

Report of
AN ACTUARIAL VALUATION
December 31, 1980
CITY OF COLUMBIA HEIGHTS
FIRE VOLUNTEER RELIEF ASSOCIATION
Columbia Heights, Minnesota

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May 19, 1981

City of Columbia Heights
Fire Volunteer Relief Associatio
Columbia Heights, Minnesota

Submitted in this report are the results of the December 31, 1980 actuarial valuation of the assets, actuarial values, and contribution requirements associated with the benefits provided by the City of Columbia Heights Fire Volunteer Relief Association.

The valuation results contained in Section A provide the actuarial information needed to determine the employer's "minimum obligation" effective January 1, 1982. Section A also contains comments regarding the valuation results.

The valuation was based upon information furnished by the association concerning benefits, financial transactions, active members, terminated members, retirants and beneficiaries. Data was checked for internal and year to year consistency but was not otherwise audited by us. This information is summarized in Section B.

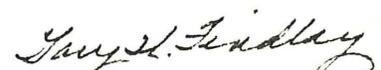
A description of the actuarial funding method and the risk experience assumptions used is contained in Section C. The economic risk experience assumptions as well as the actuarial funding method to be used are established by state law.

Information needed to comply with Statement of Financial Accounting Standards 35 is contained in Section D.

The actuarial valuation was prepared using generally accepted actuarial principles and practices based upon the methods, assumptions, summary of plan provisions and the member and financial data described in this report.

Respectfully submitted,


Robert M. O'Keefe


Gary W. Findlay

SECTION A
RESULTS OF THE VALUATION

COMMENTS

Funding Method Modification

The funding method used in preparing this valuation was the same as was used in your previous report, with the following exception: In the initial report, the cost of disability and death benefits was determined using a one year term cost method. In this report, these costs were determined using the entry age normal cost method. This change was made in order to comply with state law. The effect of this change alone was an increase in the contribution of \$168. This change increased the accrued liabilities \$6,906.

Benefit Increases

Benefits were increased 10% for active members and by various amounts for retired members. This change increased computed contributions by \$744. This resulted in an increase in accrued liabilities of \$42,555.

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION

CONTRIBUTION RATE TO PROVIDE BENEFITS

Member portion & Employer portion

Effective January 1, 1982

<u>Contributions for</u>	<u>If \$ Paid Equally Throughout Year Dollars</u>
Normal cost of annuities:	
Age & service: to members	\$5,392
Age & service: to survivors	706
Disability	1,023
Death before retirement	1,063
Refunds of member contributions	0
Total Normal Cost	<u>8,184</u>
Amortization of unfunded accrued liabilities (UAL)	
Retired lives	\$ 0
Active members	0
Total	<u>0</u>
Total Cost of Benefits	\$8,184
Member contributions	
COMPUTED EMPLOYER RATE:	
(a) If Paid Equally Throughout Year	\$8,184
(b) IF PAID AT CALENDAR YEAR END	\$8,386

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION

Present Actuarial Condition

The Association accrued actuarial assets were in excess of \$400,000 on December 31, 1980 -- a considerable sum of money if unencumbered and allocated among a small group of persons. This is not the case with Association assets.

The following schedule puts the \$400,000 into perspective by showing the relationship between accrued assets, accrued liabilities, and the number of persons with actual and potential claims on the Association's assets.

	<u>Accrued Actuarial Assets</u>	<u>Accrued Liabilities</u>	<u>Unfunded Accrued Liabilities</u>	<u>% Funded</u>
Retirants and Beneficiaries				
Retired Members (10)		\$164,360		
Surviving Spouse (0)		0		
Surviving Children (0)		0		
Total (10)	\$164,360	\$164,360	\$ 0	100%
Deferred Members (1)	26,340	26,340		
Active Members (20)	<u>239,842</u>	<u>86,140</u>	<u>(153,702)</u>	278
Totals	\$430,542	\$276,840	\$(153,702)	155%

Accrued liabilities represent the value, computed as of December 31, 1980 of:

- (i) retirement allowances likely to be paid the 10 retirants and beneficiaries;
and
- (ii) the contributions assumed to have been made for the 20 active members
from their entry into the plan until December 31, 1980.

To illustrate, the value of retirement allowances likely to be paid the 10 retirants and beneficiaries -- discounted for investment earnings and mortality -- was computed to be \$164,360 as of December 31, 1980. This means that if the 10 retirants and beneficiaries live and die according to the assumed mortality and if the \$164,360 can be invested to yield an average annual return of 5.0 percent over the remaining lifetimes of the 10 retirants and beneficiaries, then the \$164,360 together with investment earnings thereon will just be sufficient to pay the 10 retirants and beneficiaries their allowances for their remaining lifetimes.

With respect to active members, the accrued liability of \$86,140 represents the amount that would have been accumulated by December 31, 1980 if the normal cost (which is expressed as a level percentage of pay) had been contributed from the date of hire until December 31, 1980 for each of the 20 actives, if these amounts had earned 5.0% interest and if the members in the past had lived, died, withdrawn, retired and received salary increases according to the actuarial assumptions shown in this report.

Historical Funding Ratio Schedule
(\$ in thousands)

<u>Valuation Date December 31</u>	<u>Accrued Liabilities</u>	<u>Accrued Assets</u>	<u>Percent Funded</u>
1978	\$216	\$380	176%
1980	277	430	155

SECTION B
VALUATION DATA
AND
SUMMARY OF BENEFIT PROVISIONS

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION

Retirants and Beneficiaries December 31, 1980

By Type of Annuity Being Paid

<u>Type of Annuity Being Paid</u>	<u>No.</u>	<u>Monthly Amounts</u>	<u>Computed Accrued Liabilities</u>
Retirants receiving:			
Age & Service	10	\$1,349.40	\$164,360
Disability	—	—	—
Totals	10	1,349.40	164,360
Beneficiaries receiving:			
Spouse			
Child	—	—	—
Totals	0	0	0
Deferred Annuity	1	168.30	26,340
Totals	11	\$1,517.70	\$190,700

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION

Retirants and Beneficiaries December 31, 1980

By Attained Ages

<u>Attained Ages</u>	<u>Number</u>		
	<u>Age & Service Retirants</u>	<u>Disability</u>	<u>Death Before Retirement</u>
50-54	2		
55-59	1		
65-69	1		
70-74	4		
75-79	<u>2</u>		
Totals	10		

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION
Retirants and Beneficiaries Added to and Removed from Rolls

Comparative Statement

Valuation Date <u>December 31</u>	<u>No. Added to Rolls</u>	<u>No. Removed from Rolls</u>	<u>Rolls End of Year</u>		<u>% Incr. in Annual Allowances</u>	<u>Average Allowances</u>	<u>Discounted Value of Allowances</u>	
			<u>No.</u>	<u>Annual Allowances</u>			<u>Total</u>	<u>Average</u>
1978			11	\$14,424		\$1,311	\$160,436	\$14,585
1979			11	14,424	0%	1,311	158,176	14,380
1980			11	18,212	26	1,656	190,700	17,336

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION

Active Members December 31, 1980

Tabulated by Attained Age Groups and Years of Accrued Service

Attained Age Groups	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30 Plus</u>	Total No.
Under 20	1							1
20-24	1							1
25-29	5							5
30-34	2	2						4
40-44		3	2	1				6
45-49	<u> </u>	<u> </u>	<u>1</u>	<u>2</u>				<u>3</u>
Totals	9	5	3	3				20

Average age: 34.3 years

Average accrued service: 7.2 years

Valuation payroll: \$N/A

 There is one inactive member entitled to a deferred annuity.

The active member, retirant, and beneficiary data included in the valuation is shown in groups or summaries for reading convenience. Financial calculations were made individually for each covered person.

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION

Comparative Schedule

Of Active Members

Valuation Date December 31	Active Members	Valuation Payroll	Average			
			Age	Service	Pay	% Incr.
1978	20	\$N/A	33.3 yrs.	5.8 yrs.	\$N/A	
1979	20	N/A	33.5	6.3	N/A	
1980	20	N/A	34.3	7.2	N/A	

Columbia Heights Fire Department Relief Association (Volunteer Division)
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. For first 20 years of service, \$1,980 per year. For each year in excess of 20 an additional \$39.60 per year is added up to a maximum of \$2,376 per year for 30 or more years of service.

Disability Retirement

Eligibility. Disabled to the extent that no longer able to perform services required of a firefighter before being eligible for age & service retirement. If duty related, there is no service requirement. If non-duty related, member must have at least 10 years of service to qualify.

Amount. (1) Duty Related. Same as regular retirement assuming a minimum of 20 years of service.

(2) Non-Duty Related. For 10 years of service, \$594 per year. For each year in excess of 10 an additional \$72.60 per year is added up to a maximum of \$1,320 per year. Non-duty benefit payments do not begin until member reaches age 50.

Death Benefits

Eligibility.

Spouse. Legally married to member while active and at least 3 years prior to death and residing with member at time of death.

Child. Younger than age 16 or, if full time student, younger than age 18.

Amount. 1. If Death Occurs After 20 Years Service As Volunteer

Spouse. 40% of regular retirement benefit.

Child. \$99 per year per child with \$198 maximum per year.

Spouse and child benefits are not payable until such time as member would have reached age 50 had the member survived

2. If Death Occurs Prior To Completion Of 20 Years Service But After 10 Years Service And Death Is Not Duty Related.

Spouse. Lump sum payment of \$1,320 for first 10 years service plus \$176 for each full year in excess of 10 but less than 16 plus \$220 for each full year in excess of 15.

Child (maximum of 2). Lump sum payment of \$165 for first 10 years service plus \$22 for each full year in excess of 10 but less than 16 plus \$27.50 for each full year in excess of 15.

3. If Death Is Duty Related.

Spouse and Child. Same as benefits under 1. except that (i) benefits are payable immediately and (ii) if member was younger than age 50, benefits are based on 20 years service regardless of amount of actual service and at time member would have reached age 50 the benefit is recomputed to give credit for any actual service over 20 years.

In addition to the benefits listed, a lump sum payment of \$1,100 is paid to the surviving spouse or nearest living relative.

Vested Deferred

1. 10 But Less Than 20 Years Service.

Lump sum payment of \$3,300 for first 10 years plus \$440 per year for each full year in excess of 10 but less than 16 plus \$550 for each full year in excess of 15. Payment is deferred to age 50 and termination of service must have resulted from circumstances beyond the member's control.

2. More Than 20 Years Service And Separated Before Age 50.

Benefit amount is same as age & service benefit and payment beginning is deferred to attainment of age 50.

Member Contributions. None.

SECTION C
VALUATION METHODS AND ASSUMPTIONS

COLUMBIA HEIGHTS FIRE VOLUNTEER 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		Increasing		Men	Women
	For Life		3.5% Yearly			
	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 58, 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

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

SECTION D
ACCUMULATED PLAN BENEFITS

COLUMBIA HEIGHTS FIRE VOLUNTEER RELIEF ASSOCIATION
Statement of the Present Value of Accumulated Plan Benefits
December 31, 1980

Actuarial Present Value of
Accumulated Plan Benefits

Vested Benefits:	
Participants currently receiving payments	\$162,663
Other participants	<u>38,199</u>
Total Vested Benefits	<u>200,862</u>
Non-Vested Benefits	<u>55,335</u>
Total Actuarial Present Value of Accumulated Plan Benefits	\$256,197

The accompanying notes are an integral part of the Statement of the Present Value of Accumulated Plan Benefits.

1. The actuarial present value of accumulated plan benefits presented in this statement was determined using the following assumptions:
 - a. Future salary increases prior to retirement were not considered for active members.
 - b. Future service was considered only to the extent that it would permit active plan participants to become eligible for benefits attributable to service rendered prior to the date of determination.
 - c. Regular valuation assumptions were used as to mortality, withdrawal, retirement ages, and disability.
 - d. Investment return was assumed to be at the rate of 7% compounded annually.
 - e. Salary increase related post retirement benefit adjustments were assumed to be at the rate of 5 1/2% compounded annually unless a lower rate is specified by law.
2. The calculation of the actuarial present value of accumulated plan benefits was made because of the requirements of the Financial Accounting Standards Board. Comparison of this value with plan assets is not indicative of the future ability of the plan to pay benefits when due or of their security in a termination situation.

Calculation of contribution requirements and related benefit value information in a "going concern" environment according to the principles of level cost financing is made by the annual actuarial valuations. The results of the contribution rate calculations cannot be simply replaced by the accumulated plan benefit results. To do so will mislead.