

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Actuarial Valuation as of January 1, 1989

April 4, 1989

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**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Actuarial Valuation as of January 1, 1989

PURPOSE AND SUMMARY

The purpose of this report is to present the results of our January 1, 1989 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 \$1,588,400 as of January 1, 1989. 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, 1989, a contribution of \$1,667,800 is required. This contribution is in addition to estimated member contributions of \$18,000 for 1989. 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, 1988 to January 1, 1989. There are 125 active members in the Association as of the valuation date. They have an average attained age of 37.6 and an average entry age of 28.2. 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 49 retired members, 3 disabled members, 9 surviving spouses and 3 surviving children receiving monthly benefits as of January 1, 1989. There are 17 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, the most recent, January 1, 1989 benefit levels are determined as follows:

1.	Average Monthly Salary	
(a)	January 1, 1987	2,896
(b)	January 1, 1988	3,019
(c)	January 1, 1989	3,140
(d)	Average	3,018
2.	Monthly Benefits	
(a)	Retirees	
	(1(d) x 1/3)	1,006
(b)	Surviving Spouses	
	(1(d) x 1/4)	755

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, 1988 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, 1988 of \$30,781,596 less salaries and pensions of \$60,909 which were payable as of December 31, 1988 for a total of \$30,720,687 used as valuation assets.

PLAN PROVISIONS

Table 3 is a summary of the principal provisions of the plan. The disability benefit has been changed to be pro-rated over 20 years of service. The benefits to retired members have increased 4.03% from \$967 to \$1,006 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, 1988 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 23 years left in the amortization period. Any changes in the unfunded accrued liability due to changes in benefits or actuarial assumptions (such as the January 1, 1989 disability benefit) 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 \$31,500 provision for administrative expenses. The provision for expected expenses is necessary because all expenses are paid from the Special Fund. The \$31,500 amount is estimated from actual expenses paid from the Special Fund during 1988. 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, 1989, the January 1 contribution amount must be multiplied by 1.05.

VALUATION RESULTS

A contribution of \$1,867,000 was reported in the January 1, 1988 valuation. This contribution was expected to increase to \$1,915,900 as of January 1, 1989 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. As set forth in column 1, based on last year's plan provisions, a contribution of \$1,782,000 is required. The principal reasons for the decrease of \$133,900 from the expected cost level is the actual investment return of 13.1% was significantly more than the 5% actuarial assumption.

Column 2 of the table sets forth the contribution on the new plan provisions. The disability change causes the contribution to decrease by \$114,200 to \$1,667,800.

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, \$37,680 per year. Under this assumption, there is a total covered payroll of \$4,710,000 (125 x \$37,680) and the net normal cost of \$1,265,300 is 26.9% of payroll. The total contribution of \$1,667,800 is 35.4% of payroll.

CHANGE IN THE UNFUNDED ACCRUED LIABILITY

Chapter 356 requires a reconciliation of the unfunded accrued liability from one valuation to the next valuation. As of January 1, 1988 there was an unfunded accrued liability of \$6,501,000. As of January 1, 1989 there is an unfunded accrued liability of \$4,145,500. This decrease of \$2,355,500 is accountable as follows:

1.	Unfunded accrued liability as of January 1, 1988	6,501,000
2.	Decrease due to:	
	(a) Contributions 1988	215,300
	(b) Investment earnings higher than expected	2,151,500
	(c) Miscellaneous actuarial gains	293,500
	(c) Total decrease	2,660,300
3.	Increase due to:	
	(a) Salary increases in excess of those assumed	174,300
	(b) Disability changes	130,500
	(c) Total increase	304,800
4.	Unfunded accrued liability as of January 1, 1989 (1 - 2.c + 3.c)	4,145,500

Investment earnings were 13.1% for 1988 versus our assumption of 5%. Salary increases were 4.0% for 1988 versus our assumption of 3.5%.

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



Victoria A. Slomiany
Fellow, Society of Actuaries

Minneapolis/St. Paul
April 4, 1988

Table 1(a)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Results of Actuarial Valuation as of January 1, 1989 ^{1/}

A. <u>BASIC VALUATION RESULTS</u>	<u>1/1/88</u>	<u>1/1/89</u>
	Provisions	Provisions
1. Accrued liability		
a. Active members	14,779,500	14,910,000
b. Inactive members		
i. Retired members	12,190,200	12,190,200
ii. Disabled members	1,137,100	1,137,100
iii. Surviving spouses	1,220,400	1,220,400
iv. Surviving children	57,300	57,300
v. Terminated members entitled to deferred benefits	5,351,200	5,351,200
vi. Total	19,956,200	19,956,200
c. Total accrued liability	34,735,700	34,866,200
2. Market value of special fund as of January 1, 1989	30,720,700	30,720,700
3. Unfunded accrued liability (1 - 2)	4,015,000	4,145,500
4. Annual normal cost		
a. Total	1,400,100	1,283,300
b. Estimated member contributions	18,000	18,000
c. Net normal cost	1,382,100	1,265,300
B. <u>ANNUAL CONTRIBUTION</u>		
1. Payable as of January 1, 1989		
a. Normal cost	1,382,100	1,265,300
b. Amortization payment for unfunded accrued liability	283,500	291,600
c. Administrative expenses	31,500	31,500
d. Total	1,697,100	1,588,400
2. Payable as of December 31, 1989 (1.d x 1.05)	1,782,000	1,667,800

^{1/} Difference in plan provisions 1/1/88 to 1/1/89 is to change disability benefit to prorate over 20 years.

Table 1(b)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

**Financial Disclosure Information
as of January 1, 1989 1/**

Pension Benefit Obligation:

Retirees and beneficiaries currently receiving benefits and terminated members not yet receiving benefits	\$ 19,956,200
Current members -	
Accumulated member contributions including allocated investment earnings <u>2/</u>	0
Vested benefits	723,900
Non-vested benefits <u>3/</u>	13,159,400
Total Pension Benefit Obligation	\$ 33,839,500

- 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.
- 3/ Recognizes decrease of \$532,900 due to the change in disability provision.

Table 2(a)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Summary of Membership as of January 1, 1989

A.	<u>ACTIVE MEMBERS</u>	130
1.	January 1, 1988	
2.	New Entrants	8
3.	Transfers from Disabled Status	2
4.	Separations	
	(a) Vested terminations	3
	(b) Non-vested terminations	7
	(c) Disabilities	1
	(d) Deaths	0
	(e) Retirements	4
	(f) Total separations	15
4.	January 1, 1989	125
B.	<u>RETIRED MEMBERS</u>	43
1.	January 1, 1988	
2.	New Retirees	4
3.	Transfers from Deferred Vested Status	2
4.	Transfers from Disabled Status	0
5.	Deaths	0
6.	January 1, 1989	49
C.	<u>SURVIVING SPOUSES</u>	9
1.	January 1, 1988	
2.	New Beneficiaries	0
3.	Deaths	0
4.	Remarriage	0
5.	January 1, 1989	9

Table 2(a)
(Con't.)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Summary of Membership as of January 1, 1989

D. DISABLED MEMBERS

1.	January 1, 1988	5
2.	New Disabilities	1
3.	Deaths	0
4.	Recoveries to Active Status	2
5.	Transferred to Deferred Vested Status	1
6.	January 1, 1989	3

E. SURVIVING CHILDREN

1.	January 1, 1988	3
2.	New Recipients	0
3.	Benefits Expired	0
4.	January 1, 1989	3

F. DEFERRED VESTED MEMBERS

1.	January 1, 1988	15
2.	New Vested Terminations	3
3.	Transferred to Retiree Status	2
4.	Transfer from Disabled Status	1
5.	January 1, 1989	17

Table 2(b)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Projected Benefits for Active Members as of January 1, 1989

NAME	BIRTH DATE	ENTRY DATE	ANNUAL PROJECTED BENEFIT
S ADELMANN	12/56	04/83	22550
W AHMAN	09/53	05/78	20339
B ANDERSON	06/43	04/70	13931
L ANDERSON	02/48	11/77	16546
L ANDERSON	05/41	10/69	13005
S ANDERSON	08/66	01/86	31809
T ARBUCKLE	02/60	01/84	25002
B ASKE	12/56	10/83	22550
J BARNES	01/53	09/79	19651
L BERGQUIST	11/42	11/77	16546
S BLODGETTS	10/43	07/78	17125
R BORST	06/42	04/73	14419
D CARNEY	09/53	07/88	24156
P COLLINS	04/54	12/84	21051
D CONGDON	05/38	01/88	20339
D CRUIKSHANK	03/44	11/72	14419
L DALY	10/52	01/88	24156
D DELONG	07/54	03/85	21787
B DONNELLY	08/64	05/85	29694
M DOYLE	03/49	06/82	19651
J DUERKOP	01/53	04/83	20339
G DUGAL	01/48	08/79	17724
B DUNHAM	03/55	07/80	21051
D DVORAK	10/46	11/73	15986
D ELLINGS	08/59	03/82	25002
D ENGBERG	07/40	02/69	13005
R FALK	09/46	02/71	15986
P FERRY	05/48	02/83	20339
J FINNEGAN	10/45	05/79	17724
M FREEMARK	11/35	10/70	13005
S FRITCHMAN	06/59	01/88	24156
F FUECKER	10/41	08/68	13460
J GALE	09/53	11/75	20339
J GASTERLAND	06/45	05/68	14923
C GERDES	12/48	06/74	17125
G GERHARDT	06/42	11/75	15446
W GUENTHER	07/53	06/88	24156
T GUSTAFSON	10/48	12/75	17125
C GUTH	09/55	11/80	21787
R HAEG	06/53	01/88	24156
D HANSON	08/47	02/73	16546
J HARRINGER	01/44	10/69	14419

Table 2(b)
(Con't.)

BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION

Projected Benefits for Active Members as of January 1, 1989

NAME	BIRTH DATE	ENTRY DATE	ANNUAL PROJECTED BENEFIT
L HAUGAN	08/52	03/77	19651
K HECHT	10/42	10/74	14923
W HECHT	12/52	10/71	19651
D HEDIN	10/54	12/74	21051
P HEGER	10/53	12/74	20339
P HUBER	03/42	04/70	13460
R HUFFMAN	05/56	01/88	24156
A HUNDT	06/57	05/81	22550
M HURLEY	03/52	02/80	18987
W JEFFERS	11/47	04/81	18987
G JESSEN	05/48	03/75	16546
B JOHNSON	11/59	06/81	25002
J JUDY	10/46	04/81	18987
J KABEITZ	03/55	01/88	24156
K KAISER	06/54	08/80	20339
B KALINA	10/49	01/75	17724
W KALINA	02/43	01/75	15446
P KELLER	05/44	02/76	15986
W KETTLEKAMP	02/36	01/70	13005
G KRISTJANSO	01/41	08/70	13005
J LANNENBERG	04/66	07/84	30733
R LARKIN	09/64	02/88	29694
B LARSON	09/52	08/84	21051
L LARSON	08/51	01/88	24156
S LEEDER	10/51	10/80	18987
G LEMBECK	12/64	01/88	29694
W LEMBECK	10/41	04/71	13460
M LOISELLE	08/48	10/71	17125
A MAJERUS	03/61	05/84	25877
S MALONEY	01/60	10/81	25002
D MANSKE	10/48	01/78	17125
T MANSKE	07/43	11/70	14419
S MCCARTHY	07/61	04/88	26782
K MCDEVITT	04/53	12/84	21051
G MELONY	06/45	11/72	14923
J MEUWISSEN	12/53	01/88	24156
K NELSON	10/60	07/88	25877
B OCONNOR	07/64	03/85	29694
B OLSON	05/57	11/84	22550
R OLSON	07/54	01/79	21051
W PAGET	06/39	07/83	20339
K PAHL	06/48	08/68	16546

Table 2(b)
(Con't.)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Projected Benefits for Active Members as of January 1, 1989

NAME	BIRTH DATE	ENTRY DATE	ANNUAL PROJECTED BENEFIT
E PALMSTEN	07/48	02/83	20339
D PEARSON	10/48	01/85	21787
R PETERSON	03/43	08/75	15446
T PRESSLER	09/35	09/70	13005
J REILY	08/50	07/85	21787
S REINHARDT	12/48	02/85	18344
C REYNOLDS	08/63	11/83	28690
J REZAC	11/61	12/82	26782
T RILEA	09/65	06/88	30733
R ROASE	09/57	02/85	23339
W ROASE	12/58	12/83	24156
K ROBERTS	03/47	01/72	15986
R ROEHL	04/52	09/78	18987
M ROUEN	12/41	09/72	13931
M SCHERER	07/67	07/88	32922
D SCHMELZ	10/55	01/83	21787
R SCHOENBORN	07/40	02/71	13460
T SCHWARTZ	06/54	01/88	24156
U SEAL	10/57	06/76	23339
G SELINSKY	09/41	06/72	13931
R SHAW	04/54	02/84	21051
D SMITH	04/47	02/81	18987
R SMITH	05/52	06/78	18987
W SNYDER	04/38	01/70	13005
M STERN	01/43	05/72	13931
B SVEUM	01/52	06/73	18987
A SVOBODNY	07/55	04/83	21787
E SWEIVEN	09/35	09/70	13005
B TANNER	04/69	02/88	34075
V TRAETOW	04/52	01/88	24156
R TROUSDALE	08/52	05/83	20339
D TSCHIMPERLE	01/65	04/85	29694
K TSCHIMPERLE	12/65	06/84	30733
J TUMBERG	03/64	11/84	28690
M VOBER	01/44	02/71	14419
D WALKER	12/46	06/74	15986
R WAMSLEY	08/59	08/85	25002
B WARD	09/62	06/83	27720
E WENSHAU	08/37	09/71	13460
C WILLIAMS	03/43	04/74	14923
M YOUNGGREN	12/53	01/88	24156

Table 2(c)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Monthly Benefits for Inactive Members as of January 1, 1989

<u>NAME</u>	<u>TYPE</u>	<u>MONTHLY BENEFITS</u>
B ANDERSON	RETIRED	1006
R ANDERSON	RETIRED	1006
R BOESER	RETIRED	1006
J BRENING	RETIRED	1006
D CARLSON	DEFERRED	1006
L CHADWICK	WIDOW	755
G CHAPLIN	DEFERRED	1006
C CHRISTENSEN	WIDOW	755
E CHRISTIAN	DEFERRED	1006
D CIARDELLI	RETIRED	1006
R CLEMENSEN	RETIRED	1006
J COLEHOUR	DISABLED	1006
D DODDS	RETIRED	1006
G DOUSETTE	RETIRED	1006
R EGLAND	RETIRED	1006
D ELFTMANN	RETIRED	1006
J ELLRICH	WIDOW	755
R ELM	RETIRED	1006
J ENGBERG	RETIRED	1006
W FABER	RETIRED	1006
I FINN	RETIRED	1006
N FISCHER	DEFERRED	1006
A FRIENDSHUH	RETIRED	1006
A FURULI	RETIRED	1006
N GABRIEL	RETIRED	1006
R GABRIEL	DEFERRED	1006
J GJEVRE	RETIRED	1006
P GOETTSCH	CHILD	521
G HAEG	DISABLED	1006
J HAEG	RETIRED	1006
W HAEG	RETIRED	1006
P HALL	RETIRED	1006
G HAYDEN	DEFERRED	1006
C HECHT	RETIRED	1006
C HEDIN	RETIRED	1006
R HEDIN	RETIRED	1006
K HEGER	RETIRED	1006
B HOAGLUND	WIDOW	755
B JUSTEN	WIDOW	755
M KAISER	RETIRED	1006

Table 2(c)

**BLOOMINGTON FIRE DEPARTMENT
RELIEF ASSOCIATION**

Monthly Benefits for Inactive Members as of January 1, 1989

<u>NAME</u>	<u>TYPE</u>	<u>MONTHLY BENEFITS</u>
E KEITH	RETIRED	1006
C KELLEY	RETIRED	1006
R KIMBLER	RETIRED	1006
H LANENBERG	RETIRED	1006
O LUND	WIDOW	755
R MACALLISTER	DISABLED	1006
D MARTENSON	RETIRED	1006
D MATTSON	DEFERRED	1006
R MCDONALD	RETIRED	1006
R MCKENZIE	RETIRED	1006
J MCWILLIAMS	DEFERRED	1006
G MILLER	RETIRED	1006
S MINION	DEFERRED	1006
D NAPIER	DEFERRED	1006
D NICHOLS	DEFERRED	1006
W NOLEEN	RETIRED	1006
D OLSON	RETIRED	1006
M PAHL	RETIRED	1006
E PETERSEN	RETIRED	1006
D PETERSON	DEFERRED	1006
D PETERSON	RETIRED	1006
S PETERSON	RETIRED	1006
M RUEGER	WIDOW	755
J SAVAGE	RETIRED	1006
R SAVAGE	RETIRED	1006
V SEGERSTROM	RETIRED	1006
D SHEFLET	DEFERRED	1006
B SMITH	RETIRED	1006
R SWANSON	RETIRED	1006
J THOMA	DEFERRED	1006
R THOMA	RETIRED	1006
F TMOMA	WIDOW	755
D TRAVERS	DEFERRED	1006
L TSCHIMPERL	RETIRED	1006
A WELTER	RETIRED	1006
C WILSON	DEFERRED	1006
G WILSON	DEFERRED	1006
L WISE	RETIRED	1006
M ZOCHERT	WIDOW	755

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.

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.

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.