

Crookston Police Relief Association



Annual Actuarial Valuation December 31, 1997

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June 9, 1998

Board of Trustees
Crookston Police Relief Association
Crookston, Minnesota

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Submitted in this report are the results of the December 31, 1997 actuarial valuation of the assets, actuarial values and contribution requirements associated with the benefits provided by the Crookston Police Relief Association.

The valuation results contained in Section A provide the actuarial information needed to determine the employer's "minimum obligation" effective January 1, 1999. 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 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 No. 25 of the Governmental Accounting Standards Board 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,

Norman S. Losk

Mary Ann Vitale

Section A



Valuation Results

COMMENTS

Economic Assumptions and Financing Method

The economic assumptions of 5% annual investment return and 3-1/2% annual salary increases are established by state law. State law also specifies that the annual minimum obligation of the municipality shall be determined by adding (i) the employer normal cost percent times covered payroll to (ii) the level dollar amount required to amortize the unfunded actuarial accrued liability by December 31, 2010.

It is worth noting that when the same assumptions and methods are applied to plans which differ in nature, the valuation results may not be comparable. Caution should be exercised when attempting to assess the financial condition of one Association relative to another on the basis of valuation results produced using the assumptions and methods mandated by state law.

CONTRIBUTION RATE TO PROVIDE BENEFITS
Member portion & Employer portion
Effective January 1, 1999

<u>Contributions for</u>	<u>If Paid Equally Throughout Year</u>		
	<u>Normal Cost</u> <u>% of Active</u> <u>Payroll for 1999</u>	<u>+</u>	<u>UAAL Dollars</u>
Normal cost of annuities:			
Age & service: to members	17.02%		
Age & service: to survivors	2.33		
Disability	1.42		
Death before retirement	1.56		
Refunds of member contributions	0.15		
Total Normal Cost	22.48%		
Amortization of unfunded actuarial accrued liabilities (UAAL) (12 year level dollar payment)			
Retired lives			\$ 0
Active members			<u>23,235</u>
Total			23,235
Total Cost of Benefits	22.48%	+	\$23,235
Member contributions	8.00%		
COMPUTED EMPLOYER RATE:			
(a) If Paid Equally Throughout Year	14.48%	+	\$23,235
(B) IF PAID AT CALENDAR YEAR END	14.84%	+	\$23,809

PRESENT ACTUARIAL CONDITION

The Association's accrued actuarial assets were in excess of \$1.9 million on December 31, 1997 -- a considerable sum of money if unencumbered and allocated among a small group of persons. This is not the case with the Association's assets.

The following schedule puts the \$1.9 million into perspective by showing the relationship between accrued actuarial assets, actuarial accrued liabilities, and the number of persons with actual and potential claims on the Association's assets.

	<u>Accrued Actuarial Assets</u>	<u>Actuarial Accrued Liabilities</u>	<u>Unfunded Actuarial Accrued Liabilities</u>	<u>Percent Funded</u>
Retirants and Beneficiaries				
Retired Members (8)		\$1,247,916		
Surviving Spouses (3)		92,412		
Surviving Children (0)		<u>0</u>		
Total (11)	\$1,340,328	\$1,340,328	\$ 0	100.0%
Deferred Members (1)	144,372	144,372	0	100.0
Active Members (3)	<u>501,788</u>	<u>712,832</u>	<u>211,044</u>	70.4
Total	\$1,986,488	\$2,197,532	\$211,044	90.4%

Actuarial accrued liabilities represent the value, computed as of December 31, 1997 of:

- (i) retirement allowances likely to be paid the 11 retirants and beneficiaries; and
- (ii) the contributions assumed to have been made for the 3 active members from entry into the plan until December 31, 1997.

The value of retirement allowances likely to be paid the 11 retirants and beneficiaries, discounted for investment earnings and mortality, was computed to be \$1,340,328 as of December 31, 1997. To put this amount in perspective, the \$1,340,328, together with investment earnings, will just be sufficient to pay the 11 retirants and beneficiaries their allowances for their remaining lifetimes. This assumes the 11 retirants and beneficiaries live and die according to the assumed mortality and the \$1,340,328 is invested to yield an average annual return of 5.0% over the remaining lifetimes of the retirants and beneficiaries.

With respect to the active members, the actuarial accrued liability of \$712,832 represents the amount that would have been accumulated by December 31, 1997. This assumes the normal cost (which is expressed as a level percentage of pay) had been contributed from the date of hire until December 31, 1997 for the 3 actives, and that these amounts had earned 5.0% interest. It also assumes that the members in the past have lived, died, withdrawn, retired and received salary increases according to the actuarial assumptions shown in this report.

HISTORICAL FUNDING RATIO SCHEDULE **(\$ IN THOUSANDS)**

Valuation Date December 31	Actuarial Accrued Liabilities	Accrued Actuarial Assets	Percent Funded
1988	\$1,708	\$1,270	74.4%
1989	1,865	1,375	73.7
1990	1,880	1,468	78.1
1991	2,005	1,570	78.3
1992	2,022	1,638	81.0
1993	2,025	1,690	83.5
1994	2,068	1,724	83.4
1995	2,099	1,785	85.0
1996	2,209	1,846	83.6
1997	2,198	1,986	90.4

COMPUTED CONTRIBUTIONS - COMPARATIVE SCHEDULE

Year Ended December 31		Total Normal Cost as a Percent of Valuation Payroll*	Contribution For Unfunded Actuarial Accrued Liabilities
Valuation	Fiscal		
1988	1990	23.47%	\$33,342
1989	1991	23.42	38,348
1990	1992	23.45	33,261
1991	1993	23.50	36,299
1992	1994	23.07	33,263
1993	1995	23.08	30,134
1994	1996	23.05	32,320
1995	1997	23.01	30,943
1996	1998	22.50	37,658
1997	1999	22.48	23,235

* Includes employee contributions.

CONTRIBUTION FOR CALENDAR YEAR EFFECTIVE JANUARY 1, 1999

For any period of time the percent-of-payroll contribution rate is converted to dollars. The amount of dollars for any calendar year depends upon the results of the last actuarial valuation, and the timing of contributions within the year. The later the contribution date, the greater the dollar amount will be.

The municipality's dollar contribution for the year may be determined as follows:

- | | | | |
|------|---|------------|----------|
| (1) | Estimated covered payroll for 1999 | | \$ _____ |
| (2) | Total normal cost % from page A-2 | | 22.48% |
| (3) | Total normal cost (Line 1 times line 2) | | \$ _____ |
| (4) | _____ x 1.035
1997 Administrative expenses paid from
the Special Fund | | _____ |
| (5) | Amortization payment on UAAL from page A-2 | | 23,235 |
| (6) | Total contributions required
(Line 3 plus line 4 plus line 5) | | _____ |
| (7) | Employee contributions (Line 1 times 8%) | | \$ _____ |
| (8) | (a) State amortization aid based on
12/31/78 UAAL of \$405,703 | \$6,106 | |
| | (b) State amortization aid based on
1984 legislation | <u>980</u> | |
| | (c) Total State amortization aid | | 7,086 |
| (9) | Estimated insurance premium aid | | _____ |
| (10) | Estimated total contributions from
other sources (Line 7 plus line 8 plus line 9) | | _____ |
| (11) | Employer's Minimum Obligation if payment
is made in equal installments throughout
the year (Line 6 minus line 10) | | \$ _____ |
| (12) | EMPLOYER'S MINIMUM OBLIGATION IF PAYMENT
IS MADE AT YEAR END (LINE 11 TIMES 1.0247) | | \$ _____ |

Section B

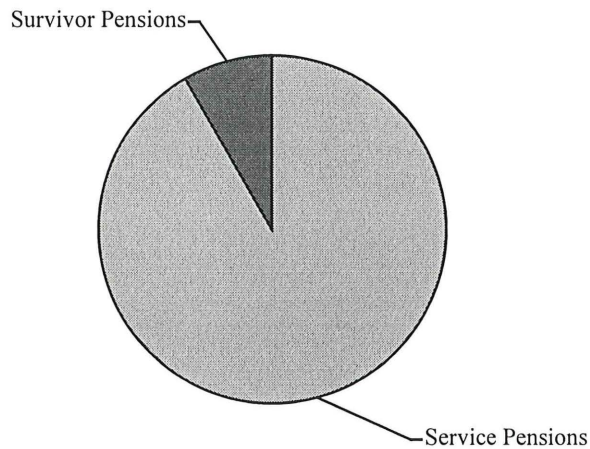


Valuation Data and Summary of Benefit Provisions

RETIRANTS AND BENEFICIARIES DECEMBER 31, 1997

BY TYPE OF ANNUITY BEING PAID

Type of Annuity Being Paid	No.	Monthly Amounts	Computed Actuarial Accrued Liabilities
Retirants receiving:			
Age & service	8	\$ 8,430.06	\$1,247,916
Disability	<u>0</u>	<u>0.00</u>	<u>0</u>
Totals	8	8,430.06	1,247,916
Beneficiaries receiving:			
Spouse	3	762.89	92,412
Child	<u>0</u>	<u>0.00</u>	<u>0</u>
Totals	3	762.89	92,412
Totals	11	\$9,192.95	\$1,340,328



Monthly Amount Paid by Benefit

INACTIVE MEMBERS ELIGIBLE FOR DEFERRED BENEFITS
DECEMBER 31, 1997

No.	Monthly Amount	Computed Accrued Liabilities
1	\$919.88	\$144,372

RETIRANTS AND BENEFICIARIES DECEMBER 31, 1997
BY ATTAINED AGES

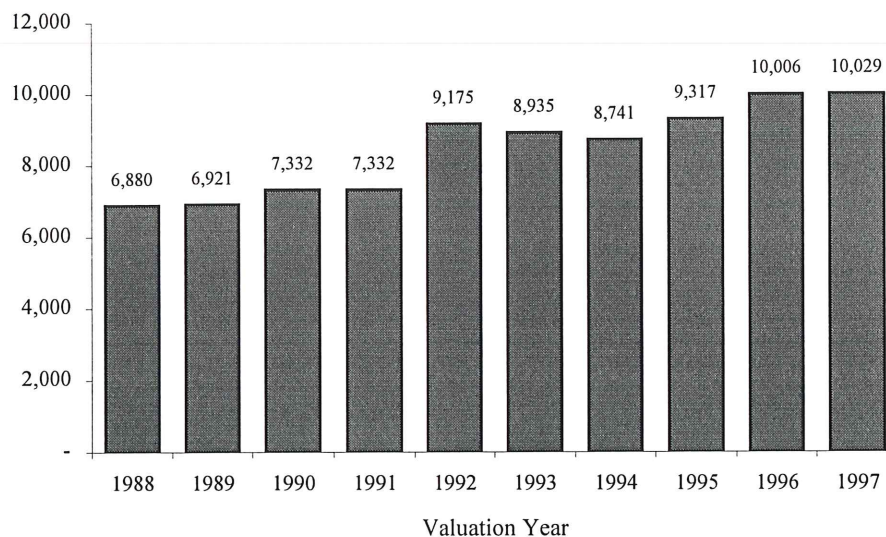
Attained Ages	Number		
	Age & Service	Disability	Death Before Retirement
50-54	2		
55-59	2		
60-64	3		
70-74	1		
75-79	1		
85-89	1		
90-94	1		
Totals	11		

RETIRANTS AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

COMPARATIVE STATEMENT

Valuation Date December 31	No. Added to Rols	No. Removed from Rols	Rols End of Year		Discounted Value of Total Allowances
			No.	Annual Allowances	
1988	2		12	\$ 82,560	\$1,039,332
1989			12	83,056	1,025,412
1990		1	11	80,653	1,001,616
1991			11	80,653	979,440
1992	1	1	11	100,930	1,237,272
1993	1		12	107,214	1,307,196
1994	1	1	12	104,891	1,255,212
1995		1	11	102,488	1,227,804
1996	1		12	120,070	1,466,460
1997		1	11	110,315	1,340,328

Average Annual Allowances



ACTIVE MEMBERS DECEMBER 31, 1997
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
40-44				1				1	\$ 44,798
45-49				1				1	52,038
50-54					1			1	41,061
Totals				2	1			3	\$137,897

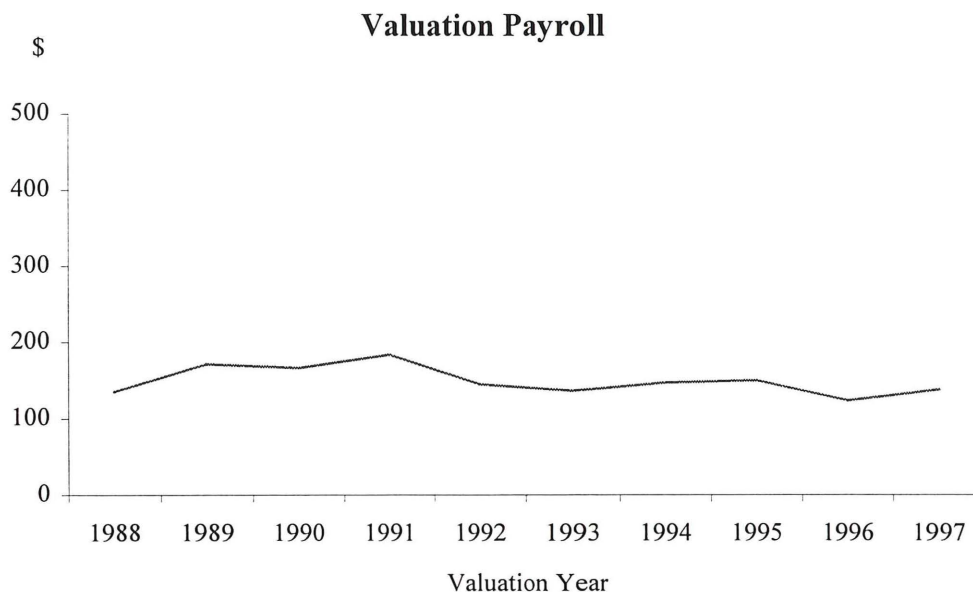
While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Group Averages:

Age: 46.0 years
Service: 20.4 years
Annual Pay: \$45,966

COMPARATIVE SCHEDULE OF ACTIVE MEMBERS

Valuation Date December 31	Active Members	Valuation Payroll	Average			
			Age	Service	Pay	% Incr.
1988	5	\$135,847	41.4 yrs.	14.0 yrs.	\$27,169	(0.3)%
1989	5	171,395	42.4	15.0	34,279	26.2
1990	5	166,447	43.4	16.0	33,289	(2.9)
1991	5	183,975	44.4	17.0	36,795	10.5
1992	4	144,996	42.5	16.0	36,249	(1.5)
1993	4	136,676	43.5	17.0	34,169	(5.7)
1994	4	147,317	44.5	18.0	36,829	7.8
1995	4	149,956	45.5	19.0	37,489	1.8
1996	3	123,757	45.0	19.4	41,252	10.0
1997	3	137,897	46.0	20.4	45,966	11.4



VALUATION METHODS AND ASSUMPTIONS

The Entry Age Normal Cost method was used to determine the normal cost of all benefits. The rate of investment return (interest) as required by state law used in making the valuation was 5.0 percent per annum, compounded annually. Age & service retirement was assumed to occur at age 58, attained age if older.

Mortality Table*

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	\$177.21	\$189.58	\$280.82	\$314.75	29.50	34.00
50	163.12	177.21	246.55	280.82	25.20	29.50
55	147.50	163.12	212.60	246.55	21.16	25.20
60	130.52	147.50	179.49	212.60	17.42	21.16
65	112.87	130.52	148.28	179.49	14.05	17.42
70	95.20	112.87	119.70	148.28	11.09	14.05
75	77.77	95.20	93.83	119.70	8.52	11.09
80	61.71	77.77	71.69	93.83	6.39	8.52

* UP-1984 Table set forward 2 years for males and set back 3 years for females.

SAMPLE RATES OF SEPARATING FROM ACTIVE EMPLOYMENT BEFORE RETIREMENT, DEATH OR DISABILITY

Sample Ages	% of Active Members Separating within Next Year
20	1.50%
25	1.25
30	1.00
35	0.75
40	0.50
45	0.25
50+	0.00

PAY ADJUSTMENT FACTOR USED TO PROJECT CURRENT PAYS

Sample Ages	Present Pay Resulting in Pay of \$1,000 at Age 60	Present Increase in Pay During Next Year
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

Use of the pay adjustment factor illustrated above is required by state law.

ANTICIPATED DISABILITY RETIREMENTS

Sample Ages	% of Active Members Becoming Disabled within Next Year
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



Financial Reporting

Statement Of Plan Net Assets
Market Value
As Of December 31, 1996 And 1997

	<u>1997</u>	<u>1996</u>
Assets:		
Cash and short-term investments	\$1,134,772	\$1,043,884
Receivables:		
Accrued interest	17,819	14,998
Accounts Payable:	(394)	(180)
Investments, at fair value:		
Common Stocks	-	-
Mutual Funds	207,506	192,550
Mortgages	-	-
Bonds	634,820	586,589
Real Estate	<u>-</u>	<u>-</u>
Total	\$ 842,326	\$ 779,139
Net assets held in trust for pension benefits*	\$1,994,523	\$1,837,841

* *A schedule of funding progress for the plan is presented on page D-4.*

Statement Of Changes In Plan Net Assets
For The Fiscal Years Ended December 31, 1996 and December 31, 1997

	<u>December 31, 1997</u>	<u>December 31, 1996</u>
Additions:		
Contributions		
Employer	\$ 157,215	\$ 59,302
Plan members	<u>8,887</u>	<u>8,412</u>
Total	166,102	67,714
Investment Income	<u>108,711</u>	<u>83,129</u>
Total Additions	\$ 274,813	\$ 150,843
Deductions:		
Benefits Paid	111,128	109,814
Refund of Contributions	-	-
Expenses	<u>7,003</u>	<u>9,771</u>
Total Deductions	\$ 118,131	\$ 119,585
Net Increase	\$ 156,682	\$ 31,258
Net assets held in Trust Fund:		
Beginning of year	\$1,837,841	\$1,806,583
End of year	<u>\$1,994,523</u>	<u>\$1,837,841</u>

Plan Description. The Crookston Police Relief Association is a single-employer defined benefit pension plan that covers the police department employees of the City of Crookston.

The plan provides retirement, disability, and death benefits to plan members and their beneficiaries.

Contributions. Plan members contributions as specified on page B-7.

The employer's funding policy provides for periodic employer contributions based upon a *fundamental financial objective of having rates of contribution which remain relatively level from generation to generation of the City of Crookston citizens*. To determine the employer contribution rates and to assess the extent to which the fundamental financial objective is being achieved, the System has actuarial valuations prepared annually. In preparing those valuations, the entry age actuarial cost method is used to determine normal cost and actuarial accrued liabilities.

Unfunded actuarial accrued liabilities (full funding credit) are amortized by level percent-of-payroll contributions over a period of future years as outlined on page A-2.

On the basis of the December 31, 1997 actuarial valuation, the employer rates were determined to be as follows:

Contributions for	
Normal Cost as a Percent of Active Member Payroll	Unfunded Actuarial Accrued Liabilities
14.48%	\$23,235

Required Supplementary Information
Schedule of Funding Progress
(Dollar amounts in thousands)

Actuarial Valuation Date	(a) Actuarial Value of Assets	(b) Entry Age Actuarial Accrued Liability (AAL)	(b)-(a) Unfunded AAL (UAAL)	(a)/(b) Funded Ratio	(c) Covered Payroll	[(b-a)/c] UAAL as a Percent of Covered Payroll
12/31/92	\$1,638	\$2,022	\$384	81.0%	\$145	264.8%
12/31/93	1,690	2,025	335	83.5	137	244.5
12/31/94	1,724	2,068	344	83.4	147	234.0
12/31/95	1,785	2,099	314	85.0	150	209.3
12/31/96	1,846	2,209	363	83.6	124	292.7
12/31/97	1,986	2,198	211	90.4	138	152.9

Schedule of Employer Contributions

Year Ended December 31	Annual Employer Contributions
1992	\$ 75,641
1993	75,849
1994	80,396
1995	83,700
1996	59,302
1997	157,215

Summary of Actuarial Methods and Assumptions

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	December 31, 1997
Actuarial cost method	Entry age actuarial cost method
Amortization method	Level percent of payroll
Remaining amortization period	See page A-2
Asset valuation method	Mandated by state law
Actuarial assumptions:	
Investment rate of return (net)	5.0%
Projected salary increases	3.5%
Assumed rate of payroll growth	3.5%
Assumed rate of membership growth	0%
Cost-of-living adjustments	0%

Appendices



APPENDIX I

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES

Promises Made, and Eventually Paid. As each year is completed, the plan in effect hands an "IOU" to each member then acquiring a year of service credit -- the "IOU" says: "The Pension Plan owes you a portion of your retirement benefits, payments to be made in cash, commencing when you qualify for retirement."

The related key financial questions are: Which generation of taxpayers contributes the money to cover the IOU? The present taxpayers, who receive the benefit of the member's present year of service? Or the future taxpayers, who happen to be in town paying taxes at the later time when the IOU becomes a cash demand?

A sound principle of sound retirement plan financing is to have this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this principle, THE CONTRIBUTION RATE WILL REMAIN APPROXIMATELY LEVEL FROM GENERATION TO GENERATION -- our children and grandchildren will contribute the same percents of active payroll we contribute now.

A PENSION PLAN BECOMES CLOSED

The diagram in this appendix shows two important activities which occur after a plan has been closed to employees hired in the future.

Cash benefits paid continue to increase for decades, while active member payroll begins to decrease to zero.

Funding Method. A funding method is the long-term, planned pattern for employer contributions.

For an open plan (a plan covering future employees), the level-percent-of-active-member payroll funding method is the basic funding method.

The level-percent funding method can also be applied to a closed plan. However, the resulting contribution percent usually jumps to a high rate, because the number of covered active members is decreasing.

A preferred funding method for a closed plan consists of: level-percent funding for normal cost (the cost of members' service now being rendered); plus a level dollar contribution for unfunded actuarial accrued liabilities over a limited period of years. The period of years must be limited so that plan assets don't become zero while benefits are still payable.

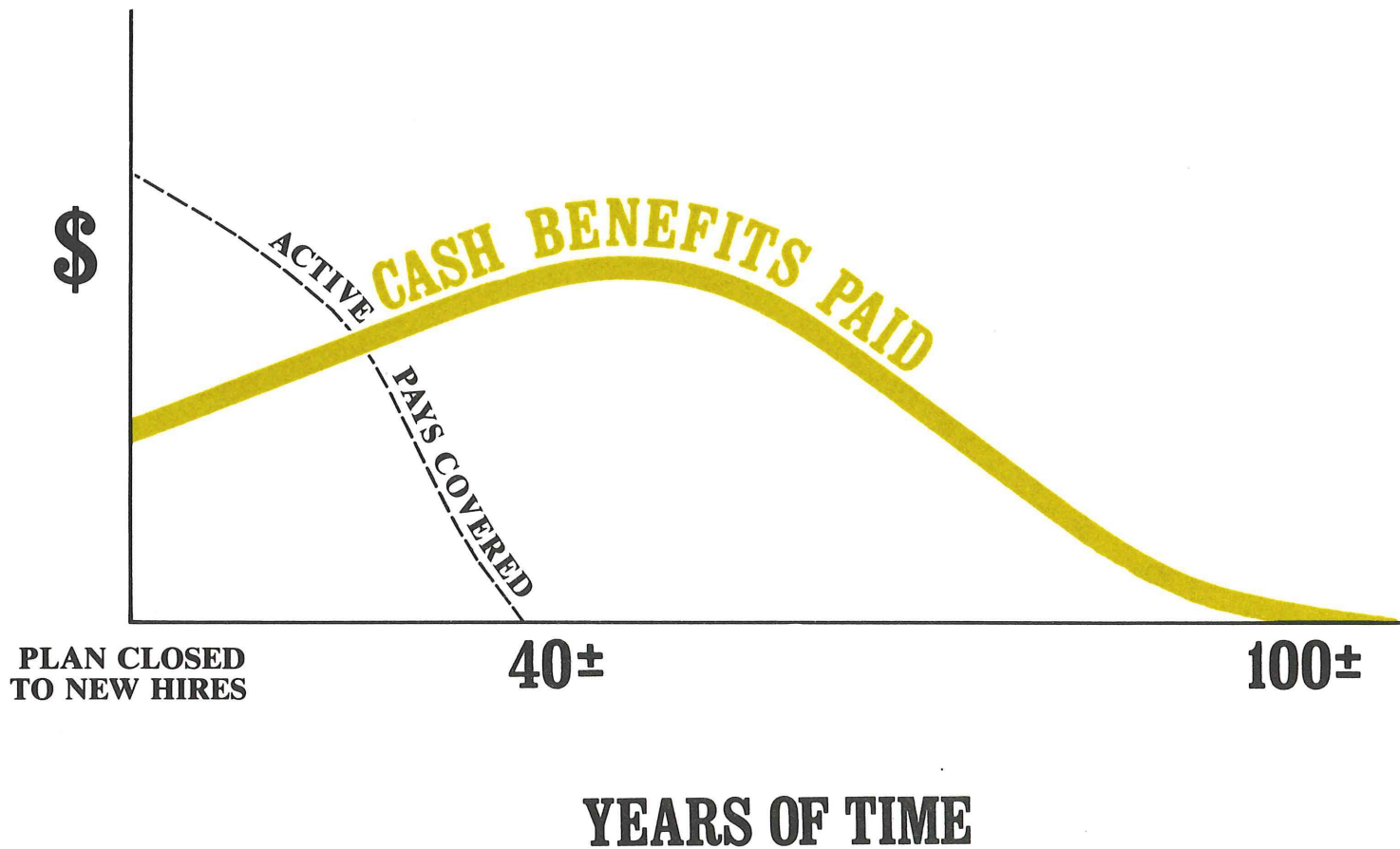
Computing Contributions To Support Plan Benefits. From a given schedule of benefits and from the employee data and asset data furnished him, the actuary determines the contribution rates to support the benefits by means of an actuarial valuation and a funding method.

In making an actuarial valuation, assumptions must be made regarding anticipated financial experiences for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions or the skill of the actuary and the millions of calculations he made. The future can be predicted with considerable but not 100% precision, except for inflation which seems to defy reliable prediction.

A well-managed plan copes with these continually changing differences by having periodic actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is continuing adjustment in financial position.

A CLOSED PENSION PLAN



A plan becomes closed when no new hires are admitted to active membership. The persons covered by the plan at the time of closing continue their normal activities and continue to be covered by the plan, until the last survivor dies.

CASH BENEFITS LINE. After a pension plan becomes closed, the usual pattern is for cash benefits to continue to increase for decades of time. Eventually the cash benefits will peak, and then gradually decrease over more decades of time, ultimately to zero. The last cash benefit is likely to occur a century after the time the plan is closed.

The precise amounts of cash benefits cannot be known now, and must be estimated by assumptions of future experiences in a variety of financial risk areas.

APPENDIX II

MEANING OF UNFUNDED ACCRUED LIABILITIES

Almost every pension plan (public or private) has "unfunded accrued liabilities," so whatever they are, they aren't rare. Since the term is not part of everyday conversation, it needs some definition.

"Accrued liabilities" are the present value \$ of plan promises to pay benefits in the future based upon service already rendered - - - a liability has been established ("accrued") because the service has been rendered, but the resulting monthly cash benefit may not be payable until years in the future. Accrued liabilities \$ are the result of complex mathematical calculations, which are made by the plan's actuary (which is the name given to the specialist who makes such calculations).

If "accrued liabilities" at any time exceed the plan's accrued assets (cash & investments), the difference is "unfunded accrued liabilities." This is the common condition. If the plan's assets equaled the plan's "accrued liabilities," the plan would be termed "fully funded." This is a rare condition.

Each time a plan adds a new benefit which applies to service already rendered, an "accrued liability" is created, which is also an "unfunded accrued liability" because the plan can't print instant cash to cover the accrued liability. Payment for such unfunded accrued liabilities is spread over a period of years, commonly in the 20-40 year range.

Unfunded accrued liabilities can occur in another way: If actual financial experience is less favorable than assumed financial experience, the difference is added to unfunded accrued liabilities. In plans where plan benefits are directly related to an employee's pay near time of retirement (a common plan provision) rather than his average pay throughout his working career, unfunded accrued liabilities have been increasing in recent years because unexpected rates of pay increase have created additional accrued liabilities which could not be matched by reasonable investment results. Some of these unexpected pay increases are the direct result of inflation, which is a very destructive force on financial stability.

The existence of unfunded accrued liabilities is not bad, then (any more than a mortgage on your house is "bad"), but the changes from year to year in amount of unfunded accrued liabilities are important - - - "bad" or "good" or somewhere in between.

Nor are unfunded accrued liabilities a bill payable immediately (your food costs are payable immediately), but it is important that policy-makers prevent the amount from becoming unreasonably high and it is vital that your plan have a sound method for making payments toward them so that they are controlled.

The existence of large amounts of unfunded accrued liabilities indicates that total contributions in past years were less than level - - - an almost certain history if retired life liabilities are not fully funded now.