) x 1/3) (b) Surviving Spouses (2(a) x 75%)	1,045 784

For cost determinations, future benefits are assumed to increase in accordance with the assumed rate of salary increase, 3-1/2% per year.

ASSETS OF THE SPECIAL FUND

A statement of the assets of the Special Fund as of December 31, 1989 prepared by George Hayden was made available to us by the Association. Our valuation reflects the reported market value of the Special Fund as of December 31, 1989 of \$36,578,445 less salaries and pensions of \$67,008 which were payable as of December 31, 1989 for a total of \$36,511,437 used as valuation assets.

PLAN PROVISIONS

Table 3 is a summary of the principal provisions of the plan. The benefits to retired members have increased 3.88% from \$1,006 to \$1,045 per month as a result of increases in the pay rate of the highest paid non-officer Bloomington policeman.

ACTUARIAL ASSUMPTIONS

Chapter 356 of the Minnesota Statutes requires that actuarial valuations of public plans be based on an assumed interest rate of 5% per annum and an assumed rate of annual salary increase of 3-1/2% per annum. Other assumptions pertaining to the rates of mortality, turnover, retirement, etc. are left to the discretion of the actuary. All of the valuation assumptions are the same as those used in the January



1, 1989 valuation of the plan. Table 4 is a summary of all of the actuarial assumptions.

ACTUARIAL METHOD

As required by law, the funding method used for the valuation is the entry age normal cost method. Under this method, the normal cost is computed as that percentage of pay which would fund all benefits if that percentage of pay was contributed every year from each fireman's entry into the plan until his retirement. The total normal cost for the plan is the sum of the normal costs for all active members. The normal cost is reduced by the members' contribution for the current year.

The present value of all future benefits payable from the plan for all active and inactive members less the present value of all future normal costs is defined as the accrued liability. The accrued liability is the amount that would have accumulated in the Special Fund if all the actuarial assumptions had been exactly realized in all prior years and if funding for all members, based on current plan benefits, had commenced immediately upon their date of joining the Association.

The total accrued liability is compared to the market value of the Special Fund to determine the status of the plan. Any difference, known as the unfunded accrued liability is to be funded with a payment over a number of years specified by law, known as the amortization payment. The unfunded accrued liability of the current plan must be paid over the 29 year period beginning on January 1, 1983 and ending on December 31, 2011. There are 22 years left in the amortization period. Any changes in the unfunded accrued liability due to changes in benefits or actuarial assumptions must be paid over a new 30 year period.

The total annual contribution due as of the valuation date is the sum of the normal cost, the amortization payment and a \$34,300 provision for administrative expenses. The provision for expected expenses is necessary because all expenses are paid from the Special Fund. The \$34,300 amount is estimated from actual expenses paid from the Special Fund during 1989. Interest must be added to the contribution at the rate of 5% from the valuation date to the date of payment. Thus, if payment were made as of December 31, 1990, the January 1 contribution amount must be multiplied by 1.05.

VALUATION RESULTS

1.

A contribution of \$1,667,800 was reported in the January 1, 1989 valuation. This contribution was expected to increase to \$1,715,000 as of January 1, 1990 because the normal cost is expected to increase 3-1/2% each year in accordance with our valuation method.

Table 1 sets forth the principal results of this year's valuation. A contribution of \$1,526,300 is required. The principal reasons for the decrease of \$188,700 from the expected cost level is the actual investment return of 14.4% was significantly more than the 5% actuarial assumption.

The annual contribution is the sum of the normal cost, the amortization payment, and administrative expenses. The normal cost is computed to be a level percentage of pay assuming each fireman earns the same as a Bloomington policeman, \$39,000 per year. Under this assumption, there is a total covered payroll of \$5,226,000 (134 x \$39,000) and the net normal cost of \$1,397,100 is 26.7% of payroll. The total contribution of \$1,526,300 is 29.2% of payroll.

CHANGE IN THE UNFUNDED ACCRUED LIABILITY

Unfunded accrued liability

January 1, 1990 (1 - 2.d + 3)

Chapter 356 requires a reconciliation of the unfunded accrued liability from one valuation to the next valuation. As of January 1, 1989 there was an unfunded accrued liability of \$4,145,500. As of January 1, 1990 there is an unfunded accrued liability of \$307,200. This decrease of \$3,838,300 is accountable as follows:

	as c	of January 1, 1989	4,145,500
2.	Dec	rease due to:	
	(a) (b) (c) (d)	Contributions 1989 Investment earnings higher than expected Miscellaneous actuarial gains Total decrease	513,800 2,953,100 446,800 3,913,700
3.		ease due to salary increases in ess of those assumed	75,400
4.	Unfu	unded accrued liability as of	

307,200

Investment earnings were 14.4% for 1989 versus our assumption of 5%. Salary increases were 3.503% for 1989 versus our assumption of 3.500%.

FINANCIAL DISCLOSURE

Government Accounting Standards Board Statement No. 5 now requires governmental plans to disclose certain information in their financial statement. Table 1(b) presents this information. The pension benefit obligation represents the value of benefits earned to date. Future benefit increases are assumed. The vested obligation includes a liability only for members with 20 or more years of service. The total obligation includes a liability for all members.

If you have any questions, please let us know. We would be happy to meet with you to discuss further the results of our valuation.

Respectfully submitted,

THE WYATT COMPANY

oreaus

Victoria A. Slomiany

Fellow, Society of Actuaries

Richard M. Holtz

Associate, Society of Actuaries

Minneapolis/St. Paul April 11, 1990

Table 1(a)

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Results of Actuarial Valuation as of January 1, 1990

A.	<u>BAS</u> 1.	SIC VALUATION RESULTS Accrued liability		
		a. Active members	16,140,700	
		 b. Inactive members i. Retired members ii. Disabled members iii. Surviving spouses iv. Surviving children v. Terminated members 	14,215,700 1,162,000 1,381,800 35,500	
		to deferred benefits vi. Total	3,882,900 20,677,900	
		c. Total accrued liability	36,818,600	
	2.	Market value of special fund as January 1, 1990	of 36,511,400	
	3.	Unfunded accrued liability (1 - 2	307,200	
	4.	Annual normal cost		
		a. Totalb. Estimated member contribc. Net normal cost	1,416,200 utions 19,100 1,397,100	
B.	<u>ANN</u> 1.	IUAL CONTRIBUTION Payable as of January 1, 1990		
		a. Normal costb. Amortization payment for	1,397,100	
		unfunded accrued liability c. Administrative expenses d. Total	22,200 34,300 1,453,600	
	2.	Payable as of December 31, 199 (1.d x 1.05)	90 1,526,300	

Table 1(b)

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Financial Disclosure Information as of January 1, 1990 1/

Pension Benefit Obligation:

Retirees and beneficiaries currently receiving benefits and terminated members not yet receiving benefits

\$ 20,677,900

Current members -

Accumulated member contributions including allocated investment earnings <u>2/</u>

0

Vested benefits

1,121,900

Non-vested benefits

13,974,300

Total Pension Benefit Obligation

\$ 35,774,100

- 1/ Assumes future rate of return on plan assets of 5% and 3-1/2% future benefit increases.
- 2/ Member contributions are not separately accounted since there are no refund of contribution provisions under the plan.

Table 2(a)

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Summary of Membership as of January 1, 1990

Α.	1.	January 1, 1989	125
	2.	New Entrants	15
	3.	Transfers from Disabled Status	0
	4.	Separations (a) Vested terminations (b) Non-vested terminations (c) Disabilities (d) Deaths (e) Retirements (f) Total separations	2 4 0 0 0 0
	4.	January 1, 1990	134
B.	<u>RE1</u>	TIRED MEMBERS January 1, 1989	49
	2.	New Retirees	0
	3.	Transfers from Deferred Vested Status	7
	4.	Transfers from Disabled Status	0
	5.	Deaths	2
	6.	January 1, 1990	54
C.	<u>SUF</u> 1.	RVIVING SPOUSES January 1, 1989	9
	2.	New Beneficiaries	2
	3.	Deaths	1
	4.	Remarriage	0
	5.	January 1, 1990	10

Table 2(a) (Con't.)

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Summary of Membership as of January 1, 1990

υ.	DIO	ADLED MEMBERS	
	1.	January 1, 1989	3
	2.	New Disabilities	0
	3.	Deaths	0
	4.	Recoveries to Active Status	0
	5.	Transferred to Deferred Vested Status	0
	6.	January 1, 1990	3
E.	SUF	RVIVING CHILDREN	
	1.	January 1, 1989	3
	2.	New Recipients	0
	3.	Benefits Expired	1
	4.	January 1, 1990	2
F.	DEF	ERRED VESTED MEMBERS	
	1.	January 1, 1989	17
	2.	New Vested Terminations	2
	3.	Transferred to Retiree Status	7
	4.	Transfer from Disabled Status	0
	5.	January 1, 1990	12

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

<u>N</u>	<u>ame</u>	Date of Birth	Date of Hire	Projected Benefit
W	AHMAN	09/53	05/78	20,339
В	ANDERSON	06/43	04/70	13,931
L	ANDERSON	02/48	11/77	16,546
	ANDERSON	08/66	01/86	31,810
\mathbf{T}	ARBUCKLE	02/60	01/84	25,002
В		12/56	10/83	22,551
J		01/53	09/79	19,652
J	BELL	08/57	05/89	25,002
L		11/42	11/77	16,546
S	BLODGETTS	10/43	07/78	17,125
R		06/42	04/73	14,419
D	CARNEY	09/53	07/88	24,157
Р		04/54	12/84	21,051
D	CONGDON	05/38	01/88	20,339
P		11/58	10/89	25,002
D	CRUIKSHANK	03/44	11/72	14,419
L		10/52	01/88	24,157
D	DELONG	07/54	03/85	21,788
В		08/64	05/85	29,695
M		03/49	06/82	19,652
J	DUERKOP	01/53	04/83	20,339
G	DUGAL	01/48	08/79	17,725
В	DUNHAM	03/55	07/80	21,051
D	DVORAK	10/46	11/73	15,987
D	ELLINGS	08/59	03/82	25,002
D	ENGBERG	07/40	02/69	13,005
\mathbf{T}	ERICKSON	10/58	11/88	24,157
R		09/46	02/71	15,987
Α		08/64	10/88	29,695
Р		05/48	02/83	20,339
J	FINNEGAN	10/45	05/79	17,725
Μ		11/35	10/70	13,005
S		06/59	01/88	24,157
F	FUECKER	10/41	08/68	13,460
J	GALE	09/53	11/75	20,339
С	GERDES	12/48	06/74	17,125
G		06/42	11/75	15,446
W	GUENTHER	07/53	06/88	24,157
\mathbf{T}	GUSTAFSON	10/48	12/75	17,125
С	GUTH	09/55	11/80	21,788
R	HAEG	06/53	01/88	24,157
J	HARRINGER	01/44	10/69	14,419
	HAUGAN	08/52	03/77	19,652
K	HECHT	10/42	10/74	14,924

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

<u>Name</u>	Date of Birth	Date of Hire	Projected Benefit
W HECHT	12/52	10/71	19,652
D HEDIN	10/54	12/74	21,051
P HEGER	10/53	12/74	20,339
B HENRY	05/63	11/89	27,721
M HOY	07/68	07/89	34,076
P HUBER	03/42	04/70	13,460
R HUFFMAN	05/56	01/88	24,157
A HUNDT	06/57	05/81	22,551
M HURLEY	03/52	02/80	18,987
W JEFFERS	11/47	04/81	18,987
G JESSEN	05/48	03/75	16,546
B JOHNSON J JUDY	11/59	06/81	25,002
J KABEITZ	10/46	04/81	18,987
K KAISER	03/55 06/54	01/88	24,157
B KALINA	10/49	08/80 01/75	20,339
W KALINA	02/43	01/75	17,725 15,446
P KELLER	05/44	02/76	15,446
W KETTLEKAMP	02/36		
G KRISTJANSO	02/38	01/70 08/70	13,005 13,005
J LANNENBERG	04/66	07/84	30,734
R LARKIN	09/64	02/88	29,695
B LARSON	09/52	08/84	21,051
L LARSON	08/51	01/88	24,157
S LEEDER	10/51	10/80	18,987
G LEMBECK	12/64	01/88	29,695
W LEMBECK	10/41	04/71	13,460
M LESSARD	09/66	06/89	31,810
M LOISELLE	08/48	10/71	17,125
A MAJERUS	03/61	05/84	25,877
S MALONEY	01/60	10/81	25,002
D MANSKE	10/48	01/78	17,125
T MANSKE	07/43	11/70	14,419
S MCCARTHY	07/61	04/88	26,783
K MCDEVITT	04/53	12/84	21,051
G MELONY	06/45	11/72	14,924
J MEUWISSEN	12/53	01/88	24,157
K NELSON	10/60	07/88	25,877
R NELSON	02/57	04/89	25,002
M OBERG	05/64	06/89	28,691
B OCONNOR	07/64	03/85	29,695
C ODASH	05/61	05/89	25 , 877

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Name	Date of Birth	Date of Hire	Projected Benefit
T OHARRIS	11/56	01/90	25,002
B OLSON	05/57	11/84	22,551
R OLSON	07/54	01/79	21,051
W PAGET	06/39	07/83	20,339
K PAHL	06/48	08/68	16,546
E PALMSTEN	07/48	02/83	20,339
R PETERSON	03/43	08/75	15,446
S PETERSON	10/70	06/89	36,503
T PRESSLER	09/35	09/70	13,005
J REILY	08/50	07/85	21,788
S REINHARDT	12/48	02/85	18,345
C REYNOLDS	08/63	11/83	28,691
J REZAC	11/61	12/82	26,783
T RILEA	09/65	06/88	30,734
R ROASE	09/57	02/85	23,340
W ROASE	12/58	12/83	24,157
K ROBERTS	03/47	01/72	15 , 987
R ROEHL	04/52	09/78	18,987
M ROUEN	12/41	09/72	13,931
M SCHERER	07/67	07/88	32,923
R SCHOENBORN	07/40	02/71	13,460
T SCHWARTZ	06/54	01/88	24,157
U SEAL	10/57	06/76	23,340
G SELINSKY	09/41	06/72	13,931
R SHAW	04/54	02/84	21,051
T SHEFLET	09/66	01/89	31,810
D SMITH	04/47	02/81	18,987
R SMITH	05/52	06/78	18,987
W SNYDER	04/38	01/70	13,005
M STERN	01/43	05/72	13,931
B SVEUM	01/52	06/73	18,987
A SVOBODNY	07/55	04/83	21,788
E SWEIVEN	09/35	09/70	13,005
B TANNER	04/69	02/88	34,076
S THIELE	11/66	02/89	31,810
V TRAETOW	04/52	01/88	24,157
L TRISCO	11/66	11/89	31,810
R TROUSDALE	08/52	05/83	20,339
D TSCHIMPERLE	01/65	04/85	29,695
K TSCHIMPERLE	12/65	06/84	30,734
J TUMBERG	03/64	11/84	28,691
M VOBER	01/44	02/71	14,419

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Name	Date of Birth	Date of Hire	Projected Benefit
D WALKER	12/46	06/74	15,987
R WAMSLEY	08/59	08/85	25,002
B WARD	09/62	06/83	27,721
E WENSHAU	08/37	09/71	13,460
C WILLIAMS	03/43	04/7	14,924
M YOUNGGREN	12/53	01/88	24,157

Table 2(c)

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Monthly Benefits for Inactive Members as of January 1, 1990

NAME	TYPE	MONTHLY BENEFITS
B ANDERSON	RETIRED	1,045
L ANDERSON	DEFERRED	1,045
R ANDERSON	RETIRED	1,045
R BOESER	RETIRED	1,045
J BRENING	RETIRED	1,045
D CARLSON	DEFERRED	1,045
L CHADWICK	WIDOW	784
G CHAPLIN	DEFERRED	1,045
C CHRISTENSEN	WIDOW	784
E CHRISTIAN	RETIRED	1,045
D CIARDELLI	RETIRED	1,045
R CLEMENSEN	RETIRED	1,045
J COLEHOUR	DISABLED	1,045
D DODDS	RETIRED	1,045
G DOUSETTE	RETIRED	1,045
R EGLAND	RETIRED	1,045
	RETIRED	1,045
J ELLRICH	WIDOW	784
R ELM	RETIRED	1,045
J ENGBERG	RETIRED	1,045
W FABER	RETIRED	1,045
I FINN	RETIRED	1,045
N FISCHER	DEFERRED	1,045
A FRIENDSHUH	RETIRED	1,045
A FURULI	RETIRED	1,045
N GABRIEL	RETIRED	1,045
R GABRIEL	DEFERRED	1,045
J GASTERLAND	DEFERRED	1,045
J GJEVRE	RETIRED	1,045
P GOETTSCHE	CHILD	392
G HAEG	DISABLED	1,045
J HAEG	RETIRED	1,045
W HAEG	RETIRED	1,045
P HALL	RETIRED	1,045
G HAYDEN	DEFERRED	1,045
C HECHT	RETIRED	1,045
C HEDIN	RETIRED	1,045
R HEDIN	RETIRED	1,045
K HEGER	RETIRED	1,045
B HOAGLUND	WIDOW	784
B JUSTEN	WIDOW	784

Table 2(c)

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Monthly Benefits for Inactive Members as of January 1, 1990

<u>NAME</u>	<u>TYPE</u>	MONTHLY BENEFITS
M KAISER	RETIRED	1,045
E KEITH	RETIRED	1,045
C KELLEY	RETIRED	1,045
R KIMBLER	RETIRED	1,045
H LANENBERG	RETIRED	1,045
O LUND	WIDOW	784
R MACALLISTER	DISABLED	1,045
D MARTENSON	RETIRED	1,045
D MATTSON	RETIRED	1,045
R MCDONALD	RETIRED	1,045
R MCKENZIE	RETIRED	1,045
J MCWILLIAMS	RETIRED	1,045
G MILLER	RETIRED	1,045
G MILLER S MINION	RETIRED	1,045
D NAPIER	DEFERRED	1,045
D NICHOLS	RETIRED	1,045
W NOLEEN	RETIRED	1,045
D OLSON	RETIRED	1,045
M PAHL	RETIRED	1,045
E PETERSEN	RETIRED	1,045
D PETERSON	DEFERRED	1,045
D PETERSON	RETIRED	1,045
S PETERSON	RETIRED	1,045
M RUEGER	WIDOW	784
J SAVAGE	WIDOW	784
R SAVAGE	WIDOW	784
V SEGERSTROM	RETIRED	1,045
D SHEFLET	DEFERRED	1,045
B SMITH	RETIRED	1,045
R SWANSON	RETIRED	1,045
J THOMA	DEFERRED	1,045
R THOMA	RETIRED	1,045
D TRAVERS	RETIRED	1,045
L TSCHIMPERL	RETIRED	1,045
A WELTER C WILSON G WILSON	RETIRED	1,045
C WILSON	RETIRED	1,045
G WILSON	DEFERRED	1,045
L WISE	RETIRED	1,045
M ZOCHERT	WIDOW	784

Table 3

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Summary of Current Plan Provisions

1. Basic Benefit: One-third of the final average salary of a

policeman of the highest grade, not including officers of the City of Bloomington. Final average earnings is the average of the monthly pay for such a policeman over the past three years. All benefits under the plan increase each time a pay increase is granted to the Bloomington Police

Department.

2. Normal Retirement Benefit: Basic benefit is payable at retirement after

attainment of age 50 and completion of 20 years

of service.

3. Deferred Vested Benefits: On termination after completion of 20 years of

service, the basic benefit is payable after

attainment of age 50.

4. Disability Benefits: The basic benefit is multiplied by 5% for every

year of service earned up to the time of disability; maximum 20 years. This benefit is payable while the member remains disabled. After attainment of age 50, a normal retirement benefit is payable. Disability is defined as inability to perform the

duties of a fireman.

5. Spouse's Benefit:

On the death of any active or inactive member,

75% of the basic benefit is payable to the surviving spouse for her remaining lifetime. Benefits cease

on remarriage of the surviving spouse.

6. Children's Benefit: On the death of an active member, 12% of the

basic benefit is payable to each surviving child until attainment of age 18. Maximum family benefit is 100% of the basic benefit. On the remarriage or death of a widow, surviving children may receive benefits which in total equal no more

than the basic benefit.

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7. Lump Sum Death Benefit:

On the death of any active or inactive member \$500 is payable.

8. Membership Dues:

Each member contributes \$144.00 per year payable semi-annually on January 1 and July 1.

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THE Wyatt COMPANY ____

Table 4

BLOOMINGTON FIRE DEPARTMENT RELIEF ASSOCIATION

Actuarial Method and Assumptions

1. Interest Rate: 5% per annum.

2. Mortality: The mortality rates used are based on the 1971

Group Annuity Mortality Table, without margins, projected to 1976 by Scale E. The table is used

for all rates of mortality.

3. Withdrawal: The rate of withdrawal is .030 at age 20

decreasing uniformly to zero at age 50 with no

withdrawal after that age.

4. Disability: The Railroad Retirement Board 12th Valuation

rates of disablement loaded for the nature of the

group.

5. Retirement Age: Members are assumed to retire after attaining age

50 and completing 20 years of service.

6. Salary Scale: 3-1/2% per annum.

7. Valuation Assets: Market value.

8. Funding Method: The entry age normal cost method has been used

with the normal cost determined as a level of percentage of pay each year from the date of joining the Association to the assumed retirement age. Each fireman is assumed to earn the same

as a Bloomington policeman.

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