Report of AN ACTUARIAL VALUATION December 31, 1981 of the Red Wing Fire Department Relief Association Red Wing, Minnesota

-

TABLE OF CONTENTS

Pages	Item
1	Signature Page
A-1	Comments
	Full Time Members
A-2	Contribution Rate
A-3	Present Actuarial Condition
A-6	Contirbution Worksheet
	Volunteer Members
A-7	Contribution Rate
A-8	Present Actuarial Condition
A-10	Contribution Worksheet
B-1	Retirant and Beneficiary Data
B - 4	Active Member Data
B - 7	Brief Summary of Benefits
B-9	Allocation of Plan Assets
C-1	Valuation Method and Assumptions
D-1	Accumulated Plan Benefits Schedule (for FASB 35 compliance)
Annondiv	I Financial Principles and Operational Techniques

Appendix I Financial Principles and Operational Techniques Appendix II Meaning of Unfunded Accrued Liabilities

GABRIEL, ROEDER, SMITH & COMPANY

ACTUARIES & CONSULTANTS

2090 First National Building Detroit. Michigan 48226 Area 313: 961-3346

August 30, 1982

Board of Trustees Red Wing Fire Department Relief Association Red Wing, Minnesota

Submitted in this report are the results of the December 31, 1981 actuarial valuation of the assets, actuarial values, and contribution requirements associated with the benefits provided by the Red Wing Fire Department Relief Association.

The valuation results contained in Section A provide the actuarial information needed to determine the employer's "minimum obligation" effective January 1, 1983. 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.

Section C contains a description of the actuarial funding method and the risk experience assumptions used. 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 Gary

Robert M. O'Keefe

SECTION A RESULTS OF THE VALUATION

.

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 <u>level dollar</u> amount required to amortize the unfunded accrued liability by December 31, 2010.

Over the past few years, both the actual rates of salary increase and investment return have generally exceeded the assumed rates, resulting in increases in the dollar amount of unfunded accrued liabilities. If the financial experiences of recent years persist, and the economic assumptions and financing method are not changed, it is reasonable to expect that unfunded accrued liabilities will increase in actual dollar amount for a number of years. This is true even though a level dollar amortization schedule is being followed. Accordingly, it is reasonable to expect that under the described conditions the actual dollar contributions required to make amortization payments will increase for a number of years. On the other hand, if inflation subsides and actual economic activity approaches assumed experience, it is reasonable to expect the dollar amount of the contribution to amortize the unfunded accrued liability to remain relatively constant. The notion that amortization dollar amounts may be increasing is not necessarily cause for alarm. If adjusted for changes in purchasing power, any future increases in the dollar contributions may or may not reflect increases in terms of real dollars (inflation adjusted dollars).

It is also worth noting that when the same assumptions and methods are applied to plans which differ in nature, the valuation results may not be comparable (for example, it is currently not valid to compare valuation results for a plan having full escalation to valuation results for a plan having a 3 1/2% cap on escalation). 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.

Full Time Members

CONTRIBUTION RATE TO PROVIDE BENEFITS

Member portion & Employer portion

Effective January 1, 1983

	If Paid Equally	Thr	oughout Year
Contributions for	Normal Cost % of Active Payroll for 1983	+	U.A.L. Dollars
Normal cost of annuities: Age & service: to members Age & service: to survivors Disability Death before retirement Refunds of member contributions Total Normal Cost	16.70% 4.23 2.56 3.10 0.39 26.98		
Amortization of unfunded accrued liabilities (UAL) (28 year level dollar payment) Retired lives Active members Total			\$ 4,573 <u>122,515</u> 127,088
Total Cost of Benefits	26.98%	+	\$127,088
Member contributions	8.00%		
COMPUTED EMPLOYER RATE: (a) If Paid Equally Throughout Year (b) IF PAID AT CALENDAR YEAR END	18.98% 19.45%	+ +	\$127,088 \$130,226

Full Time Members

Present Actuarial Condition

The Association accrued actuarial assets were in excess of \$1,035,000 on December 31, 1981 -- 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 \$1,035,000 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.

	Accrued Actuarial Assets	Accrued Liabilities	Unfunded Accrued Liabilities	% Funded
Retirants and Beneficiaries Retired Members (5) Surviving Spouses (1) Surviving Children (4)	\$	\$ 689,864 135,292 54,892	\$	0/ /0
Total (10)	810,232	\$ 880,048	69,816	92.1
Deferred Members (0)	0	0	0	0.0
Active Members (20)	225,259	2,095,756	1,870,497	10.7
Total	\$1,035,491	\$2,975,804	\$1,940,313	34.8%

Accrued liabilities represent the value, computed as of December 31, 1981 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, 1981.

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 \$880,048 as of December 31, 1981. This means that if the 10 retirants and beneficiaries live and die according to the assumed mortality and if the \$880,048 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 \$880,048 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 \$2,095,756 represents the amount that would have been accumulated by December 31, 1981 if the normal cost (which is expressed as a level percentage of pay) had been contributed from the date of hire until December 31, 1981 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	Fund	ling	Ratio	Schedule
(!	5 in	thou	(sands	

Full Time Members

Valuation Date December 31	Accrued Liabilities	Accrued Assets	Percent Funded
1978 1979 1980	\$1,702 N/A 2,716	\$ 566 N/A 824	33.3% N/A 30.3
1981	2,976	1,035	34.8

Full Time Members

Computed Contributions - Comparative Schedule

Year En Decembe Valuation	ded er 31 Fiscal	Total Normal Cost as a Percent of Valuation Payroll*	Contribution For Unfunded Accrued Liabilities - \$ or %
1978	1980	26.71%	\$ 71,087
1979	1981	N/A	N/A
1980	1982	27.06	121,907
1981	1983	26.98	127,088

* Includes funds received from state and funds received from local mill tax.

Full Time Members

CONTRIBUTION FOR CALENDAR YEAR EFFECTIVE JANUARY 1, 1983

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 upon 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 1983 \$	
(2)	Total normal cost % from page A-2 26.98%	
(3)	Total normal cost (Line 1 times line 2)	\$
(4)	Amortization payment on UAL from page A-2	127,088
(5)	Total contributions required (Line 3 plus line 4)	
(6)	Employee contributions (Line 1 times 8%) \$	
(7)	State amortization aid based on 12/31/78 UAL of \$1,135,939 17,096	
(8)	Estimated insurance premium aid	
(9)	Estimated total contributions from other sources (Line 6 plus line 7 plus line 8)	
(10)	Employer's Minimum Obligation if payment is made in equal installments throughout the year. (Line 5 minus line 9)	\$
(11)	EMPLOYER'S MINIMUM OBIIGATION IF PAYMENT IS MADE AT YEAR END (Line 10 times 1.0247)	\$

Volunteer Members

CONTRIBUTION RATE TO PROVIDE BENEFITS

Member portion & Employer portion

Effective January 1, 1983

Contributions for	If Paid	Equally Throughout	Year
Normal cost of annuities: Age & service: to members Death after retirement Disability Death before retirement Refunds of member contributions Total Normal Cost		\$ 823 156 132 <u>6</u> 1,117	
Amortization of unfunded accrued liabilities (UAL) (28 year level dollar payment) Retired lives Active members Total		\$1,663 577 2,240	
Total Cost of Benefits		\$3,357	
Member contributions		538	
COMPUTED EMPLOYER RATE: (a) If Paid Equaly Throughout Year (b) IF PAID AT CALENDAR YEAR END		\$2,819 \$2,889	in .

Volunteer Members

Present Actuarial Condition

The Association accrued actuarial assets were in excess of \$20,000 on December 31, 1981 -- 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 \$20,000 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.

		Accrued Actuarial Assets	Accrued Liabilities	Unfunded Accrued Liabilities	% Funded
Retirants and Benefici Retired Members (14 Surviving Spouses Surviving Children	aries)	\$	\$34 , 343	\$	%
Total (14)		14,878	\$34,343	19,465	43.3
Deferred Members (3)	т. Х	1,291	7,223	5,932	17.9
Active Members (28)		4,698	13,502	8,804	34.8
Total		\$20,867	\$55,068	\$34,201	37.9%

Accrued liabilities represent the value, computed as of December 31, 1981 of:

- (i) retirement allowances likely to be paid the 14 retirants and beneficiaries; and
- (ii) the contributions assumed to have been made for the 28 active members from their entry into the plan until December 31, 1981.

To illustrate, the value of retirement allowances likely to be paid the 14 retirants and beneficiaries, discounted for investment earnings and mortality, was computed to be \$34,343 as of December 31, 1981. This means that if the 14 retirants and beneficiaries live and die according to the assumed mortality and if the \$34,343 can be invested to yield an average annual return of 5.0 percent over the remaining lifetimes of the 14 retirants and beneficiaries, then the \$34,343 together with investment earnings thereon will just be sufficient to pay the 14 retirants and beneficiaries their allowances for their remaining lifetimes.

With respect to active members, the accrued liability of \$13,502 represents the amount that would have been accumulated by December 31, 1981 if the normal cost (which is expressed as a level percentage of pay) had been contributed from the date of hire until December 31, 1981 for each of the 28 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.

	Volunteer Mem	bers	
Valuation Date December 31	Accrued Liabilities	Accrued Assets	Percent Funded
1978 1979 1980 1981	\$55,480 N/A 55,597 55,068	\$18,442 N/A 19,750 20,867	33.2% N/A 35.5 37.9

Historical Funding Ratio Schedule (\$ in thousands)

Volunteer Members

CONTRIBUTION FOR CALENDAR YEAR EFFECTIVE JANUARY 1, 1983

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 upon 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)	Total normal cost	\$	1,117
(2)	Amortization payment on UAL from page A-7	_	2,240
(3)	Total contributions required (Line 1 plus line 2)	\$	3,357
(4)	Employee contributions \$		
(5)	State amortization aid based on 12/31/78 UAL of \$37,038 557		
(6)	Estimated insurance premium aid		
(7)	Total of line 4 plus line 5 plus line 6		
(8)	Employer's Minimum Obligation if payment is made in equal installments throughout the year. (Line 3 minus line 7)	\$	
(9)	EMPLOYER'S MINIMUM OBIIGATION IF PAYMENT IS MADE AT YEAR END (Line 8 times 1.0247)	\$	

Volunteer Members

Computed Contributions - Comparative Schedule

Year En Decembe Valuation	ded er 31 Fiscal	Normal Cost	Contribution For Unfunded Accrued Liabilities - \$ or %
1978	1980	\$1,096	\$1,808
1979	1981	N/A	N/A
1980	1982	1,406	2,310
1981	1983	1,117	2,240

SECTION B

VALUATION DATA

AND

SUMMARY OF BENEFIT PROVISIONS

Red Wing Fire Department Relief Association Retirants and Beneficiaries December 31, 1981

By Type of Annuity Being Paid

			Computed
Type of Annuity Being Paid	No.	Monthly Amounts	Accrued Liabilities
Retirants receiving: Age & Service Disability	5 0	\$3,530.71	\$689,864
Totals	5	3,530.71	689,864
Beneficiaries receiving: Spouse Child	1	533.59 556.75	135,292 54,892
Totals	5	1,090.34	190,184
Deferred Annuity	0		
Totals	10	\$4,621.05	\$880,048

Full Time Members

Volunteer Members

Type of Annuity Being Paid	No.	Monthly Amounts	Computed Accrued Liabilities
Retirants receiving: Age & Service Disability	14 	\$ 240.00	\$ 34,343
Total	14	240.00	34,343
Deferred Annuity	3	48.00	7,223
Totals	17	\$ 288.00	\$ 41,566

Retirants and Beneficiaries December 31, 1981

By Attained Ages

	<u>Full Tir</u>	ne Members	
		Number	
Attained Ages	Age & Service <u>Retirants</u>	Disability	Death Before Retirement
Under 20	1		3
50-54 55-59 60-64 65-69	1 3 1 1		
Totals	7		3

Voluteer Members

55–59 60–64 65–69	5 5 3
75-79	_1
Total	14

Retirants and Beneficiaries Added to and Removed from Rolls

Comparative Statement

Full Time Members

Valuation Date December 31	No. Added to Rolls	No. Removed from Rolls	<u>Rolls</u> <u>No.</u>	End of Year Annual Allowances	% Incr. in Annual Allowances	Average Allowances	Discounted Value of Allowances Total Average
1978 1979 1980 1981	3	1 4	12 12 14 10	\$40,508 56,753 64,040 55,453	40 13 (13)	\$3,376 4,729 4,574 5,545	\$655,342 \$54,611 839,734 69,978 922,157 65,868 880,048 88,005
			V	olunteer Membe	rs		
1978 1979 1980 1981	1	1	14 13 13 14	\$ 2,880 2,640 2,640 2,880	(9) 0 9	\$ 206 203 203 206	\$ 43,836 \$ 3,131 33,489 2,576 31,770 2,444 34,343 2,453

Full Time Members

Active Members December 31, 1981

By Attained Age and Years of Service

								Totals
Attained		Years	of Serv	ice to	Valuati	on Date		Valuation
Age	0-4	5-9	10-14	15-19	20-24	25-29 30 Plus	No.	Payroll
35-39		3					3	\$ 67,060
40-44		2	1				3	67,060
45-49		2	2		4		8	197,229
50-54			1	4	1		6	137,442
					······································			
Totals		7	4	4	5		20	\$468,791

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

Age: 46.2 years.

Service: 14.9 years.

Annual Pay: \$23,440.

Volunteer Members

Active Members December 31, 1981

By Attained Age and Years of Service

Attained		Years	of Serv	ice to	Valuati	on Date	
Age	0-4	5-9	10-14	15-19	20-24	25-29 30 Plus	Totals
			,				
20-24	2						2
25-29	5	1					6
30-34	2						2
35-39	2	4	1				/
40-44 45-49 50-54 55-59		1	2	2 1 3 1			5 2 3 1
		6		-			0.0
Totals	11	6	4	1			28

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

Age: 37.8 years. Service: 8.5 years.

Comparative Schedule

Of Active Members

Full Time Members

Valuation Date		Valuation		Averag	e	
December 31	Active Members	Payroll	Age	Service	Pay	% Incr.
× 1978	21	\$319,716	42.6 yrs.	11.7 yrs.	\$15 , 225	%
1979	21	407,088	43.6	12.7	19,385	27.3
1980	20	430,099	45.2	13.9	21,505	10.9
1981	20	468,791	46.2	14.9	23,440	9.0
,						
		Volunteer	Members			
1978	27	\$ N/A	37.3 yrs.	7.6 yrs.	\$ N/A	
1979	26	N/A	39.2	9.0	N/A	
1980	30	N/A	37.9	8.3	N/A	
1981	28	N/A	37.8	8.5	N/A	

Brief Summary (12/31/81) of Benefit Provisions Evaluated and/or Considered

Full Time

Age & Service Retirement

Eligibility. 20 years of service and 50 years of age.

<u>Amount.</u> For first 20 years of service, 40% of average annual wage. For each year in excess of 20 but less than 25 an additional 2% is added and for each year in excess of 25 and additional 1 1/2% is added. (Of the additional 1 1/2% for years over 25, 1/2% is not subject to the post retirement adjustment provisions.)

Average Annual Wage. Average annual salary for 3 highest paid years.

Disability Retirement

<u>Eligibility.</u> Disabled to the extent that no longer able to perform the duties of a firefighter before being eligible for age & service retirement.

Amount.

Duty Related. 40% of average annual wage plus 2% for each year in excess of 20 to a maximum of 50%.

<u>Non-duty Related.</u> 2% of average annual wage for each year of service. Minimum of 10% and maximum of 40%.

Member's Death While Active, Or In Deferred Status, Or Retired

Eligibility.

<u>Spouse.</u> Married to member at least one year at separtion from service and residing with member at time of death. Benefits terminate upon remarriage.

Child. Younger than age 18.

Amount.

Spouse. 25% of average annual wage.

Child. 8% of average annual wage per child.

<u>Funeral Expenses.</u> Lump sum payment of \$1,000 at time of death of active or retired member.

<u>Vested Deferred.</u> 20 years of service and separated before age 50. Payment beginning is deferred to attainment of age 50.

<u>Post Retirement Adjustments ("Escalator").</u> Benefits are increased January 1 for all benefit recipients in accordance with the increase in the Consumer Price Index during the preceeding year.

<u>Member Contributions.</u> 8% of basic compensation. Total member contributions are refundable, without interest, if no monthly benefit is payable upon separation from service.

Volunteer

Age & Service Retirement

Eligibility. 20 years of service and 55 years of age.

<u>Amount.</u> For 20 years of service, \$192 per year. For 25 years of service, \$240 per year.

Death Benefit

\$1,000 lump sum payment for funeral expenses.

<u>Vesting.</u> 20 years of service and separated before age 55. Payment beginning is deferred to attainment of age 55.

<u>Member Contributions.</u> \$19.20 per year. Total member contributions are refundable without interest if no monthly benefit is payable upon separation from service.

Allocation of Plan Assets

	F	ull Time	Volunteers		Totals
December, 1979	\$	635,398	\$17,955	\$	653,353
Employer Contributions Employee Contributions Investment Income* Realized Gains (Loss) Total Income	, ⁴ _	149,903 31,780 62,354 6,487 250,524	2,386 538 1,762 <u>183</u> 4,869	_	152,289 32,318 64,116 6,670 255,393
Monthly Benefit Payments Refunds Administrative Expenses Funeral Expenses Total Expenses	-	57,147 0 4,563 0 61,710	2,640 305 129 0 3,074		59,787 305 4,692 0 64,784
December, 1980	\$	824,212	\$19,750	\$	843,962
Employer Contributions Employee Contributions Investment Income* Realized Gains (Loss) Total Income	\$	147,246 44,223 86,136 2,839 280,444	\$ 1,491 740 2,064 <u>68</u> 4,363	\$	148,737 44,963 88,200 2,907 284,807
Monthly Benefit Payments Refunds Administrative Expenses* Funeral Expenses Total Expenses		65,994 0 3,171 0 69,165	2,880 290 76 <u>0</u> 3,246		68,874 290 3,247 0 72,411
December, 1981	\$1	,035,491	\$20,867	\$1	,056,358

* Allocated on the basis of beginning assets.

SECTION C VALUATION METHODS AND ASSUMPTIONS

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) used in making the valuation was 5.0 percent per annum, compounded annually. State law requires use of this assumption.

The mortality table used was the United States Life Table, 1959-61, White Males and White Females.

		Single Li	te Values:			
	Pre	sent Value	of \$1 Mont	thly		
	Le	vel	Increa	asing	Future	Life
Sample	For	Life	3.5%	fearly	Expectanc	y (Years)
Ages	Men	Women	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 Disa-

bility

Samp1e	% of Active Members
Ages	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

Sample _Ages	Present Pay Resulting in Pay of \$1,000 at Age 60	Percent 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

Pay Adjustment Factor used to Project Current Pays

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

Disability retirements were assumed to occur as indicated below:

Sample Ages	% of Active Members Becomin Disabled Within Next Year	g
20 25 30 35 40	0.08% 0.08 0.08 0.08 0.20	
45 50 55	0.26 0.49 0.89	

SECTION D

ACCUMULATED PLAN BENEFITS

Statement of the Present Value of Accumulated Plan Benefits

December 31, 1981

Actuarial Present Value of Accumulated Plan Benefits Full Time Volunteers Vested Benefits: \$ 882,610 \$29,647 Participants currently receiving payments 6,131 434,384 Other participants 1,316,994 35,778 Total Vested Benefits Non-Vested Benefits 927,056 9,011 Total Actuarial Present Value \$44.789 of Accumulated Plan Benefits \$2,244,050

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. APPENDICES

APPENDIX I

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES

<u>Promises Made, and Eventually Paid</u>. 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, <u>payments</u> 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?

<u>A sound principle of sound retirement plan financing is to have this year's taxpayers</u> <u>contribute the money to cover the IOUs being handed out this year. By following</u> <u>this principle, THE CONTRIBUTION RATE WILL REMAIN APPROXIMATELY LEVEL FROM GENERATION</u> <u>TO GENERATION</u> -- 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 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.

<u>Computing Contributions to Support Plan Benefits</u>. 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 <u>actuarial valuation and a</u> funding method.

In making an actuarial valuation, <u>assumptions must be made</u> regarding anticipated financial experiences for the next year and for decades in the future. <u>Only the sub-</u> <u>sequent actual experience of the plan can indicate the degree of accuracy of the as-</u> <u>sumptions</u>. <u>Reconciling Differences Between Assumed Experience and Actual Experience</u>. 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, <u>except for inflation which seems to defy</u> <u>reliable prediction</u>.

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



YEARS OF TIME

<u>A plan becomes closed</u> 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 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 "<u>unfunded accrued liabilities</u>". This is the common condition. If the plan's assets equalled 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 <u>inflation</u>, 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 <u>the changes from year to year in amount of unfund</u>ed 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.