City of Royal Oak
Retirement System

48th Annual Actuarial Valuation
June 30, 1996

Gabriel, Roeder, Smith & Company

GABRIEL, ROEDER, SMITH & COMPANY
Consultants & Actuaries

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April 16, 1997

The Board of Trustees
City of Royal Oak Retirement System
Royal Oak, Michigan

Dear Board Members:

The results of the ***48th Annual Actuarial Valuation*** of the City of Royal Oak Retirement System are presented in this report. The purpose of the valuation was to measure the system's funding progress and to determine the employer contribution rate for the ensuing fiscal year.

The valuation was based upon information, furnished by the City, concerning Retirement System benefits, financial transactions, and individual active, terminated and retired members and beneficiaries. Data was checked for internal and year to year consistency but was not otherwise audited by us.

The date of the valuation was ***June 30, 1996***.

To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice prescribed by the Actuarial Standards Board. We believe that in the aggregate, actuarial assumptions used for the valuation produce results which are reasonable.

Respectfully submitted,

Norman E. Jones Bryan E. Langer

NLJ/alv

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Section A

Valuation Results

FUNDING OBJECTIVE

The funding objective of the Retirement System is to establish and receive contributions, expressed as percents of active member payroll, which will remain approximately level from year to year and will not have to be increased for future generations of citizens.

CONTRIBUTION RATES

The Retirement System is supported by member contributions, City contributions and investment income from Retirement System assets.

Contributions which satisfy the funding objective are determined by the annual actuarial valuation and are sufficient to:

(1) Cover the actuarial present value of benefits allocated to the current year by the actuarial cost method described in Section C (the normal cost); and

(2) Finance over a reasonable period of future years the actuarial present value of benefits not covered by valuation assets and anticipated future normal costs (the unfunded actuarial accrued liability).

Computed contribution rates for the fiscal year beginning July 1, 1997 are shown on page A-2.

The City's established contribution rate of 5.62% is sufficient to finance the employer normal cost and to amortize the assets in excess of the actuarial accrued liability ($10,842,132 as of the June 30, 1996 valuation) as a level percent of payroll over a period of 10 years.

CONTRIBUTIONS TO PROVIDE BENEFITS
FISCAL YEAR BEGINNING JULY 1, 1997

Contributions for	% of Covered Payroll		
	General and Water	Police Officers and Firefighters	Weighted Average
Normal cost of benefits:			
Age & service	12.35%	15.31%	13.79%
Disability	2.15	3.22	2.67
Death before retirement	0.75	0.71	0.73
Deferred service pensions	0.99	0.69	0.84
Future refunds of member contributions	0.22	0.21	0.22
Post-retirement lump sum death benefits	0.02	0.01	0.02
Total	16.48	20.15	18.27
Member contributions	3.98	4.92	4.44
Employer normal cost	12.50	15.23	13.83
Unfunded actuarial accrued liability	0.00	0.00	0.00
Full funding credit*	(7.43)	(9.03)	(8.21)
COMPUTED EMPLOYER RATE	5.07%	6.20%	5.62%

* *As of June 30, 1996, the assets available to finance retirement allowances exceeded the actuarial accrued liability. Amortization of the excess over a 10 year period results in the full funding credit shown.*

Determining Employer Dollar Contributions

For any period of time, the percent-of-payroll contribution rate should be converted to dollars -- and then contributed to the Retirement System.

Recommended Procedure: (1) at the end of each payroll period, multiply the active member payroll for the period by the employer contribution percent; and (2) promptly contribute the dollar amount so determined.

The total active member payroll reported to us for this valuation was $14,991,326. Applying the weighted average employer contribution rate of 5.62% to this payroll produces annual employer contributions of $842,513 -- $390,356 for General and Water and $452,157 for Police and Fire.

Actual employer contributions for the last fiscal year were reported to be $1,901,974.

In financing the actuarial accrued liabilities, the present smoothed funding value of assets of $114,051,561 was distributed as follows:

	Present Assets Applied to			
Reserves for	**Member Actuarial Accrued Liabilities***	**Retired Life Liabilities**	**Health Insurance Reserve**	**Totals**
Employees' Contributions				
General Members	$ 2,441,217	$	$	$ 2,441,217
Police & Fire Members	4,306,888			4,306,888
Totals	6,748,105			6,748,105
Employer Contributions				
General Members	23,460,229	1,814,497		
Police & Fire Members	21,821,500	682,346		
Totals	45,281,729	2,496,843	8,479,772	56,258,344
Retired Benefit Payments		51,045,112		51,045,112
Totals	$52,029,834	$53,541,955	$8,479,772	$114,051,561

Assets were applied against actuarial accrued liabilities in determining unfunded actuarial accrued liabilities as follows:

	Retired Lives	**Active Members***	**Totals**
Computed Actuarial Accrued Liabilities	$53,541,955	$41,187,702	$ 94,729,657
Applied Assets	53,541,955	52,029,834	105,571,789
Unfunded Actuarial Accrued Liabilities/ (Full Funding Credit)	$ 0	$(10,842,132)	$ (10,842,132)

* *Includes inactive members eligible for deferred allowances.*

DERIVATION OF EXPERIENCE GAIN (LOSS)
YEAR ENDED JUNE 30, 1996

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is hoped that gains and losses will cancel each other over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of this year's experience gain (loss) is shown below.

		$1,000s
(1)	UAAL* at start of year	$ (5,300)
(2)	Normal cost from last valuation	2,650
(3)	Actual member and employer contributions	1,926
(4)	Interest accrual: (1) x .0775 + [(2) - (3)] x .03875	(383)
(5)	Expected UAAL before changes: (1) + (2) - (3) + (4)	(4,959)
(6)	Change from benefit improvements	0
(7)	Change from revised valuation procedures	0
(8)	Expected UAAL after changes: (5) + (6) + (7)	(4,959)
(9)	Actual UAAL at end of year	(10,842)
(10)	Gain (loss) (8) - (9)	5,883
(11)	Gain (loss) as percent of actuarial accrued liabilities at start of year ($92,495)	6.4%

* *Unfunded actuarial accrued liability.*

Primary sources of favorable experience during the past year were greater than assumed investment income and less than assumed salary increases. The 1995-96 recognized return based on the funding value of assets was 11.8% compared to an assumed rate of 7.75%.

Valuation Date	**Experience Gain (Loss) As % of Beginning of Year Accrued Liability**
5-31-91	0.8%
5-31-92	0.6
6-30-93	4.7
6-30-94	1.9
6-30-95	7.1
6-30-96	6.4

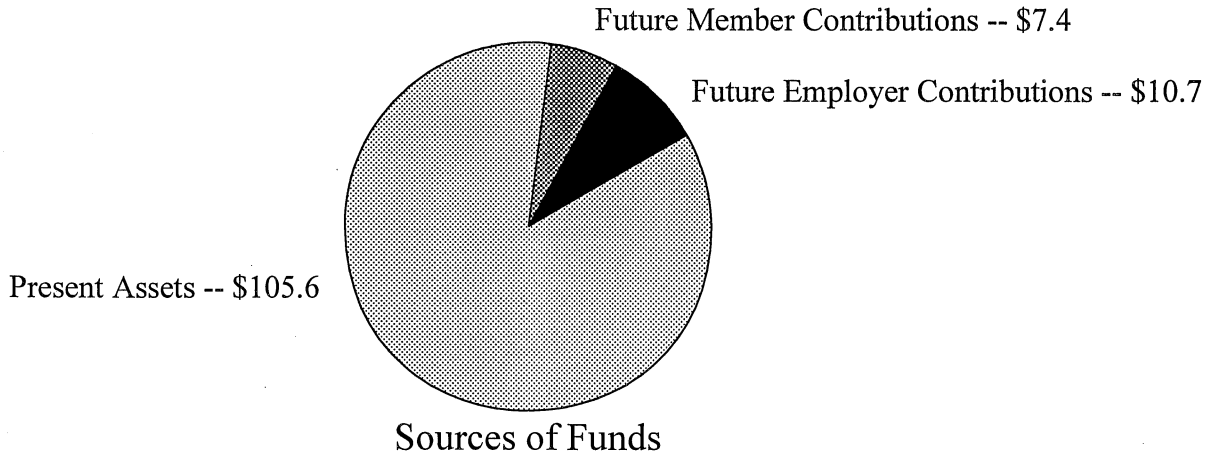
Present Resources and Expected Future Resources

A. Present valuation assets	
1. Net assets from system financial statements	$ 98,756,684
2. Market value adjustment	6,815,105
3. Valuation assets	105,571,789
B. Actuarial present value of expected future employer contributions	
1. For normal costs	21,583,689
2. For unfunded actuarial accrued liability	(10,842,132)
3. Total	10,741,557
C. Actuarial present value of expected future member contributions	7,344,469
D. Health Insurance Reserve	8,479,772
E. Total Present and Expected Future Resources	**$132,137,587**

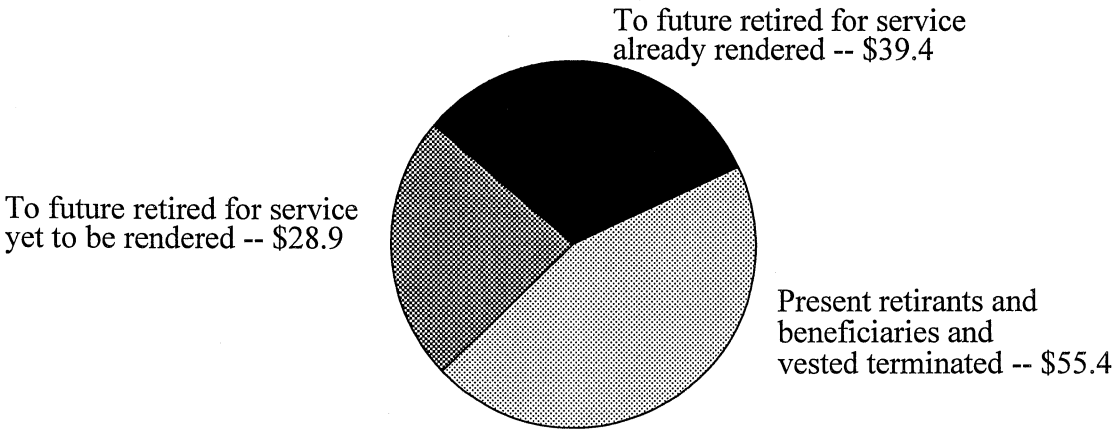
Actuarial Present Value of Expected Future Benefit Payments

A. To retirants and beneficiaries	
1. Annual pensions	$ 53,541,955
2. Reserve	0
3. Total	53,541,955
B. To vested terminated members	1,817,340
C. To present active members	
1. Allocated to service rendered prior to valuation date - actuarial accrued liability	39,370,362
2. Allocated to service likely to be rendered after valuation date	28,928,158
3. Total	68,298,520
D. Health Insurance Reserve	8,479,772
E. Total Actuarial Present Value of Expected Future Benefit Payments	**$132,137,587**

Financing $123.7 Million of Benefit Promises
June 30, 1996



Sources of Funds



Uses of Funds

COMPUTED CONTRIBUTIONS: There was a decrease in the computed contribution rate this year from 9.59% to 5.62% of payroll as follows:

	% of Payroll
Computed Contribution 6/30/95	9.59%
Experience	(3.97)
Computed Contribution 6/30/96	5.62%

OVERALL EXPERIENCE was more favorable than assumed during the year ending June 30, 1996 - primarily as a result of recognized investment return that was greater than assumed (see page B-13).

HEALTH INSURANCE: The following develops the balance of the Health Insurance Reserve as of June 30, 1996 assuming a maximum contribution is made to the reserve:

Balance as of June 30, 1995	$8,756,043
Contribution to HI Reserve for the year ended June 30, 1996	627,172*
HI premiums paid during the year ended June 30, 1996	1,865,624
Interest (11.8% assuming mid-year transactions)	962,181
Balance as of June 30, 1996	$8,479,772

* In accordance with section 401(h) of the Internal Revenue Code, the maximum contribution allocable to the Health Insurance Reserve in any given year is 25% of the smaller of (i) total member and employer contributions to the Retirement System, and (ii) the total normal cost contribution. For the year ended June 30, 1996, the maximum contribution to the Health Insurance Reserve was computed to be $627,172.

RESERVE TRANSFERS: The actuarial present value of benefits payable to General and Police-Fire retirants and beneficiaries on the rolls as of June 30, 1996, exceeded the reserves allocated to the General and Police-Fire divisions in the Reserve for Retired Benefit Payments by $1,814,497 and $682,346, respectively. In accordance with the Retirement System Ordinance, we recommend the transfer of $1,814,497 and $682,346 from the Reserves for Employer Contributions to the Reserves for Retired Benefit Payments, General and Police-Fire, respectively.

CONCLUSION: The City of Royal Oak Retirement System is in excellent financial condition in accordance with actuarial principles of level percent of payroll funding.

HEALTH INSURANCE: The balance in the Health Insurance Reserve as of June 30, 1996, assuming a maximum contribution is made to the reserve, was determined to be $8,479,772 as follows:

Balance as of June 30, 1995	$8,756,043
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CONCLUSION: The City of Royal Oak Retirement System is in excellent financial condition in accordance with actuarial principles of level percent of payroll funding.

ACTUARIAL ACCRUED LIABILITIES & ASSETS COMPARATIVE STATEMENT

Valuation Date	Actuarial Accrued Liability (AAL) ($1,000s)	Valuation Assets ($1,000s)	Unfunded Actuarial Accrued Liability (UAAL) ($1,000s)	Ratio of Valuation Assets to AAL	Ratio of UAL to Valuation Payroll
5-31-81*	$39,882	$26,639	$13,243	66.8%	135.7%
5-31-82	42,732	29,588	13,144	69.2	138.0
5-31-83	44,987	32,648	12,339	72.6	139.5
5-31-84*	49,397	35,642	13,755	72.2	139.2
5-31-85	52,062	38,438	13,624	73.8	132.5
5-31-86	52,625	41,593	11,032	79.0	105.6
5-31-87*	57,698	45,963	11,735	79.7	102.1
5-31-88	61,331	51,036	10,295	83.2	86.0
5-31-89*	65,212	54,259	10,953	83.2	93.8
5-31-90*	68,924	58,438	10,486	84.8	84.2
5-31-91*	73,106	62,262	10,844	85.2	82.7
5-31-92*	77,429	69,859	7,570	90.2	58.9
6-30-93*	84,193	77,427	6,766	92.0	49.5
6-30-94*	88,519	88,519	0	100.0	-
6-30-95*	92,495	97,795	(5,300)	105.7	-
6-30-96	**94,730**	**105,572**	**(10,842)**	**111.4**	**-**

* *After changes in benefit provisions and/or actuarial assumptions and actuarial cost methods.*

The Ratio of Present Assets to AAL is a traditional measure of a system's funding progress. Except in years when the system is amended or actuarial assumptions are revised this ratio can be expected to increase (or decrease) gradually toward 100%.

The Ratio of UAAL to Valuation Payroll is another relative index of condition. Unfunded actuarial accrued liabilities represent debt, while active member payroll represents the system's capacity to collect contributions to pay toward debt. The lower the ratio, the greater the financial strength - and vice-versa.

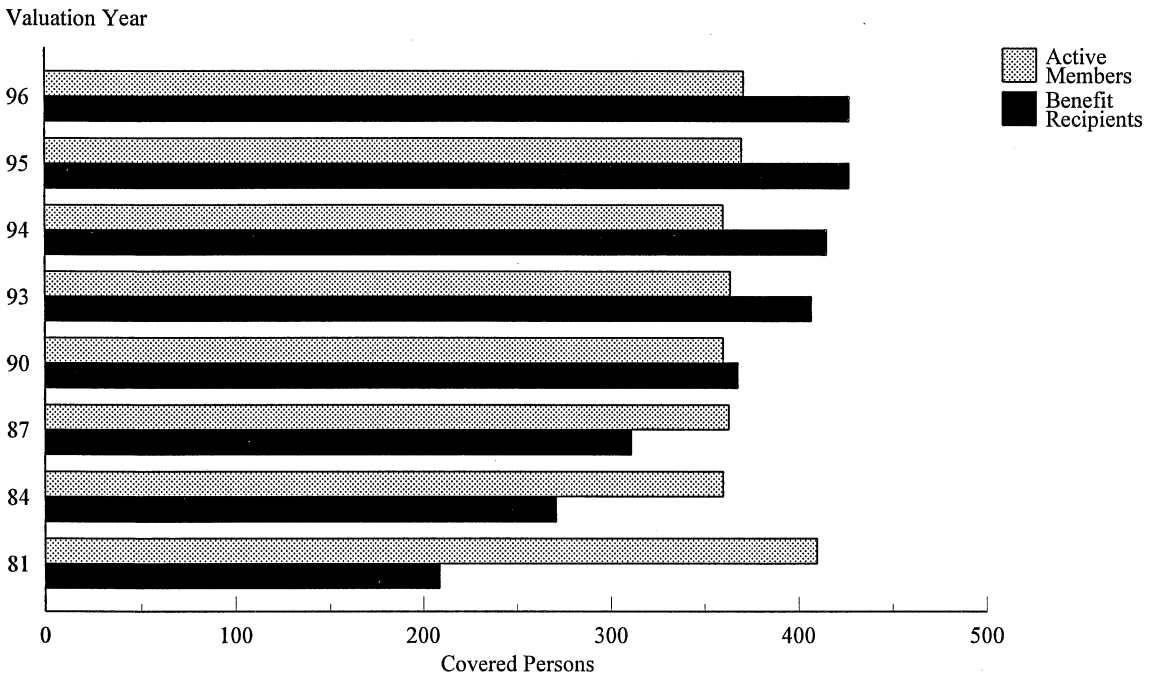
COMPUTED EMPLOYER CONTRIBUTIONS
COMPARATIVE STATEMENT

Valuation Date	Active Members				Retirants & Beneficiaries				Employer Contributions As Payroll Percents		
		Valuation Payroll					Annual Payroll				
	No.	Total	Average	% Incr.	No.	Active Per Retired	$	% of Payroll	General & Water	Police & Fire	Wt. Avg.
5-31-80*	424	$9,333,285	$22,012		189	2.2	$ 944,037	10.1%	19.23%	28.38%	
5-31-81*	410	9,762,463	23,811	4.6%	209	2.0	1,133,043	11.6	18.08	25.80	
5-31-82	376	9,523,807	25,329	(2.4)	231	1.6	1,380,622	14.5	17.86	25.72	
5-31-83	348	8,847,234	25,423	(7.1)	263	1.3	1,792,492	20.3	17.77	25.53	
5-31-84*	360	9,878,860	27,441	11.7	271	1.3	1,910,405	19.3	16.64	23.28	
5-31-85	358	10,280,426	28,716	4.1	288	1.2	2,125,341	20.7	16.49	22.68	
5-31-86	359	10,450,609	29,110	1.7	297	1.2	2,236,500	21.4	16.05	21.24	
5-31-87*	363	11,491,099	31,656	10.0	311	1.2	2,495,645	21.7	16.34	22.60	
5-31-88	364	11,974,522	32,897	4.2	330	1.1	2,842,657	23.7	15.75	22.26	
5-31-89*	357	11,681,433	32,721	(2.4)	363	0.98	3,535,678	30.3	17.39	22.32	
5-31-90*	360	12,453,638	34,593	6.6	368	0.98	3,594,058	28.9	16.95	23.12	
5-31-91*	357	13,112,701	36,730	5.3	374	0.95	3,763,075	28.7	16.50	24.52	
5-31-92#	352	12,844,067	36,489	(2.0)	395	0.89	4,317,111	33.6	15.53	23.58	
6-30-93*	364	13,664,416	37,540	6.4	407	0.89	4,597,263	33.6	17.02	22.50	
6-30-94*	360	14,109,602	39,193	3.3	415	0.87	4,894,145	34.7	11.85	15.16	13.48%
6-30-95*	370	14,595,387	39,447	3.4	427	0.87	5,375,306	36.8	9.45	9.75	9.59
6-30-96	371	14,991,326	40,408	2.7	427	0.87	5,529,852	36.9	5.07	6.20	5.62

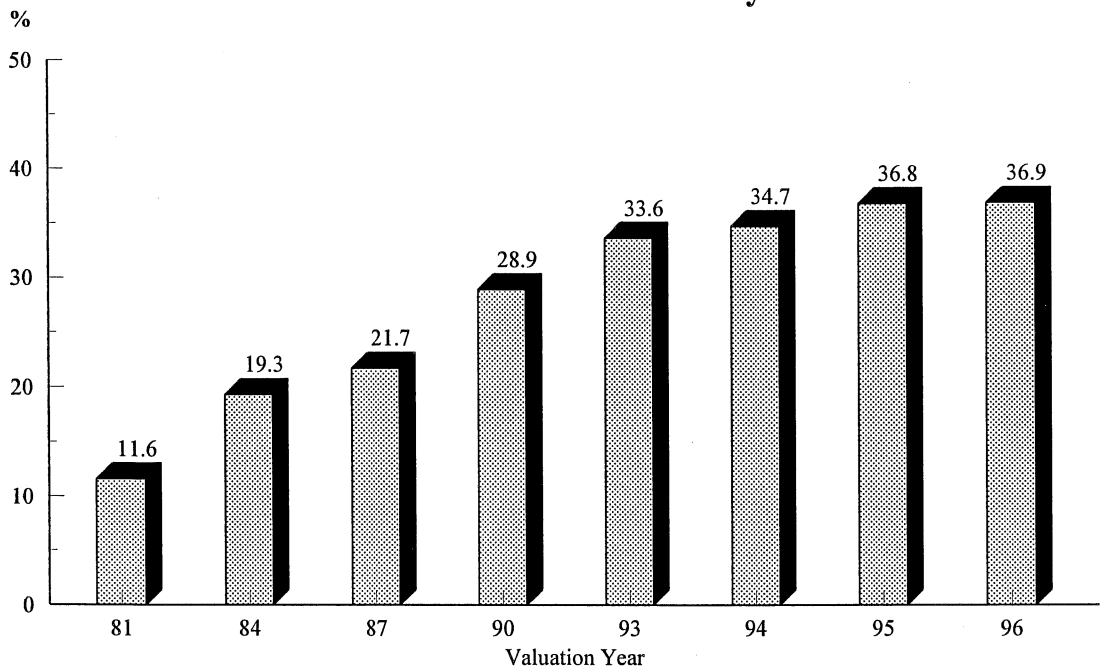
* *After changes in benefit provisions, actuarial assumptions and/or actuarial cost methods.*

\# *A smoothed funding value of assets was first used for the May 31, 1992 valuation, instead of the previously used book value.*

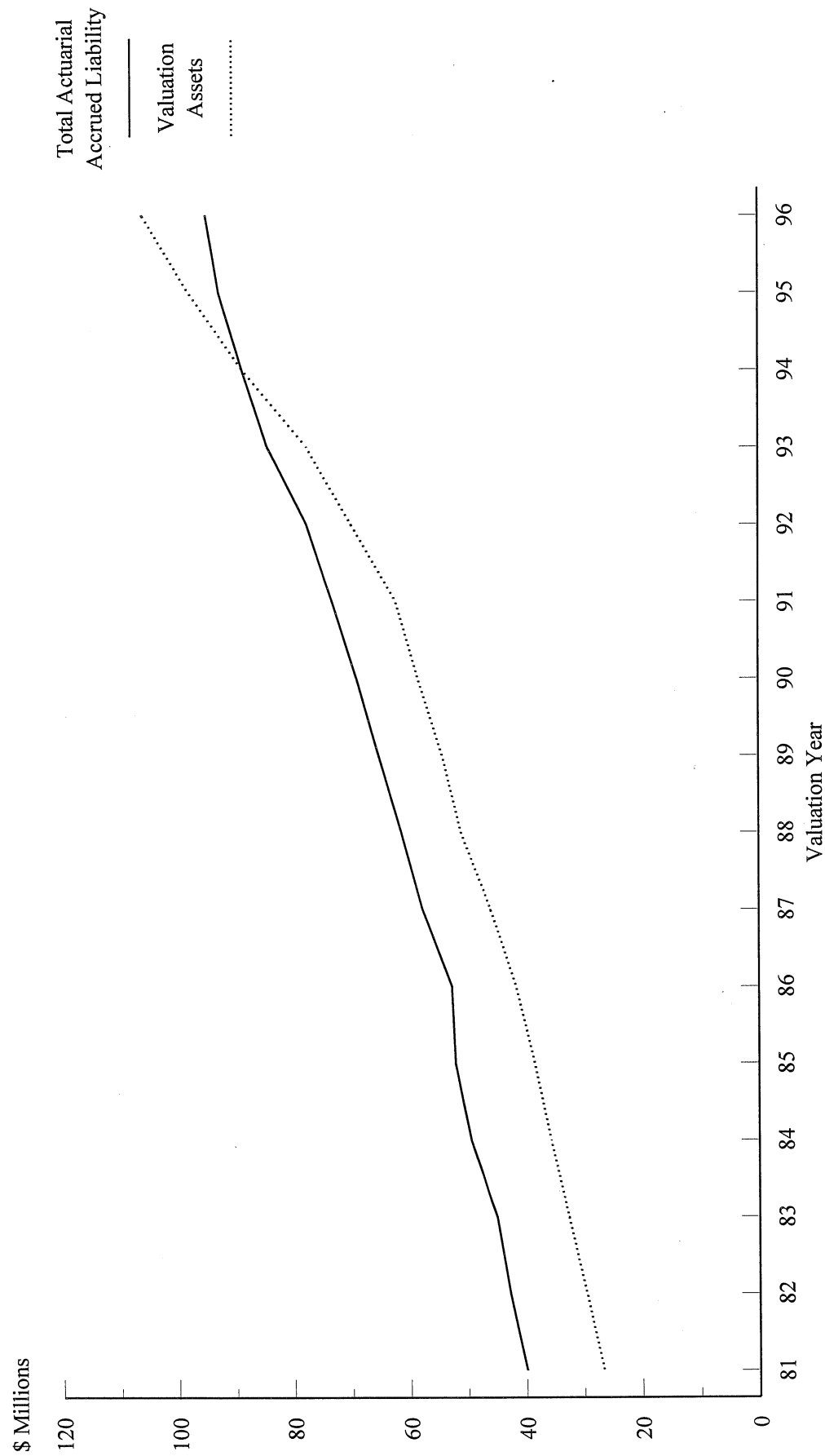
Active Members & Benefit Recipients



Benefits as a Percent of Payroll



Assets & Accrued Liabilities



Section B

Summary of Benefit Provisions and Valuation Data

SUMMARY OF BENEFIT PROVISIONS EVALUATED
JUNE 30, 1996

REGULAR RETIREMENT (no reduction factor for age):

Eligibility - Permanent - AFSCME, Executive Department Heads, Department Heads and Deputies, Technical and Professional, Police Service Aides: Age 55 with 25 years of service or age 60 with 5 years of service.

Supervisors, Local 270M: Age 50 with 30 years of service or age 60 with 5 years of service.

Police Command, Police Officers, Detectives: 25 years of service regardless of age, or age 55 with 10 years of service. Fire Fighters: Age 50 with 25 years of service or age 55 with 10 years of service.

Temporary Eligibility Until June 30, 2000 - Executive Department Heads, Department Heads and Deputies, AFSCME, Technical and Professional, and Supervisor members are eligible for regular retirement at age 50 with 25 years of service, age 55 with 20 years of service or age 60 with 5 years of service.

Local 270M members are eligible for regular retirement at 30 years of service regardless of age, age 50 with 25 years of service, age 55 with 20 years of service or age 60 with 5 years of service.

Type of Final Average Compensation (FAC): Executive Department Heads, Supervisors, AFSCME, Technical and Professional, Police Command, Detectives, Fire Fighters: Highest 2 years out of last 10 years. All others: Highest 2 consecutive years out of last 10 years.

Annual Amount - General: Total service times 2.2% of FAC with a maximum allowance of 75% of FAC. Police Service Aides: Total service times 2.0% of FAC with a maximum allowance of 80% of FAC minus the member's initial primary insurance amount under Social Security.

Police Officers, Command Officers, Detectives, Fire Fighters: FAC times the sum of 2.8% for each of the first 20 years of service, 2.0% for each of the next 6 years, and 1% for each year of service thereafter to maximum of 75% of FAC.

DEFERRED RETIREMENT (vested benefit):

Eligibility - General: 5 years of service.
- Police Command, Police Officers, Detectives, Police Service Aides, Fire Fighters: 10 years of service.

Annual Amount - Same as regular retirement but based upon service and final average compensation at time of termination.

AFSCME, Executive Department Heads, Department Heads and Deputies, Technical and Professional, Police Service Aides: Payable at age 60 with 5 years of service, or age 55 with 25 years of service.

Supervisor and Local 270M: Payable at age 50 with 30 years of service or age 60 with 5 years of service.

Police Command, Fire Fighters: Payable at age 50 with 25 years of service, or age 55 with 10 years of service.

Police Officers, Detectives: Payable at age 55 with 10 years of service.

DUTY DISABILITY RETIREMENT:

Eligibility - No age or service requirements.

Annual Amount - AFSCME: 66-2/3% of base monthly salary, with recomputation to 70% after 5 years of disability and 75% after 10 years. Maximum benefit is $2,000/mo.

Other General: 66-2/3% of base monthly salary at time of injury. Benefit is payable until voluntary retirement age.

Maximum monthly benefit:

Dept. Heads & Deputies is $5,000.
Professional & Technical is $3,500.
Local 270M, Supervisors is $2,000.

Police Command, Police Officers and Detectives: 66-2/3% of base monthly salary at time of injury. Benefit is payable until age 55. Worker's compensation is offset.

Maximum monthly benefit:

Police Officers is $2,000.
Police Command is $2,500.
Detectives is $2,500.

Police Service Aides: 66-2/3% of base monthly salary at time of injury. Benefit is payable until age 60. Worker's compensation is offset. Maximum monthly benefit is $2,000.

Fire Fighters: 66-2/3% of base monthly salary at time of injury. Benefit is payable until individual reaches minimum retirement requirements. Worker's compensation is offset. Maximum monthly benefit is $2,000.

NON-DUTY DISABILITY RETIREMENT:

Eligibility - Local 270-M: 10 years of service.
- Others: 5 years of service.

Annual Amount - Fire Fighters: 50% of base monthly salary at time of disability. Benefits are payable the same as duty disability.

Others: 66-2/3% of base monthly salary at time of disability. Benefits are payable the same as duty disability.

DUTY DEATH BEFORE RETIREMENT:

Eligibility - No age or service requirements.

Annual Amount - Computed as regular retirement but with additional service credit from date of death until date age 60 would have been attained. Spouse is paid 75% of regular retirement benefit; 1 or 2 unmarried children under age 19 - 10% of regular retirement benefit per child; 3 or more unmarried children under age 19 - an equal share of 25% of regular retirement benefit; unmarried children under age 19 and no spouse - an equal share of 75% of regular retirement benefit. Worker's Compensation payments are offset. Maximum benefit for Police & Fire is 75% of final average earnings. Maximum benefit for Local 270M and Supervisors is 75% of FAC. Maximum benefit for all others is 80% of FAC.

NON-DUTY DEATH BEFORE RETIREMENT:

Eligibility - 3 years of service.

Annual Amount - Same as duty death retirement.

AUTOMATIC DEATH BENEFIT AFTER RETIREMENT:

Retirants of all benefit groups are entitled to the provision whereby 75% of the retirant's straight life pension will be continued to the surviving spouse upon retirant's death with no corresponding reduction in straight life pension.

LUMP SUM DEATH BENEFIT AFTER RETIREMENT:

$4,000 for all divisions.

MEMBER CONTRIBUTIONS:

General:

	Percent of Annual Compensation	
	To Social Security Wage Base	**Over Social Security Wage Base**
AFSCME	3.00%	5.00%
Executive Department Heads, Department Heads and Deputies	3.50	5.50
Technical and Professional	4.00	6.00
Other General	5.00	7.00
Police Service Aides	3.00	5.00

Police Command, Police Officers, Detectives & Fire Fighters: 5.00% of annual compensation.

ANNUITY WITHDRAWAL:

Members may withdraw their accumulated member contributions upon retirement with a corresponding reduction in pension amount.

RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS
COMPARATIVE STATEMENT

Valuation Date	Added to Rolls		Removed from Rolls			Net Increase		Rolls End of Year	
			No.						
	No.	Annual Allowances	A	E	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances
5/31/76	5	$ 33,384			$	5	$ 33,384	143	$ 495,435
5/31/77	18	178,635	2		80,268	16	98,367	159	593,802
5/31/78	23	191,026	6		18,195	17	172,831	176	766,633
5/31/79	15	432,006	4		315,957	11	116,049	187	882,682
5/31/80	15	87,659	13		26,304	2	61,355	189	944,037
5/31/81	24	544,336	4		355,330	20	189,006	209	1,133,043
5/31/82	33	336,714	11		89,135	22	247,579	231	1,380,622
5/31/83	42	453,290	10		41,420	32	411,870	263	1,792,492
5/31/84	17	175,727	9		57,814	8	117,913	271	1,910,405
5/31/85	29	283,601	12	8.8	68,665	17	214,936	288	2,125,341
5/31/86	17	147,292	8	9.3	36,133	9	111,159	297	2,236,500
5/31/87	22	288,998	8	9.9	29,853	14	259,145	311	2,495,645
5/31/88	26	403,952	7	10.1	56,940	19	347,012	330	2,842,657
5/31/89	41	748,391	8	10.7	55,370	33	693,021	363	3,535,678
5/31/90	15	184,697	10	11.8	126,317	5	58,380	368	3,594,058
5/31/91	18	292,334	12	12.8	123,317	6	169,017	374	3,763,075
5/31/92	37	668,965	16	13.6	114,929	21	554,036	395	4,317,111
6/30/93	27	408,146	15	13.9	127,994	12	280,152	407	4,597,263
6/30/94	26	456,550	18	14.3	159,668	8	296,882	415	4,894,145
6/30/95	21	513,916	9	13.5	32,755	12	481,161	427	5,375,306
6/30/96	12	272,020	12	13.5	117,474	0	154,546	427	5,529,852

A - Represents actual number.
E - Represents expected number based on actuarial assumptions.

RETIREES AND BENEFICIARIES JUNE 30, 1996
TABULATED BY TYPE OF ALLOWANCE BEING PAID

Type of Allowances Being Paid	Annual Retirement Allowances					
	General & Water		Police Officers & Firefighters		Totals	
	No.	Amount	No.	Amount	No.	Amount
Age and Service allowances						
Regular allowance - benefit terminating at death of retirant	88	$ 712,255	25	$ 592,155	113	$1,304,410
- with potential to spouse	98	1,141,623	101	2,257,764	199	3,399,387
Option II allowance - joint and survivor benefit	3	12,418	3	8,812	6	21,230
Option III allowance - modified joint and survivor benefit	3	9,193	3	41,566	6	50,759
Allowance to survivor beneficiary of deceased retirant	30	127,553	27	319,937	57	447,490
Total Age and Service Allowances	222	2,003,042	159	3,220,234	381	5,223,276
Casualty Allowances						
Duty Disability Allowances						
Regular allowance	1	1,066	1	3,404	2	4,470
Modified joint and survivor benefit	2	7,265			2	7,265
Spouse	—	—	1	3,228	1	3,228
Totals	3	8,331	2	6,632	5	14,963
Non-Duty Disability Allowances						
Regular allowance			1	9,418	1	9,418
With potential to spouse	1	6,552	3	32,217	4	38,769
Spouse	2	6,211	2	17,860	4	24,071
Total	3	12,763	6	59,495	9	72,258
Duty Death Allowances						
Spouse	1	2,102			1	2,102
Non-Duty Death Allowances						
Spouse	16	103,684	9	99,952	25	203,636
Child(ren)	4	8,225	2	5,392	6	13,617
Totals	20	111,909	11	105,344	31	217,253
Total Casualty Allowances	27	135,105	19	171,471	46	306,576
Total Allowances Being Paid	**249**	**$2,138,147**	**178**	**$3,391,705**	**427**	**$5,529,852**

RETIREES AND BENEFICIARIES JUNE 30, 1996
TABULATED BY ATTAINED AGES

Attained Ages	Age and Service		Casualty		Totals	
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances
Under 20		$	6	$ 13,617	6	$ 13,617
40-44			3	52,584	3	52,584
45-49	5	130,772			5	130,772
50-54	21	545,260	1	8,525	22	553,785
55-59	36	1,013,604	3	44,076	39	1,057,680
60-64	51	989,803	5	32,847	56	1,022,650
65-69	87	1,277,516	8	80,488	95	1,358,004
70-74	73	666,808	6	34,615	79	701,423
75-79	60	395,190	5	16,083	65	411,273
80	4	41,909	4	9,272	8	51,181
81	13	54,986	2	4,390	15	59,376
82	5	18,573			5	18,573
83	6	24,168			6	24,168
84	3	13,925			3	13,925
85	4	15,939			4	15,939
86	1	3,009			1	3,009
87	5	18,626	1	3,576	6	22,202
88	3	6,980			3	6,980
90	1	635			1	635
91	1	$3,146	1	$2,861	2	$6,007
92			1	3,642	1	3,642
96	1	1,881			1	1,881
98	1	546			1	546
Totals	**381**	**$5,223,276**	**46**	**$306,576**	**427**	**$5,529,852**

INACTIVE MEMBERS JUNE 30, 1996
TABULATED BY ATTAINED AGES

Also included in the valuation were 32 General members and 3 Police Officer/Firefighter members who are eligible for estimated deferred allowances of $350,262 upon attainment of voluntary retirement age. Some of these 35 inactive members are presently covered under either a long-term disability insurance policy or worker's compensation.

Attained Ages	Estimated Deferred	
	No.	Annual Allowances
28	1	$ 11,727
30	1	3,151
35	1	9,858
36	1	5,497
40	2	14,889
41	1	6,607
42	1	3,257
43	2	26,140
44	1	10,946
45	2	9,736
47	2	37,521
49	2	51,882
50	1	29,193
51	2	31,081
52	2	26,233
53	2	9,655
56	3	14,924
57	4	37,631
59	2	3,250
64	1	4,902
66	1	2,182
Totals	**35**	**$350,262**

ACTIVE MEMBERS -- COMPARATIVE SCHEDULE

Valuation Date	Active Members	Valuation Payroll	Average			
			Age	Service	Pay	% Incr.
5-31-80	424	$ 9,333,285	45.2 yrs.	14.2 yrs.	$22,012	
5-31-81	410	9,762,463	44.9	14.2	23,811	8.2%
5-31-82	376	9,523,807	45.0	14.3	25,329	6.4
5-31-83	348	8,847,234	44.2	13.8	25,423	0.4
5-31-84	360	9,878,860	44.3	13.6	27,441	7.9
5-31-85	358	10,280,426	44.1	13.3	28,716	4.6
5-31-86	359	10,450,609	43.8	13.2	29,110	1.4
5-31-87	363	11,491,099	43.7	12.9	31,656	8.7
5-31-88	364	11,974,522	43.3	12.6	32,897	3.9
5-31-89	357	11,681,433	42.0	11.2	32,721	(0.5)
5-31-90	360	12,453,638	42.0	11.4	34,593	5.7
5-31-91	357	13,112,701	42.2	11.8	36,730	6.2
5-31-92	352	12,844,067	41.9	11.6	36,489	(0.7)
6-30-93	364	13,664,416	41.7	11.5	37,540	2.9
6-30-94	360	14,109,602	41.6	11.3	39,193	4.4
6-30-95	370	14,595,387	41.3	10.8	39,447	0.6
6-30-96	371	14,991,326	41.5	10.9	40,408	2.4

ACTIVE MEMBERS - JUNE 30, 1996

Group	Active Members	Valuation Payroll
Local 270	64	$ 2,232,617
Department Heads and Deputies	28	1,788,593
Technical and Professional	35	1,313,202
AFSCME	65	2,033,485
General - Foremen and Supervisors	6	276,570
Police Service Aides	10	304,636
Police	69	2,895,724
Fire	68	2,900,938
Police Command	14	724,673
Police Detectives	10	466,020
Judges	2	54,868
Total	371	$14,991,326

ACTIVE MEMBERS ADDED TO AND REMOVED FROM ROLLS

Year Ended	Number Added During Year		Terminations During Year								Active Members End of Year
			Normal Retirement		Disabled		Death Service		Other Terminations		
	A	E	A	E	A	E	A	E	A	E	
5-31-1980	7		9						47		424
5-31-1981	26	40	13	9.4	1	2.3	1	1.8	25	11.7	410
5-31-1982	18	52	24	12.1	6	2.1	1	1.7	21	11.3	376
5-31-1983	21	49	34	10.1	4	2.0		1.4	11	9.8	348
5-31-1984	31	19	8	7.6	0	1.9	0	1.2	11	8.7	360
5-31-1985	28	30	17	10.8	3	2.9	0	1.2	10	10.1	358
5-31-1986	25	24	11	10.0	0	3.0	0	1.3	13	11.3	359
5-31-1987	27	23	13	10.1	1	2.8	1	1.3	8	12.3	363
5-31-1988	27	26	14	13.4	0	2.7	3	1.2	9	12.9	364
5-31-1989	36	43	33	12.9	1	2.8	0	1.2	9	12.3	357
5-31-1990	24	21	6	11.0	0	2.6	1	1.1	14	13.6	360
5-31-1991	16	19	8	11.7	1	2.7	1	1.0	9	13.2	357
5-31-1992	24	29	21	12.9	0	2.4	1	1.0	7	11.6	352
6-30-1993	30	18	12	10.5	0	2.3	2	1.1	4	11.3	364
6-30-1994	25	29	16	10.5	2	2.3	1	1.0	10	11.9	360
6-30-1995	37	27	14	10.2	2	1.4	2	0.9	9	11.8	370
6-30-1996	27	26	8	9.3	0	1.3	0	0.8	18	14.0	371
1981-1996	422	475	252	172.5	21	37.5	14	19.2	188	187.8	

A - represents actual number.

E - represents expected number based on actuarial assumptions.

GENERAL AND WATER MEMBERS AS OF JUNE 30, 1996
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
20-24	3							3	$ 76,457
25-29	7							7	186,077
30-34	10	3	3					16	532,663
35-39	12	12	7	3				34	1,195,623
40-44	6	12	8	7	1			34	1,370,648
45-49	9	8	4	9	8	7	1	46	1,987,732
50-54	8	7	6	5	2	4	2	34	1,340,883
55-59	4	3	3	1	2	2	1	16	680,729
60			1		1			2	58,853
61			1					1	29,648
63	1	1						2	69,619
65				2			1	3	100,369
67					1			1	38,675
70 & Over							1	1	31,359
Totals	**60**	**46**	**33**	**27**	**15**	**13**	**6**	**200**	**$7,699,335**

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

Group Averages:

Age: 44.9 years
Service: 11.2 years
Annual Pay: $38,497

POLICE OFFICER AND FIREFIGHTER MEMBERS AS OF JUNE 30, 1996
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
20-24	2							2	$ 60,286
25-29	30	3						33	1,238,815
30-34	16	22	1					39	1,532,293
35-39	6	15	7					28	1,184,877
40-44	2	7	8	4				21	935,953
45-49	1	1	2	15	10	5		34	1,672,757
50-54			1		3	6		10	486,748
55-59						2	1	3	127,672
60							1	1	52,590
Totals	**57**	**48**	**19**	**19**	**13**	**13**	**2**	**171**	**$7,291,991**

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

Group Averages:

Age: 37.6 years
Service: 10.6 years
Annual Pay: $42,643

SUMMARY OF CURRENT ASSET INFORMATION FURNISHED FOR VALUATION

Balance Sheet

Reported Assets - Book Value		Reserves for	
Cash & equivalents	$ (1,918,255)	Employees' contributions	$ 6,748,105
Other short-term	5,856,214	Employer contributions	9,999,901
Receivables & accruals	950,617	Retired benefit payments	51,045,112
Stocks	53,828,403	Undistributed investment income	39,443,338
Bonds	48,636,723		
Other	(117,246)		
Total Current Assets	$107,236,456	Total Reserves	$107,236,456

Market value of assets was reported to be $124,417,112.

Revenues and Expenditures

	1995-96	1994-95
Balance - Beginning of year	$100,535,970	$ 98,334,732
Revenues		
Employees' contributions	650,989	745,913
Employer contributions	1,901,974	2,278,026
Investment income (net)	11,982,868	6,649,134
Total	14,535,831	9,673,073
Expenditures		
Benefit payments	5,473,597	5,710,717
Health insurance premiums for retired members	1,865,624	1,753,057
Refund of member contributions	24,010	8,061
Administrative expenses	472,114	0
Total	7,835,345	7,471,835
Balance - End of year	**$107,236,456**	**$100,535,970**

DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS

Year Ended June 30:	1995	1996	1997	1998	1999
A. Funding Value Beginning of Year	$ 97,395,315	$106,550,614			
B. Market Value End of Year	111,827,754	124,417,112			
C. Market Value Beginning of Year	98,614,694	111,827,754			
D. Non-Investment/Administrative Net Cash Flow	(4,447,897)	(4,810,268)			
E. Investment Income					
E1. Market Total: B - C - D	17,660,957	17,399,626			
E2. Amount for Immediate Recognition (7.75%)	7,375,781	8,071,275			
E3. Amount for Phased-In Recognition: E1-E2	10,285,176	9,328,351			
F. Phased-In Recognition of Investment Income					
F1. Current Year: 0.25 x E3	$2,571,294	2,332,088			
F2. First Prior Year	(1,773,302)	2,571,294	$ 2,332,088		
F3. Second Prior Year	1,109,859	(1,773,302)	2,571,294	$2,332,088	
F4. Third Prior Year	4,319,564	1,109,860	(1,773,300)	2,571,294	$2,332,087
F5. Total Recognized Investment Gain	6,227,415	4,239,940	3,130,082	4,903,382	2,332,087
G. Funding Value End of Year: A + D + E2 + F5	$106,550,614	$114,051,561			
H. Difference between Market & Funding Value	5,277,140	10,365,551	7,235,469	2,332,087	0
I. Recognized Rate of Return	14.3%	11.8%			

The Funding Value of Assets recognizes assumed investment income (line E2) fully each year. Differences between actual and assumed investment income (line E3) are phased in over a closed 4 year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than market value. The Funding Value of Assets is **unbiased** with respect to Market Value. At any time it may be either greater or less than Market Value. If actual and assumed rates of investment income are exactly equal for 4 consecutive years, the Funding Value will become equal to Market Value.

Section C

Summary of Valuation Methods and Assumptions

VALUATION METHODS

Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an individual **entry-age normal cost** valuation method having the following characteristics:

(i) the annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;

(ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Financing of Unfunded Actuarial Accrued Liabilities. Assets in excess of actuarial accrued liabilities were amortized by level (principal & interest combined) percent of payroll contributions over a period of **10** years.

The actuary calculates the contribution requirements and benefit values of the plan by applying actuarial assumptions to the benefit provisions and census data furnished, using the valuation method described on page C-1.

The principal areas of financial risk which require assumptions about future experience are:

- long-term rates of investment income
- patterns of salary increases
- rates of mortality before and after retirement
- rates of withdrawal from active membership
- rates of disability among members and their subsequent rates of recovery
- probabilities of retirement at various ages after benefit eligibility.

In a valuation the monetary effect of each assumption, for each distinct experience group, is projected for the next year and for each year over the next half-century or longer.

Actual experience will not coincide exactly with assumed experience, regardless of the skill of the actuary, the completeness of the data and the precision of the many calculations that are made. Each valuation provides a complete recalculation of system obligations based upon assumptions regarding future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of small adjustments of the computed contribution rate.

From time to time it is appropriate to modify one or more of the assumptions to reflect basic experience trends (but not random year to year fluctuations).

The rates of salary increase used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefit amounts will be based.

Sample Ages	Annual Rate of Salary Increase for Sample Age		
	Base (Economic)	Merit & Longevity	
		General & Water	Police-Fire
20	5.0%	3.8%	3.0%
25	5.0	3.1	3.0
30	5.0	2.7	2.6
35	5.0	2.4	1.1
40	5.0	2.1	0.2
45	5.0	1.7	0.2
50	5.0	1.1	0.2
55	5.0	0.7	0.1
60	5.0	0.2	- -
65	5.0	- -	- -

The rate of investment return was 7.75% per year, compounded annually, net after administrative and investment expenses. This assumption is used to make money payable at one point in time equal in value to a different amount of money payable at another point in time.

The assumed real return for funding purposes is the net rate of return in excess of average salary increases. Considering other assumptions used in the valuation, the 7.75% translates to a real return of approximately 2.75%. Experience over the last 5 years has been more favorable than assumed, as illustrated below.

	Year Ending June 30					5 Year Average
	1996	1995	1994	1993	1992	
1) Nominal rate*	11.8%	14.3%	11.9%	13.9%**	9.2%	12.2%
2) Increase in CPI	2.8	3.0	2.5	3.0	3.1	2.9
3) Average salary increase#	2.4	0.6	4.4	2.9**	(0.7)	1.9
4) Real return						
- investment purposes						9.3
- funding purposes						10.3

* *The nominal rate of return was computed using the approximate formula: i = I divided by 1/2 (A+B-I), where I is recognized investment income, A is the beginning of year funding value and B is the end of year funding value.*

\# *The average increase in salary for those employees active throughout the year was 3.6%.*

** *Thirteen month period ended June 30, 1993.*

The mortality table was the 1984 Group Annuity Mortality Table set back 0 years for men, and 6 years for women. This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement.

Sample Ages	Single Life Retirement Values			
	Present Value of $1 Monthly for Life		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	$131.79	$140.17	27.53	32.93
55	123.22	133.32	23.28	28.40
60	112.80	125.06	19.27	24.11
65	100.50	115.05	15.55	20.05
70	87.07	103.10	12.25	16.27
75	73.71	89.78	9.49	12.87
80	60.28	76.43	7.17	10.02

The rates of retirement used to measure the probability of eligible members retiring during the next year were as follows:

Retirement Ages	Percent of Eligible Active Members Retiring			
	General	Police Service Aides	Police Command, Police Officers & Detectives	Firefighters
45-49	-- %	-- %	40%	-- %
50	15	--	40	20
51	10	--	35	15
52	10	--	20	15
53	10	--	15	15
54	10	--	15	15
55	10	15	15	15
56	10	10	15	15
57	10	10	15	15
58	10	10	15	25
59	10	10	25	30
60	10	10	100	100
61	10	10	--	--
62	30	30	--	--
63	15	15	--	--
64	15	15	--	--
65	100	100	--	--

A member was assumed to be eligible for retirement after satisfying the following requirements:

Group	Eligibility Requirements for Retirement
Local 270M	30 years of service regardless of age; or 50 years of age with 25 years of service; or 55 years of age with 20 years of service; or 60 years of age with 5 years of service
Other General & Water	50 years of age with 25 years of service; or 55 years of age with 20 years of service; or 60 years of age with 5 years of service
Fire Fighters	50 years of age with 25 years of service; or 55 years of age with 10 or more years of service.
Police Command, Police Officers & Detectives	25 years of service regardless of age; or 55 years of age with 10 or more years of service.
Police Service Aides	55 years of age with 25 years of service; or 60 years of age with 5 or more years of service.

Rates of separation from active membership were as shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members terminating employment before eligibility for an immediate benefit.

Sample Ages	Years of Service	% of Active Members Separating Within Next Year		
		General	Police	Fire
ALL	0	20.00%	10.00%	10.00%
	1	15.00	7.00	7.00
	2	10.00	5.00	5.00
	3	8.00	4.00	4.00
	4	7.00	3.50	3.50
25	5 & Over	6.00	3.50	2.00
30		5.50	2.90	1.80
35		4.40	1.50	1.30
40		1.85	0.60	1.00
45		1.25	0.50	0.70
50		1.25	0.50	0.50
55		1.25	0.50	0.40
60		1.25	0.50	0.40
65		1.25	0.50	0.40

Rates of disability were as follows. This assumption measures the probability of members retiring with a disability benefit.

Sample Ages	% of Active Members Becoming Disabled Within Next Year		
	General & Water		Police & Fire
	Male	Female	
20	0.07%	0.03%	0.10%
25	0.09	0.05	0.15
30	0.10	0.07	0.25
35	0.14	0.13	0.30
40	0.21	0.19	0.70
45	0.32	0.28	0.80
50	0.52	0.45	0.95
55	0.92	0.76	1.10
60	1.53	1.10	1.20

Section D

The Pension Benefit Obligation and Certain Other Disclosures Required by Statement No. 5 of The Governmental Accounting Standards Board

PENSION BENEFIT OBLIGATION

The amount shown below as the "pension benefit obligation" is a standardized disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future as a result of employee service to date. The measure is the actuarial present value of credited projected benefits and is intended to (i) help users assess the plan's funding status on a going-concern basis, (ii) assess progress being made in accumulating sufficient assets to pay benefits when due, and (iii) allow for comparisons among public employee retirement plans. The measure is independent of the actuarial funding method used to determine contributions to the plan.

The pension benefit obligation was determined as part of an actuarial valuation of the plan as of June 30, 1996. Significant actuarial assumptions used in determining the pension benefit obligation include (a) a rate of return on the investment of present and future assets of 7.75% per year compounded annually, (b) projected salary increases of 5.0% per year compounded annually, attributable to inflation, (c) additional projected salary increases ranging from 0.1% to 3.8% per year, depending on age, attributable to seniority/merit, and (d) the assumption that benefits will not increase after retirement.

At June 30, 1996, the assets in excess of the pension benefit obligation were $7,587,234, determined as follows:

Pension Benefit Obligation:	
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	$55,359,295
Current employees --	
Accumulated employee contributions including allocated investment income	6,748,105
Employer financed - Vested	25,581,121
Employer financed - Non-vested	3,480,929
Total Pension Benefit Obligation	91,169,450
Net assets available for benefits, at cost	98,756,684
Assets in excess of the Pension Benefit Obligation	$ 7,587,234

During the year ended June 30, 1996, the plan experienced a net change of $2,156,238 in the pension benefit obligation.

The city's funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of annual covered payroll, are designed to accumulate sufficient assets to pay benefits when due. The normal cost and actuarial accrued liability are determined using an entry age actuarial funding method. Unfunded actuarial accrued liabilities are being amortized as a level percent of payroll over a period of 10 years.

During the year ended June 30, 1996, contributions totaling $2,552,963 -- $1,901,974 employer and $650,989 employee were made in accordance with an actuarial valuation of the plan as of June 30, 1994.

Significant actuarial assumptions used to compute contribution requirements were the same as those used to compute the standardized measure of the pension benefit obligation.

Computed Contribution Comparative Schedule

Fiscal Year Beginning	Valuation Date	Contribution Rates As Percents of Valuation Payroll			Dollar Contribution For Fiscal Year	
		General and Water	Police and Fire	Valuation Payroll	Computed	Actual
6-1-1988	5-31-1987(b)	16.34%	22.60%	$11,491,099	$2,229,216	$2,229,216
6-1-1989	5-31-1988	15.75	22.26	11,974,522	2,263,438	2,263,438
6-1-1990	5-31-1989	17.39	22.32	11,681,433	2,362,061	2,362,061
6-1-1991	5-31-1990	16.95	23.12	12,453,638	2,602,850	2,620,285
6-1-1992	5-31-1991(b)	16.50	24.52	13,112,701	2,822,541	2,691,335
6-1-1993	5-31-1992#	15.53	23.58	12,844,067	2,634,280	2,634,280
7-1-1994	6-30-1993(a)	17.02	22.50	13,664,416	2,826,398##	2,278,026
7-1-1995	6-30-1994(b)	11.85	15.16	14,109,602	1,901,934	1,901,974
7-1-1996	6-30-1995(b)	9.45	9.75	14,595,387	1,399,698	
7-1-1997	6-30-1996	5.07	6.20	14,991,326	842,513	

(a) Before changes in actuarial assumptions.

(b) After changes in benefit provisions and/or actuarial assumptions and actuarial cost methods.

 # A smoothed funding value of assets was first used for the May 31, 1992 valuation, instead of the previously used book value.

Subsequent to the 6/30/93 annual valuation, the Board adopted new assumptions which decreased the computed contribution for the fiscal year beginning 7/1/94 to $2,278,026.

REQUIRED SUPPLEMENTARY INFORMATION
ANALYSIS OF FUNDING PROGRESS

Valuation Date	(1) Net Assets Available for Benefits	(2) Pension Benefit Obligation (PBO)	(3) Percent Funded (1)/(2)	(4) Unfunded PBO (2)-(1)	(5) Annual Covered Payroll	(6) Unfunded PBO as a Percentage of Covered Payroll (4)/(5)
5-31-1987	$45,963,214	$57,681,019	79.7%	$11,717,805	$11,491,099	102.0%
5-31-1988	51,036,303	61,318,170	83.2	10,281,867	11,974,522	85.9
5-31-1989	54,259,026	65,108,938	83.3	10,849,912	11,681,433	92.9
5-31-1990	58,438,447	68,891,874	84.8	10,453,427	12,453,638	83.9
5-31-1991	62,261,793	73,070,365	85.2	10,808,572	13,112,701	82.4
5-31-1992	66,672,947	77,395,031	86.1	10,722,084	12,844,067	83.5
6-30-1993	76,742,853	84,190,119	91.2	7,447,266	13,664,416	54.5
6-30-1994	89,457,979	85,050,781	105.2	(4,407,198)	14,109,602	-
6-30-1995	91,779,927	89,013,212	103.1	(2,766,715)	14,595,387	-
6-30-1996	98,756,684	91,169,450	108.3	(7,587,234)	14,991,326	-

Analysis of the dollar amounts of net assets available for benefits, pension benefit obligation, and unfunded pension benefit obligation in isolation can be misleading. Expressing the net assets available for benefits as a percentage of the pension benefit obligation provides one indication of the plan's funded status on a going-concern basis. Analysis of this percentage over time indicates whether the system is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. The unfunded pension benefit obligation and annual covered payroll are both affected by inflation. Expressing the unfunded pension benefit obligation as a percentage of annual covered payroll approximately adjusts for the effects of inflation and aids analysis of the progress being made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.

Section E

Operation of the Retirement System

BASIC FINANCIAL OBJECTIVE AND OPERATION OF THE RETIREMENT SYSTEM

Benefit Promises Made Which Must Be Paid For. A retirement program is an orderly means of handing out, keeping track of, and financing contingent pension promises to a group of employees. As each member of the retirement program acquires a unit of service credit they are, in effect, handed an "IOU" which reads: "The Retirement System promises to pay you one unit of retirement benefits, payments in cash commencing when you retire."

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The Constitution of the State of Michigan is directed to the question:

> "Financial benefits arising on account of service rendered in each fiscal year shall be funded during that year and such funding shall not be used for financing unfunded accrued liabilities."

This Retirement System meets this constitutional requirement by having the following ***Financial Objective: To establish and receive contributions, expressed as percents of active member payroll, which will remain approximately level from year to year*** and will not have to be increased for future generations of taxpayers.

Translated into actuarial terminology, a level percent-of-payroll contribution objective means that the contribution rate must be at least:

> *Normal Cost* (the current value of benefits likely to be paid on account of member's service being rendered in the current year).
>
> ... plus ...
>
> *Interest on the Unfunded Actuarial Accrued Liability* (the difference between the actuarial accrued liability and current system assets).

If contributions to the retirement program are less than the preceding amount, the difference, plus investment earnings not realized thereon, will have to be contributed at some later time, or, benefits will have to be reduced, to satisfy the fundamental fiscal equation under which all retirement programs must operate; that is:

$$B = C + I - E$$

Benefit payments to any group of members and their beneficiaries cannot exceed the sum of:

Contributions received on behalf of the group.

. . . plus . . .

Investment earnings on contributions received

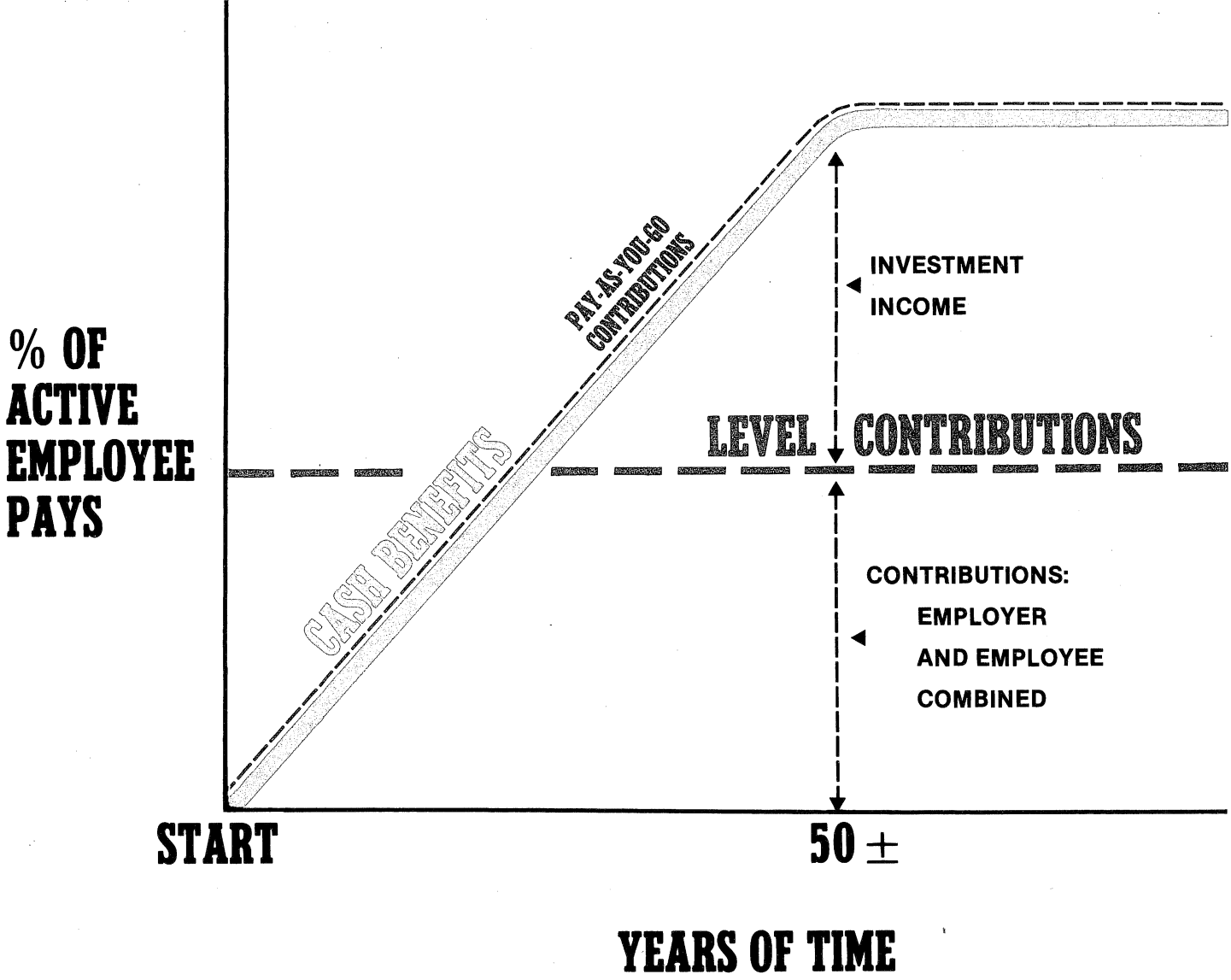
. . . minus . . .

Expenses incurred in operating the program.

A by-product of the level percent-of-payroll contribution objective is the accumulation of invested assets for varying periods of time. Invested assets are a by-product of level percent-of-payroll contributions, not the objective. Investment income becomes a major contributor to the retirement program, and the amount is directly related to the amount of contributions and investment performance.

There are retirement programs designed to defer the bulk of contributions far into the future. Lured by artificially low present contributions, such programs ignore the inevitable consequence of a relentlessly increasing contribution rate -- to a level greatly in excess of the level percent-of-payroll rate. ***This method of financing is prohibited in Michigan by the state constitution.***

Computed Contribution Rate Needed to Finance Benefits. From a given schedule of benefits and from the data furnished, the actuary calculates the contribution rate by means of an actuarial valuation - the technique of assigning monetary values to the risks assumed in operating a retirement program.



CASH BENEFITS LINE. **This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).**

LEVEL CONTRIBUTION LINE. **Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:**

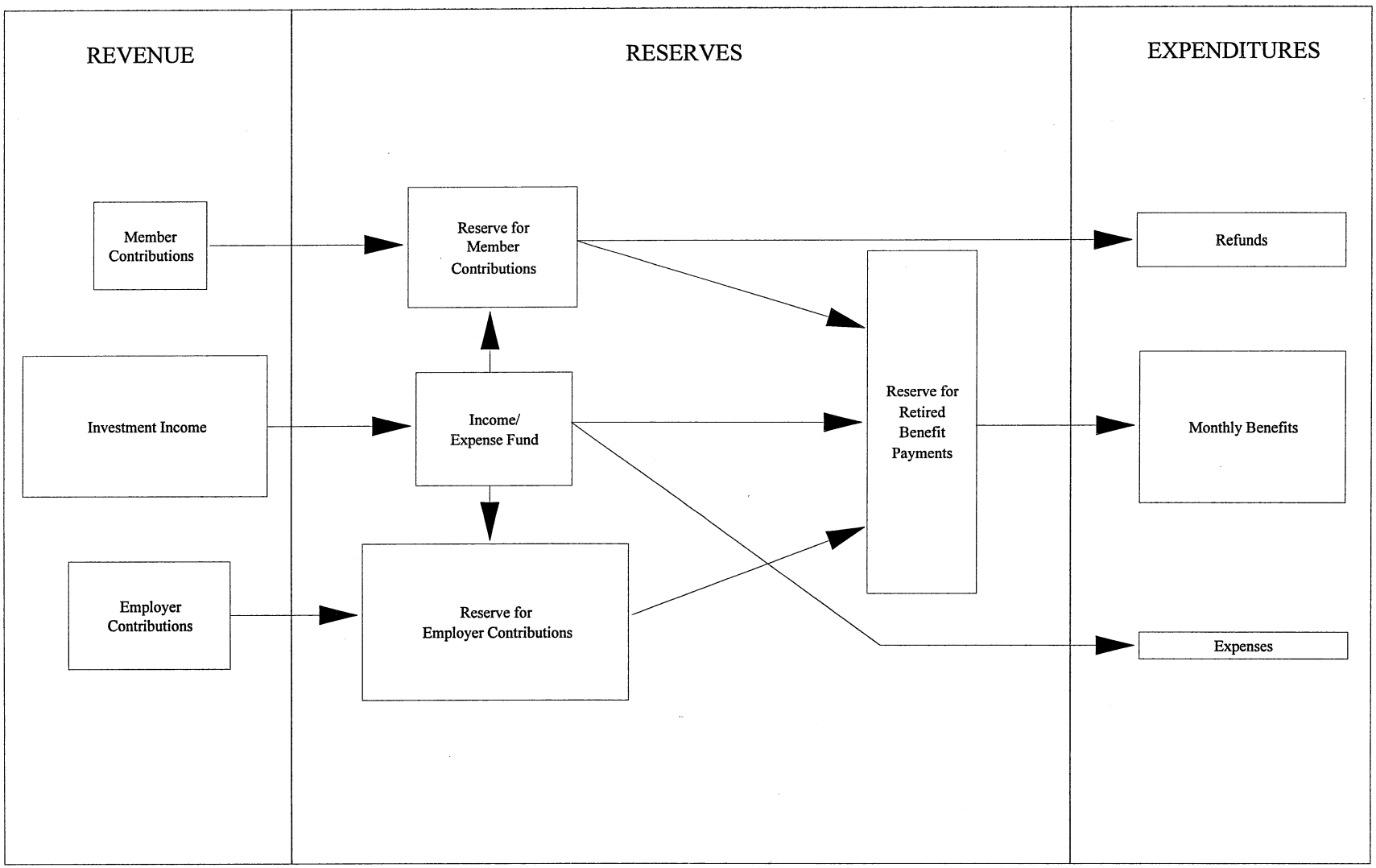
Economic Risk Areas

- **Rates of investment return**
- **Rates of pay increase**
- **Changes in active member group size**

Non-Economic Risk Areas

- **Ages at actual retirement**
- **Rates of mortality**
- **Rates of withdrawal of active members (turnover)**
- **Rates of disability**

Flow of Money Through the Retirement System



Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Pension Benefit Obligation. A standardized disclosure measure of the present value of pension benefits, adjusted for the effects of future salary increases, estimated to be payable in the future as a result of service rendered before the valuation date. It is independent of the actuarial funding method used to determine retirement system contributions.

Plan Termination Liability. The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for future service and salary. The termination liability will generally be less than the liabilities computed on a "going concern" basis and is not normally determined in a routine actuarial valuation.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on book value plus a portion of unrealized appreciation or depreciation.

MEANING OF "UNFUNDED ACTUARIAL ACCRUED LIABILITIES"

"Actuarial accrued liabilities" are ***the portion of the present value of plan promises to pay benefits in the future not covered by future normal cost contributions***. A liability has been established ("accrued") because service has been rendered, but the resulting monthly cash benefit may not be payable until years in the future. Actuarial accrued liabilities are the results of complex mathematical calculations, which are made annually by the plan's actuary.

If "actuarial accrued liabilities" at any time exceed the plan's accrued assets, the difference is ***"unfunded actuarial accrued liabilities."*** This is the common condition. If the plan's assets equaled the plan's "actuarial accrued liabilities," the plan would be termed "fully funded." This is an unusual condition.

Each time a plan adds a new benefit which applies to service already rendered, an "actuarial accrued liability" is created, which is also an "unfunded actuarial accrued liability" because assets do not immediately increase to cover the value of the new benefit promises. Payment for such unfunded actuarial accrued liabilities is spread over a period of years, commonly in the 20-40 year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual experience is less favorable than assumed experience, the difference is added to unfunded actuarial accrued liabilities. For example, in plans where benefits are directly related to pay near time of retirement, unfunded actuarial accrued liabilities increase when unexpected rates of pay increase create additional actuarial accrued liabilities which are not offset by higher than assumed investment income. Most unexpected pay increases are the direct result of inflation, which is a very destructive force affecting financial stability.

The existence of unfunded actuarial accrued liabilities is not a cause for concern, but the changes from year to year in amount of unfunded actuarial accrued liabilities are important.

Nor are unfunded actuarial accrued liabilities a bill payable immediately. However, it is important that policy-makers prevent the amount from becoming unreasonably high and ***it is vital for a plan to have a sound method for making payments toward them*** so that they are controlled.