

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
ANNUAL ACTUARIAL VALUATION
AND GAIN/LOSS ANALYSIS OF
RETIREMENT ALLOWANCES FOR ACTIVE
AND INACTIVE MEMBERS
DECEMBER 31, 1998

GABRIEL, ROEDER, SMITH & COMPANY

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RETIREMENT SYSTEM TOTALS



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October 13, 1999

The Retirement Board
Public Employees Retirement System of Ohio
Columbus, Ohio

Ladies and Gentlemen:

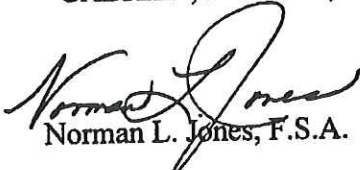
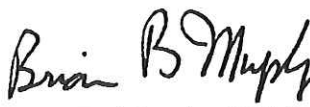
The results of the *December 31, 1998 annual actuarial valuations and gain/loss analysis regarding members* covered by the Public Employees Retirement System of Ohio, based upon Chapter 145 of the Code as amended are presented in this report. Actuarial valuations of retired lives and projections of retiree health and Medicare resources and obligations are covered in separate reports.

The individual member statistical data required for the valuations was furnished by your Executive Director and his Staff, together with pertinent data on financial operations. Their cooperation in furnishing these materials is acknowledged with appreciation.

The actuarial assumptions used in the valuations are summarized in Section V of this report. The assumptions are established by the Retirement Board after consulting with the actuary.

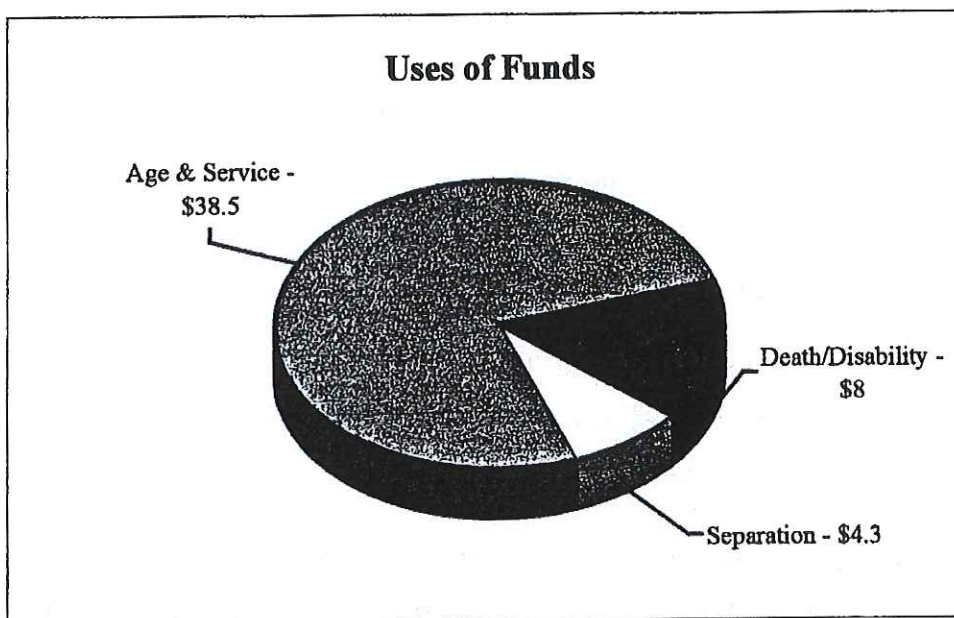
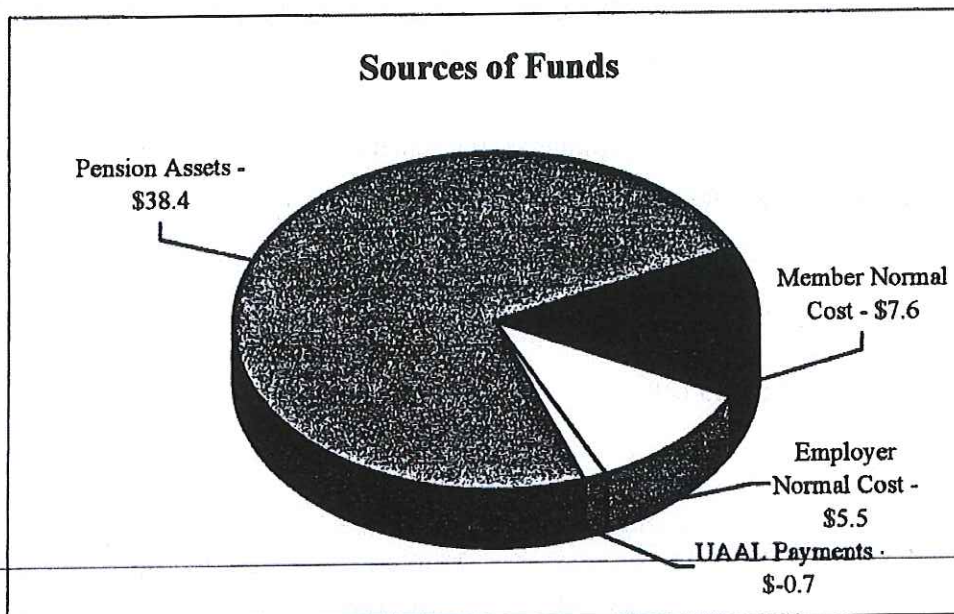
The valuation was completed in accordance with standards of practice prescribed by the Actuarial Standards Board and in conformance with Chapter 145 of the Revised Code of Ohio. To the best of our knowledge this report is complete and accurate and the actuarial methods and assumptions produced results which are reasonable.

Respectfully submitted,
GABRIEL, ROEDER, SMITH & COMPANY

 
Norman L. Jones, F.S.A. Brian B. Murphy, F.S.A.

BBM/alv

**FINANCING \$50.8 BILLION* OF PENSION BENEFIT PROMISES
FOR PRESENT ACTIVE AND RETIRED MEMBERS
DECEMBER 31, 1998
(DOLLAR AMOUNTS IN BILLIONS)**



* Present value of future benefits — all divisions combined.

COMMENTS REGARDING THE FINANCING OF RETIREMENT ALLOWANCES

The December 31, 1998 actuarial valuations of members indicate the following about the portion of employer contribution rates allocated to financing retirement allowances:

- The employer rates are sufficient to fully fund the cost of benefit commitments being made to members for service currently being rendered.
- After satisfying current cost requirements, the remaining portion of the employer rates provides a margin for future unfavorable experience, and for benefit changes currently being considered. The size of this margin (and even its existence) is a matter of Board Policy.

Key valuation results are summarized below.

Division	Active Members		Retirement	Amortization Years	
	Number	Annual	Allowance	for Unfunded Pension	
		Payroll	Portion of	Accrued Liabilities	
		(\$Millions)	Employer	This Year	Prior year
			Contribution Rate		
State	112,323	\$ 3,500	9.11%	*	3
Local Government	234,601	5,240	9.35%	*	5
Law Enforcement	7,507	277	12.50%	*	10
Totals	354,431	\$ 9,017			

* Accrued liabilities are fully funded.

Experience. Experience was favorable this year. Investment return recognized for the valuation was above the assumed level and salary increases were below the assumed level. Additional information concerning 1998 experience is presented on page 13.

Conclusion. Based on the results of the December 31, 1998 regular annual actuarial valuation, it is our opinion that the Public Employees Retirement System of Ohio continues to be in sound financial condition in accordance with actuarial principles of level percent of payroll financing.

ACTIVE MEMBERS IN VALUATION GROUP AVERAGES - COMPARATIVE STATEMENT

Valuation Group	Dec. 31	No. of Active Members	Group Averages				
			Attained Age	Accrued Service Yrs.	Annual Payroll		
					Average	Increase	
STATE	1975	83,220	40.6 yrs.	6.5 yrs.	\$ 9,441	6.4 %	@
	1980	92,872	39.4	7.3	13,934	8.1 %	@
	1985	89,256	39.2	8.4	18,677	7.4 %	@
	1990	98,939	40.7	8.1	25,281	6.2 %	@
	1995	114,596	40.4	8.8	27,962	2.0 %	@
	1996	115,712	40.3	8.9	28,684	2.6 %	
	1997	114,036	40.5	9.1	29,858	4.1 %	
	1998	112,323	41.0	9.4	31,159	4.4 %	
LOCAL GOV'T	1975	149,557	40.8 yrs.	6.1 yrs.	\$ 8,771	4.3 %	@
	1980	160,797	40.7	7.4	13,035	8.2 %	@
	1985	158,285	40.1	8.3	15,983	6.2 %	@
	1990	173,220	41.5	7.9	19,506	4.1 %	@
	1995	223,431	41.2	7.6	20,384	0.9 %	@
	1996	229,954	41.2	7.7	20,839	2.2 %	
	1997	231,668	41.4	7.8	21,481	3.1 %	
	1998	234,601	41.6	8.0	22,334	4.0 %	
LAW ENFORCEMENT MEMBERS	1975	2,111	35.0 yrs.	4.9 yrs.	\$ 10,467	-	
	1980	3,019	36.1	6.8	16,846	10.0 %	@
	1985	4,207	36.5	8.4	20,103	5.5 %	@
	1990	5,804	38.6	9.9	26,936	6.0 %	@
	1995	6,605	39.3	11.1	32,441	3.2 %	@
	1996	6,742	39.3	11.3	33,987	4.8 %	
	1997	7,256	39.3	11.5	35,680	5.0 %	
	1998	7,507	39.3	11.6	36,931	3.5 %	

@ 5 year annual compound rate.

**BOOK VALUE RECONCILIATION OF ASSETS
(ALL DIVISIONS COMBINED)**

	Calendar Year Ended December 31	
	1998	1997
Beginning Book Value	\$40,977,275,524	\$37,787,615,858
Revenues		
Member Contributions	799,281,516	773,100,594
Employer Contributions	1,266,445,268	1,233,637,457
Retiree Health Premiums	18,401,595	19,654,531
Total Revenues	2,084,128,379	2,026,392,582
Expenditures		
Retirement Benefits	1,402,239,075	1,304,604,400
Refunds of Member Contributions	125,609,907	139,624,174
System Paid Retiree Health Care	398,519,742	348,098,711
Member Paid Retiree Health Care	18,401,595	19,654,531
Retiree Medicare Reimbursement	42,076,921	41,746,562
Administrative Expenses	30,227,332	25,691,497
Other	5,794,748	2,074,165
Total Expenditures	2,022,869,320	1,881,494,040
Investment Return		
Ordinary Income	1,802,694,053	2,219,652,955
Realized Capital Value Changes	1,530,323,955	825,108,169
Total Investment Return	3,333,018,008	3,044,761,124
Ending Book Value	\$44,371,552,591	\$40,977,275,524

DEVELOPMENT OF FUNDING VALUE OF ASSETS (BASED UPON 4 YEAR PHASE-IN OF DIFFERENCES BETWEEN ACTUAL AND ASSUMED RETURN)

Year Ended December 31	1996	1997	1998	1999	2000	2001
A. Funding Value Beginning of Year	\$ 34,877,055,515	\$ 38,402,909,983	\$ 42,562,579,341			
B. Market Value End of Year	39,750,587,206	45,283,541,063	51,399,531,028			
C. Market Value Beginning of Year	36,691,952,742	39,750,587,206	45,293,541,063			
D. Non-Investment/Administrative Net Cash Flow	240,091,770	170,590,039	91,486,391			
E. Investment Return						
E1. Market Total:B-C-D	2,818,542,694	5,362,363,818	6,024,503,574			
E2. Assumed Rate of Return	7.75%	7.75%	7.75%			
E3. Assumed Amount of Return	2,712,275,359	2,982,835,888	3,302,144,997			
E4. Amount Subject to Phase In: E1-E3	106,267,335	2,379,327,930	2,722,358,577			
F. Phased-In Recognition of Investment Return						
F1. Current year: 0.25xE4	26,566,834	594,881,983	680,589,644			
F2. First Prior Year	883,182,106	26,566,834	594,881,983	\$ 680,589,644		
F3. Second Prior Year	(498,387,492)	883,182,106	26,566,834	594,881,983	\$ 680,589,644	
F4. Third Prior Year	162,125,891	(498,387,492)	883,182,105	26,566,833	594,881,983	\$ 680,589,646
F5. Total Recognized Investment Gain	573,487,339	1,006,243,431	2,185,220,566	1,302,038,460	1,275,471,627	680,589,646
G. Funding Value End of Year: A+D+E3+F5	38,402,909,983	42,562,579,341	48,141,431,295			
H. Difference Between Market and Funding Value	1,347,677,223	2,720,961,722	3,258,099,733	1,956,061,273	680,589,646	
I. Recognized Rate of Return	9.39%	10.36%	12.88%			

The Funding Value of Assets recognizes assumed investment return (line E3) fully each year. Differences between actual and assumed investment return (line E4) 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. If assumed rates are exactly realized for 3 consecutive years, funding value will become equal to market value.

SUMMARY OF RESERVES AND TRANSFERS AFFECTING THE EMPLOYER ACCUMULATION (EAF) FUND

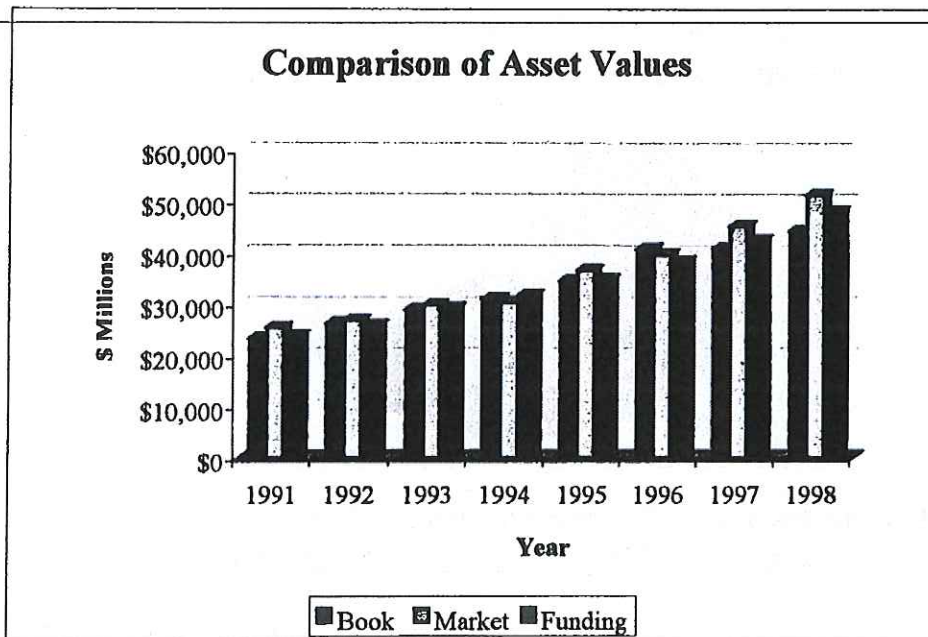
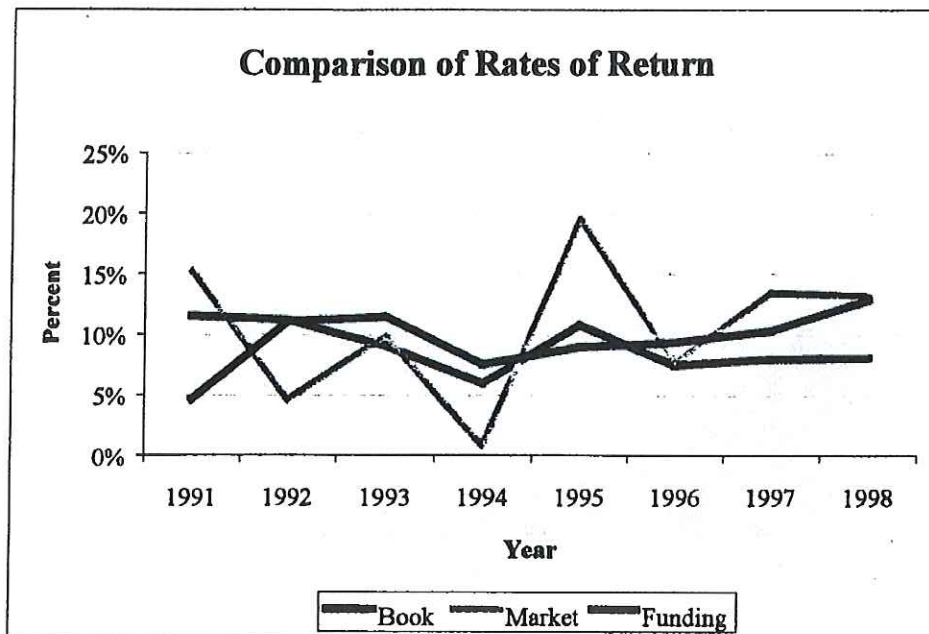
Division	EAF Balance Reported 12/31/1998	Transfer To (From) EAF	EAF Balance Before Accrual 12/31/1998	Accrued Transfers (AT)
<i>State</i>				
Pension	\$5,358,037,077	\$324,620,924	\$5,682,658,001	\$(131,903,490)
Survivor Benefit	625,031,312	(326,030,982)	299,000,330	(4,886,602)
Total	5,983,068,389	(1,410,058)	5,981,658,331	(136,790,092)
<i>Local Government</i>				
Pension	7,120,366,377	408,649,092	7,529,015,469	(182,443,387)
Survivor Benefit	838,687,836	(410,680,734)	428,007,102	(11,174,395)
Total	7,959,054,213	(2,031,642)	7,957,022,571	(193,617,782)
<i>Law Enforcement</i>				
Pension	536,570,940	25,665,278	562,236,218	(20,305,568)
Survivor Benefit	59,015,071	(25,665,278)	33,349,793	(616,316)
Total	\$595,586,011	\$ 0	\$595,586,011	\$(20,921,884)

Reserve transfers from the Employer Accumulation Fund to the A & PR Fund and/or Survivor Benefit Funds are recommended in the following instances.

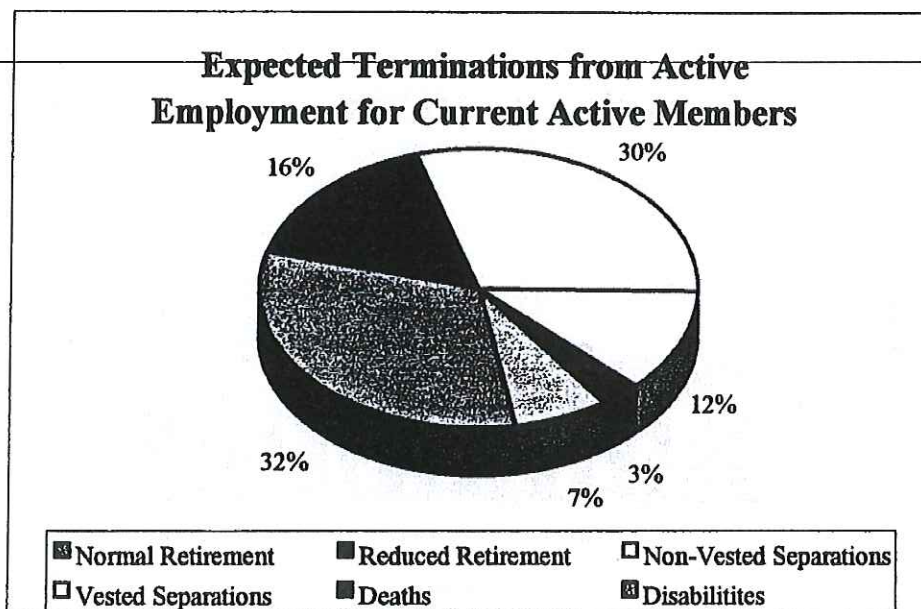
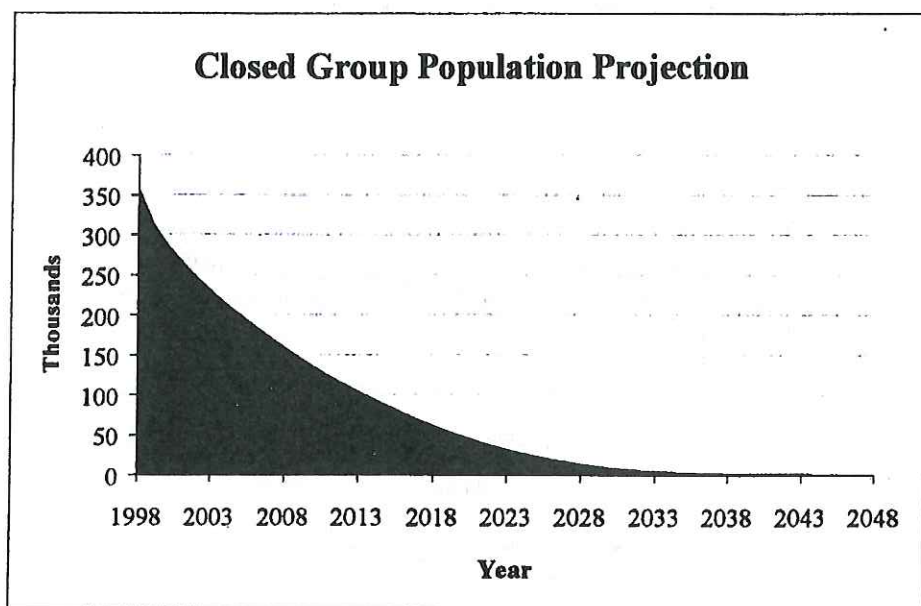
1. Whenever the December 31 valuation of retired lives shows unfunded accrued liabilities in any of the retired life funds.
2. To adjust retired life reserves for the payment of health insurance premiums and Medicare reimbursements for the previous 12-month period if this has not already been done.
3. To cover the cost of ad-hoc post-retirement benefit increases.
4. To adjust reserves for any changes in computed liabilities resulting from assumption changes.
5. To adjust for the effect of the transfer of certain groups from one division to another.

By making these annual adjustments in addition to the regular transfers when allowances are added to the rolls, the ratio of assets to liabilities for retired lives will not fall below 100% and year to year changes in that ratio will normally be isolated to decrement experience within the retired life group.

In 1992, PERS began making interim benefit payments for service retirements to shorten the delay between the retirement effective date and receipt of the first monthly check. However, reserve transfers are not made until benefit amounts are final. For purposes of this valuation, special "Accrued Transfers" were developed based upon supplemental information provided by PERS staff. The AT, when removed from the EAF is intended to put reserves in the same position they would have been if reserve transfers for interim cases had been coincident with benefit commencement.



DEVELOPMENT OF PRESENT POPULATION DECEMBER 31, 1998



The charts show the expected future development of the present population in simplified terms. The retirement system presently covers 354,431 active members. Eventually, 30% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. 60% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. 10% of the present population is expected to become eligible for death-in-service or disability benefits. Within 9 years, over half of the covered membership is expected to consist of new hires.

GAIN/LOSS ANALYSIS

ACTIVE MEMBER GAIN/LOSS ANALYSIS DURING CALENDAR 1998

Purpose of Gain/Loss Analysis. Regular actuarial valuations provide information about the composite change in unfunded actuarial accrued liabilities -- whether or not the liabilities are increasing or decreasing, and by how much.

However, valuations do not show the portion of the change attributable to each risk area within the retirement system: the rate of investment income on plan assets; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of salary increases; the assumed ages at actual retirement; and the rate of increase of retiree health care claims. In an actuarial valuation, assumptions are made as to what these rates will be for the next year and for decades in the future.

The objective of a gain and loss analysis is to determine the portion of the change in unfunded actuarial accrued liabilities attributable to each risk area.

The fact that actual experience differs from assumed experience is to be expected. The future cannot be predicted with precision. Changes in the valuation assumption for a risk area should be made when the differences between assumed and actual experience have been observed to be sizable and persistent. One year's gain and loss analysis may or may not be indicative of *long-term trends, which are the basis of financial assumptions.*

Assumed experience was last changed for calendar 1996.

Results from 1998. Experience was favorable during 1998 with gains in economic risk areas more than offsetting small losses in decrement risk areas. Favorable experience over an extended period of time has now resulted in early completion of the funding program for accrued liabilities. Unfavorable experience in the future, however, could result in a re-emergence of unfunded liabilities. Investment return, as measured by the asset valuation method, was the largest source gain again this year. This has been the case for most years since 1980.

Period	Inflation As Measured By		Investment Return Credited to Active Life Funds	Real Rate of Return	
	CPI	Increase in Average Pay		Relative to CPI	Relative to Pays
Last year	1.6 %	3.9 %	15.1 %	13.5 %	11.2 %
Last 5 years	2.4 %	3.6 %	10.8 %	8.4 %	7.2 %
Last 10 years	3.1 %	2.4 %	11.2 %	8.1 %	8.8 %
Last 15 years	3.3 %	3.4 %	12.7 %	9.4 %	9.3 %
Valuation assumption		4.75 %	7.75 %		3.0 %

By longer term historical standards, the real rates of return indicated above are extraordinary. The last 15 years have been an exceptional period in investment history.

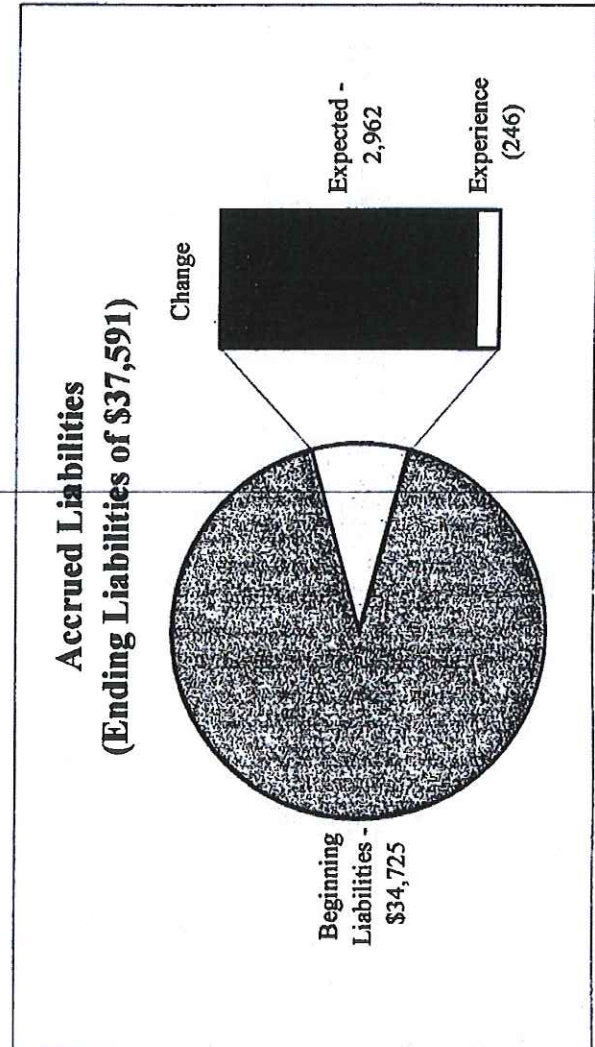
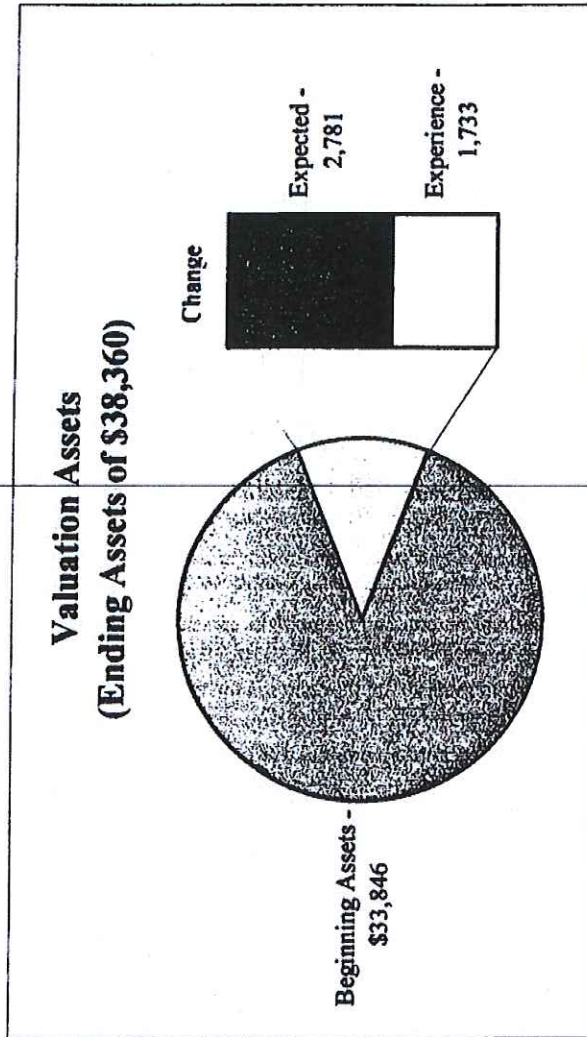
Gains and losses from retirement, death, disability, and turnover in 1998 were generally similar to those found in 1997 with the exception of the turnover loss in the State Division.

**SUMMARY OF EXPERIENCE BY DIVISION
DURING 1998 IN \$ MILLIONS**

	State	Local	Law Enforcement	Total \$	% of AL
Beginning of Year					
1. Active Member Accrued Liabilities (AL)	\$8,591.2	\$11,972.6	\$821.2	\$21,385.0	100.0 %
2. Valuation Assets	8,268.0	11,218.3	772.8	20,259.1	94.7 %
3. Unfunded Actuarial Accrued Liabilities	\$ 323.2	\$ 754.3	\$ 48.4	\$ 1,125.9	5.3 %
1998 Experience Gains(Losses)					
4. Gains (losses) in economic risk areas					
a. Pay increases	\$ 140.3	\$ 133.2	\$ 14.6	\$ 288.1	1.3 %
b. Investment return*	712.4	963.7	57.2	1,733.3	8.1 %
d. Total	852.7	1,096.9	71.8	2,021.4	9.4 %
5. Gains (losses) from decrement experience					
a. Service retirement	19.2	27.8	1.6	48.6	0.2 %
b. Disability retirement	17.3	35.5	(3.4)	49.4	0.2 %
c. Death-in-service	1.4	1.9	0.2	3.5	0.0 %
d. Other separations	(49.0)	(89.8)	(4.5)	(143.3)	(0.7)%
e. Total	(11.1)	(24.6)	(6.1)	(41.8)	(0.3)%
6. Total experience gains (losses): (4d) + (5e)	\$ 841.6	\$1,072.3	\$ 65.7	\$ 1,979.6	9.1 %
End of Year					
7. Active Member Accrued Liabilities	\$9,223.5	\$12,911.5	\$887.2	\$23,022.2	100.0 %
8. Valuation Assets	9,665.8	13,134.8	894.6	23,695.2	102.9 %
9. Unfunded Actuarial Accrued Liabilities	\$ (442.3)	\$ (223.3)	\$ (7.4)	\$ (673.0)	(2.9)%

* Recognized investment return in 1998 includes carryovers from previous years, in accordance with the asset valuation method.

CHANGE IN FINANCIAL POSITION DURING 1998 (\$ MILLIONS)

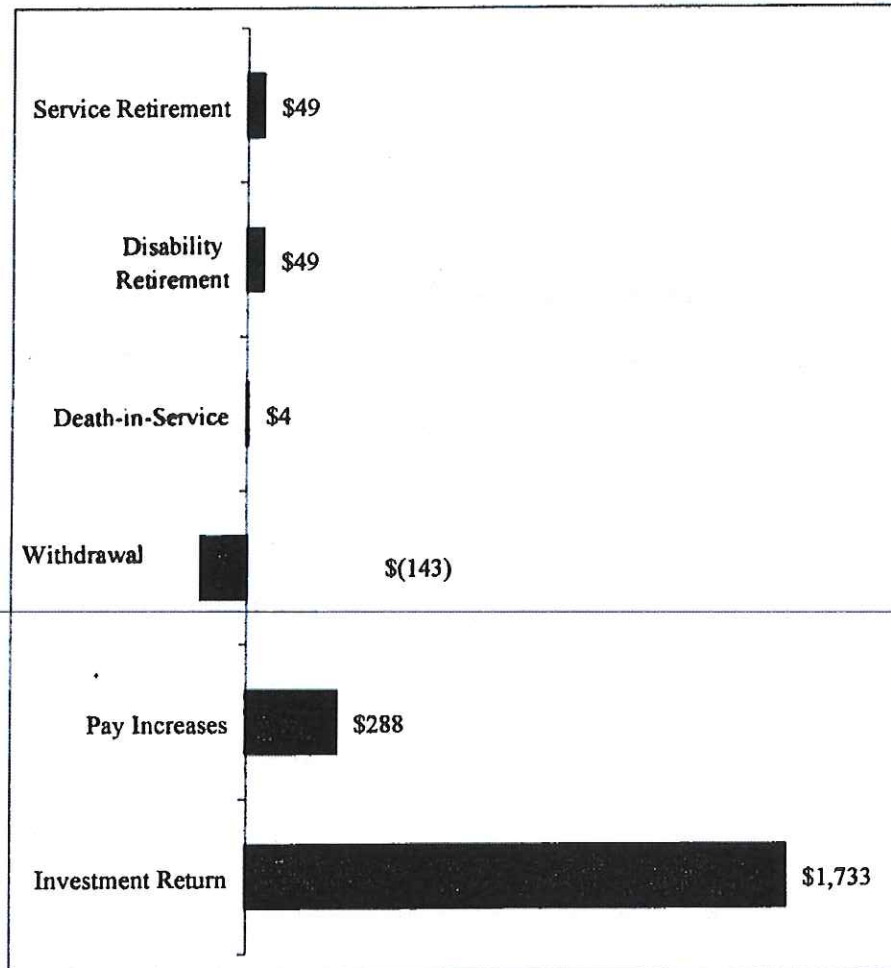


ACTIVE MEMBER POPULATION DEVELOPMENT DURING CALENDAR YEAR 1998

	State		Local		Law		Total	
	Actual	Expected	Actual	Expected	Actual	Expected	Actual	Expected
Beginning Census	114,036		231,668		7,256		352,960	
- Normal Retirement	1,476	1,267	3,085	3,317	91	92	4,652	4,676
- Death with Benefit	76	111	177	261	11	10	264	381
- Disability Retirement	498	276	696	558	85	46	1,279	879
- Other Separations (including Death no Benefit)	15,863	10,655	31,710	24,215	247	250	47,820	35,120
- Transfers Out	905		1,618		166		2,689	
+ Transfers In	1,144		1,000		545		2,689	
+ New Entrants	15,961		39,219		306		55,486	
Ending Census	112,323		234,601		7,507		354,431	

This page reconciles the active member populations reported in connection with the 1997 and 1998 valuations on an actual and expected basis. Assumptions related to population development are a primary focus of the gain/loss analysis. They generally tend to be more stable than economic assumptions, and therefore, measurements have more meaning.

GAIN/LOSS ANALYSIS
1998 EXPERIENCE IN \$ MILLIONS



STATE DIVISION

STATE DIVISION

State Division active members included in the valuation totaled 112,323, involving an annual payroll totaling \$3,499,823,923.

Active Members in Valuation December 31, 1998

Groups	Number	Annual Payroll	Average		
			Pay	Age	Service
Men	52,279	\$1,750,033,541	\$33,475	40.8	9.5
Women	60,044	1,749,790,382	29,142	41.3	9.4
Totals	112,323	\$3,499,823,923	\$31,159	41.0	9.4

Also included in the State Division valuation were 14,551 inactive members eligible for deferred retirement allowances or contribution refunds.

STATE DIVISION

EMPLOYEES SAVINGS FUND AND EMPLOYER ACCUMULATION FUND

The State Division's balances, at December 31, 1998, in the Employees Savings Fund and Employer Accumulation Fund were reported to the actuary as follows:

Reserve Fund	Reserve Allocation			Total
	Pension	Health#	Survivor Benefit	
Employees Savings Fund	\$ 2,588,159,309	\$ 0	\$ 0	\$ 2,588,159,309
Employer Accumulation Fund*	5,682,658,001	3,233,993,055	299,000,330	9,215,651,386
Market Value Adjustment	1,155,935,221	274,765,268	76,837,388	1,507,537,877
Accrued Transfers	(131,903,490)		(4,886,602)	(136,790,092)
Actuarial Value of Assets	\$ 9,294,849,041	\$ 3,508,758,323	\$ 370,951,116	\$13,174,558,480

In financing the State Division liabilities, the actuarial value of assets was applied to the actuarial accrued liabilities for members.

* After transfers (please see page 7).

Not available for financing basic retirement allowances.

STATE DIVISION RETIREMENT ALLOWANCES
DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES
DECEMBER 31, 1998

Actuarial Present Value December 31, of	(1) Total Actuarial Present Value	Allocation by Entry Age	
		(2) Portion Covered By Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1)-(2)
Age and service allowances based on service rendered before and likely to be rendered after valuation date	\$ 10,846,860,770	\$ 3,237,365,956	\$ 7,609,494,814
Disability allowances likely to be paid present active members who become permanently disabled	1,386,650,784	623,847,471	762,803,313
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	501,231,908	207,118,180	294,113,728
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	1,633,072,644	1,075,987,376	557,085,268
Total	\$14,367,816,106	\$5,144,318,983	\$ 9,223,497,123
Actuarial Value of Assets			9,665,800,157
Unfunded Actuarial Accrued Liability			\$ (442,303,034)

**STATE DIVISION
EMPLOYER CONTRIBUTIONS TO SUPPORT
RETIREMENT ALLOWANCES**

EXPRESSED AS PERCENTS OF ACTIVE MEMBER PAYROLL

Contributions for	Contributions Computed December 31	
	1998	1997
Normal Cost		
Age and Service Allowances	9.31 %	9.31 %
Disability Allowances	1.83 %	1.83 %
Survivor's Benefits	0.60 %	0.59 %
Separation Benefits	2.97 %	2.98 %
Total Normal Cost	14.71 %	14.71 %
(Member Current Contributions)	8.50 %	8.50 %
Employer Normal Cost	6.21 %	6.21 %
Unfunded Actuarial Accrued Liabilities		
Financing Years*	#	3
Member Benefits	#	3.19 %
Survivor benefits	#	(0.29)%
Total	2.90 %	2.90 %
Total Employer Contribution Rate	9.11 %	9.11 %

State Division accrued liabilities are fully funded..

* The period sufficient to produce an Employer Contribution Rate of 9.11% of payroll for retirement allowances and survivor benefits.

STATE DIVISION COMPARATIVE STATEMENT

December 31	Active Members in Valuation			Total Employer Contributions as % of Payroll				
	No.	Annual Payroll		Normal Cost	Unfunded Accrued	Basic Total	Retiree Health	Grand Total
		Total	Average					
		(Millions)						
1990	98,939	\$ 2,501	\$ 25,281	5.7 %	2.78 %	9.29 %	4.42 %	13.71 %
1991&	107,025	2,693	25,163	(0.5)%	2.45 %	9.02 %	4.29 %	13.31 %
1992	109,701	2,767	25,224	0.2 %	2.61 %	9.02 %	4.29 %	13.31 %
1993	112,748	2,894	25,673	1.8 %	2.62 %	9.02 %	4.29 %	13.31 %
1994	115,238	3,063	26,580	3.5 %	2.36 %	9.02 %	4.29 %	13.31 %
1995	114,596	3,204	27,962	5.2 %	2.35 %	9.02 %	4.29 %	13.31 %
1996@	115,712	3,319	28,684	2.6 %	2.81 %	9.02 %	4.29 %	13.31 %
1997	114,036	3,405	29,858	4.1 %	2.90 %	9.11 %	4.20 %	13.31 %
1998	112,323	3,500	31,159	4.4 %	2.90 %	9.11 %	4.20 %	13.31 %

@ Revised actuarial assumptions.

& Reflects inclusion of part-time, seasonal, and temporary employees in compliance with OBRA 90 and revised actuarial assumptions.

STATE DIVISION
DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES
COMPARATIVE STATEMENT
(\$ IN MILLIONS EXCEPT AVERAGES)

Dec. 31	Active Payroll		Active Member Accrued Liabilities for Retirement Allowances				Unfunded /Payroll
			Computed Total	Valuation Assets	Unfunded	Amort. Years	
	Total	Average					
1990@	\$2,501	\$25,281	\$ 5,091	\$3,391	\$1,700	34	0.68
1991&	2,693	25,163	5,528	4,030	1,498	32	0.56
1992	2,767	25,224	5,934	4,552	1,382	25	0.50
1993	2,894	25,673	6,671	5,357	1,314	22	0.45
1994	3,063	26,580	7,182	5,956	1,226	21	0.40
1995	3,204	27,962	7,811	6,706	1,105	17	0.34
1996@	3,319	28,684	8,104	7,387	717	8	0.22
1997	3,405	29,858	8,591	8,268	323	3	0.09
1998	3,500	31,159	9,223	9,666	(443)	-	-

@ Revised actuarial assumptions.

& Reflects inclusion of part-time seasonal, and temporary employees in compliance with OBRA 90 and revised actuarial assumptions.

While no one or two numeric indices can fully describe the financial condition of a retirement plan, the ratio of unfunded actuarial accrued liabilities divided by active member payroll ("UNFUNDED / PAYROLL" above) is significant. Unfunded actuarial accrued liabilities represent plan debt, while active member payroll represents the plan's capacity to collect contributions to pay toward debt --- thus the ratio is a relative index of condition. The lower the ratio, the greater the financial strength. And vice-versa.

—X—

STATE DIVISION
COMPARATIVE SCHEDULE OF GAINS AND LOSSES
(\$ IN MILLIONS)

Year	Gain (Loss) During The Year Due To					
	Service Retirement	Disability Retirement	Survivor Benefits	Other Turnover	Pay Increases	Investment Income
1981@	\$ 20.1	\$ (3.3)	\$ 1.9	\$ (12.2)	\$ (252.5)	\$ 41.7
1982	17.6	0.1	8.0	(4.1)	(197.6)	80.0
1983#	4.5	(0.6)	5.0	(19.1)	40.1	42.1
1984	0.8	11.0	4.6	(52.4)	(23.3)	38.5
1985	(0.1)	11.5	4.0	(77.8)	90.2	345.9
1986@	(0.8)	9.4	3.1	(66.9)	39.6	377.8
1987#	4.4	6.3	10.8	(64.4)	(65.3)	53.2
1988@	8.8	8.0	7.9	(106.9)	(134.0)	91.3
1989	7.1	15.3	8.4	(61.9)	160.2	192.7
1990	25.4	13.0	15.9	(126.6)	43.0	(2.6)
1991@	5.7	7.4	16.3	(67.1)	86.9	151.6
1992	12.4	5.0	15.1	(86.2)	179.0	327.6
1993	8.7	9.2	12.2	(74.9)	165.5	393.1
1994	9.3	11.3	13.8	(89.3)	182.9	(18.6)
1995	13.1	22.0	1.4	(99.5)	127.7	157.9
1996@	9.4	16.8	1.6	(49.4)	73.4	230.0
1997	8.6	14.7	0.9	1.7	105.3	330.2
1998	19.2	17.3	1.4	(49.0)	140.3	712.4
						200.8
						452.9
						513.8
						109.4
						222.6
						281.8
						461.4
						841.6

* Excluding Health and Medicare experience.

After amendments.

@ Revised assumptions.

STATE DIVISION
SALARY INCREASES DURING CALENDAR 1998
TO MEMBERS ACTIVE BOTH AT BEGINNING & END OF YEAR

Age Group Beginning of Year	Number	Actual	Expected	Age Group Beginning of Year
Under 25	4,328	5.16 %	9.49 %	Under 25
25-29	7,882	8.20 %	7.99 %	25-29
30-34	11,263	5.64 %	7.14 %	30-34
35-39	14,895	4.62 %	6.68 %	35-39
40-44	16,507	4.15 %	6.28 %	40-44
45-49	15,991	4.25 %	5.82 %	45-49
50-54	12,080	3.91 %	5.58 %	50-54
55-59	7,186	3.64 %	5.39 %	55-59
60-64	3,524	3.15 %	5.23 %	60-64
65 & Over	1,562	3.48 %	4.76 %	65 & Over
Total	95,218			

Average (including new entrants) 4.40 % 4.75 %

STATE DIVISION
ACTIVE MEMBERS WHO BECAME AGE & SERVICE RETIRANTS
(RETIREMENT WITH MONTHLY PAYMENTS BEGINNING IMMEDIATELY)
DURING CALENDAR 1998

Ages	Number Retiring at Indicated Ages						Grand Total	Ages
	Regular Retirement		Retirement Incentive Plan		Total			
	Men	Women	Men	Women	Men	Women		
Under 55	85	80	42	66	127	146	273	Under 55
55	25	32	9	6	34	38	72	55
56	18	20	5	17	23	37	60	56
57	9	12	5	10	14	22	36	57
58	8	9	5	8	13	17	30	58
59	14	16	3	12	17	28	45	59
60	45	84	8	20	53	104	157	60
61	27	49	6	25	33	74	107	61
62	46	58	7	19	53	77	130	62
63	33	43	5	21	38	64	102	63
64	25	47	13	17	38	64	102	64
65	45	50	9	9	54	59	113	65
66	20	41	2	5	22	46	68	66
67	13	14	6	8	19	22	41	67
68	17	22	3	5	20	27	47	68
69	9	16	4	2	13	18	31	69
70 & Over	25	28	3	6	28	34	62	70 & Over
Totals	464	621	135	256	599	877	1,476	Totals

Expected service retirements

1,267

A year ago 1,829 active members became age and service retirants.

**STATE DIVISION
ACTIVE MEMBERS WHO BECAME DISABILITY RETIRANTS
DURING CALENDAR 1998**

Ages	Number			Ages
	Men	Women	Total	
20-24				20-24
25-29		1	1	25-29
30-34	5	6	11	30-34
35-39	13	23	36	35-39
40-44	35	32	67	40-44
45-49	53	68	121	45-49
50-54	52	63	115	50-54
55-59	31	64	95	55-59
60 & Over	27	25	52	60 & Over
Totals	216	282	498	

Expected disability retirements

276

A year ago, 507 active members became disability retirants.

STATE DIVISION
ACTIVE MEMBERS WHO LEFT ACTIVE STATUS WITH
NO IMMEDIATE ALLOWANCE PAYABLE
(OTHER THAN DEATHS)
DURING CALENDAR 1998

Ages	Total			With 5 or more years of service			Ages
	Men	Women	Total	Men	Women	Total	
Under 25	2,499	2,886	5,385	1		1	Under 25
25-29	1,506	1,608	3,114	32	68	100	25-29
30-34	1,009	1,067	2,076	169	213	382	30-34
35-39	740	852	1,592	187	258	445	35-39
40-44	604	761	1,365	206	262	468	40-44
45-49	416	589	1,005	144	225	369	45-49
50-54	238	380	618	87	173	260	50-54
55-59	145	232	377	53	117	170	55-59
60-64	77	108	185	19	36	55	60-64
65-69	41	44	85	5	12	17	65-69
70 & Over	39	22	61	4	7	11	70 & Over
Totals	7,314	8,549	15,863	907	1,371	2,278	Totals

Expected terminations

10,655

Service at Termination	Men	Women	Total
0	4,486	4,850	9,336
1	888	1,047	1,935
2	492	592	1,084
3	324	416	740
4	217	273	490
5 & Over	907	1,371	2,278
Totals	7,314	8,549	15,863

A year ago, 17,128 active members terminated with no immediate allowance payable.

STATE DIVISION
ACTIVE MEMBERS WHO DIED DURING CALENDAR 1998

Ages	With DEATH-IN-SERVICE Allowance Payable			With NO ALLOWANCE Payable			Ages
	Men	Women	Total	Men	Women	Total	
Under 30	1		1	2	1	3	Under 30
30-34	1	1	2	3	2	5	30-34
35-39	1		1	3		3	35-39
40-44	5	1	6	5	3	8	40-44
45-49	10	5	15	8	6	14	45-49
50-54	10	3	13	7	8	15	50-54
55-59	9	2	11	8	7	15	55-59
60-64	13	6	19	1	5	6	60-64
65-69	4	1	5	1	2	3	65-69
70 & Over	3		3	3	1	4	70 & Over
Totals	57	19	76	41	35	76	Totals

Expected deaths

111

A year ago, 76 active members died with a death-in-service allowance payable and 81 active members died with no allowance payable.

STATE DIVISION
ACTIVE MEMBERS BY YEARS OF SERVICE
JANUARY 1, 1998 TO DECEMBER 31, 1998

Years of Service to Valuation Date	Number Active			
	Beginning of Year		End of Year	
	Men	Women	Men	Women
0	9,573	10,349	9,105	9,465
1	4,090	4,756	4,054	4,659
2	2,952	3,599	2,969	3,499
3	3,230	3,408	2,408	2,966
4	2,380	2,708	2,882	2,948
5 & Over	30,466	36,525	30,861	36,507
Totals	52,691	61,345	52,279	60,044

LOCAL GOVERNMENT DIVISION
(Excluding Law Enforcement Members)

**LOCAL GOVERNMENT DIVISION
(EXCLUDING LAW ENFORCEMENT MEMBERS)**

Local Government Division active members included in the valuation totaled 234,601 involving an annual payroll totaling \$5,239,522,763.

Active Members in Valuation December 31, 1998

Groups	Number	Annual Payroll	Average		
			Pay	Age	Service
Men	109,993	\$2,655,868,579	\$24,146	42.2	8.4
Women	124,608	2,583,654,184	20,734	41.0	7.6
Totals	234,601	\$5,239,522,763	\$22,334	41.6	8.0

Also included in the Local Government Division were 25,647 inactive members eligible for deferred retirement allowances or contribution refunds.

**LOCAL GOVERNMENT DIVISION
(EXCLUDING LAW ENFORCEMENT MEMBERS)
EMPLOYEES SAVINGS FUND AND EMPLOYER ACCUMULATION FUND**

The Local Government Division's balances, at December 31, 1998, in the Employees Savings Fund and Employer Accumulation Fund were reported to the actuary as follows:

Reserve Fund	Reserve Allocation			Total
	Pension	Health#	Survivor Benefit	
Employees Savings Fund	\$ 3,701,347,078	\$ 0	\$ 0	\$ 3,701,347,078
Employer Accumulation Fund*	7,529,015,469	5,522,207,087	428,007,102	13,479,229,658
Market Value Adjustment	1,559,410,165	469,175,624	110,595,985	2,139,181,774
Accrued Transfers	(182,443,387)		(11,174,395)	(193,617,782)
Actuarial Value of Assets	\$ 12,607,329,325	\$ 5,991,382,711	\$ 527,428,692	\$19,126,140,728

In financing the Local Government Division Liabilities, the actuarial value of assets was applied to the accrued liabilities for members.

* After transfers (please see page 7).

Not available for financing basic retirement allowances.

**LOCAL GOVERNMENT DIVISION RETIREMENT ALLOWANCES
(EXCLUDING LAW ENFORCEMENT MEMBERS)
DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES
DECEMBER 31, 1998**

Actuarial Present Value December 31, of	(1) Total Actuarial Present Value	Allocation by Entry Age	
		(2) Portion Covered By Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1)-(2)
Age and service allowances based on service rendered before and likely to be rendered after valuation date	\$14,915,314,517	\$ 4,368,301,985	\$ 10,547,012,532
Disability allowances likely to be paid present active members who become permanently disabled	2,102,798,978	1,005,370,306	1,097,428,672
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	702,059,696	285,226,989	416,832,707
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	2,525,948,316	1,675,676,205	850,272,111
Total	\$20,246,121,507	\$7,334,575,485	\$12,911,546,022
Actuarial Value of Assets			13,134,758,017
Unfunded Actuarial Accrued Liability			\$ (223,211,995)

**LOCAL GOVERNMENT DIVISION
EMPLOYER CONTRIBUTIONS TO SUPPORT
RETIREMENT ALLOWANCES
EXPRESSED AS PERCENTS OF ACTIVE MEMBER PAYROLL**

Contributions for	Contributions Computed December 31	
	1998	1997
Normal Cost		
Age and Service Allowances	8.84 %	8.84 %
Disability Allowances	2.03 %	2.02 %
Survivor's Benefits	0.58 %	0.58 %
Separation Benefits	3.22 %	3.21 %
Total Normal Cost	14.67 %	14.65 %
(Member Current Contributions)	8.50 %	8.50 %
Employer Normal Cost	6.17 %	6.15 %
Unfunded Actuarial Accrued Liabilities		
Financing Years*	#	5
Member Benefits	#	3.40 %
Survivor benefits	#	(0.20)%
Total	3.18 %	3.20 %
Total Employer Contribution Rate	9.35 %	9.35 %

Local Government Division accrued liabilities are fully funded.

* The period sufficient to produce an Employer Contribution Rate of 9.35% of payroll for retirement allowances and survivor benefits.

**LOCAL GOVERNMENT DIVISION
(EXCLUDING LAW ENFORCEMENT MEMBERS)
COMPARATIVE STATEMENT**

December 31	Active Members in Valuation			Total Employer Contributions as % of Payroll				
	No.	Annual Payroll		Normal Cost	Unfunded Accrued	Basic Total	Retiree Health	Grand Total
		Total	Average					
		(Millions)						
1990*	173,220	\$ 3,379	\$ 19,506	6.02 %	2.67 %	8.69 %	5.26 %	13.95 %
1991&	211,835	3,789	17,884	5.95 %	2.49 %	8.44 %	5.11 %	13.55 %
1992	218,295	3,953	18,109	5.80 %	2.64 %	8.44 %	5.11 %	13.55 %
1993	220,410	4,159	18,869	5.85 %	2.59 %	8.44 %	5.11 %	13.55 %
1994	221,987	4,366	19,666	6.16 %	2.28 %	8.44 %	5.11 %	13.55 %
1995	223,431	4,555	20,384	6.17 %	2.27 %	8.44 %	5.11 %	13.55 %
1996*	229,954	4,792	20,839	6.16 %	2.28 %	8.44 %	5.11 %	13.55 %
1997	231,668	4,976	21,481	6.15 %	3.20 %	9.35 %	4.20 %	13.55 %
1998	234,601	5,240	22,334	6.17 %	3.18 %	9.35 %	4.20 %	13.55 %

* Revised actuarial assumptions.

& Reflects inclusion of part-time, seasonal and temporary employees in compliance with OBRA 90 and revised actuarial assumptions.

LOCAL GOVERNMENT DIVISION
(EXCLUDING LAW ENFORCEMENT MEMBERS)
DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES
COMPARATIVE STATEMENT
(\$ IN MILLIONS EXCEPT AVERAGES)

Dec. 31	Active Payroll		Active Member Accrued Liabilities for Retirement Allowances				Unfunded /Payroll
			Computed Total	Valuation Assets	Unfunded	Amort. Years	
	Total	Average					
1990@	\$ 3,379	\$19,506	\$ 6,666	\$ 4,335	\$ 2,331	37	0.69
1991&	3,789	17,884	7,479	5,181	2,298	36	0.61
1992	3,953	18,109	8,147	6,046	2,101	27	0.53
1993	4,159	18,869	9,291	7,147	2,144	26	0.52
1994	4,366	19,666	9,894	7,814	2,080	28	0.48
1995	4,555	20,384	10,630	8,856	1,774	21	0.39
1996@	4,792	20,839	11,286	9,940	1,346	15	0.28
1997	4,976	21,481	11,973	11,218	755	5	0.15
1998	5,240	22,334	12,912	13,135	(223)	-	-

@ Revised actuarial assumptions.

& Reflects inclusion of part-time, seasonal, and temporary employees in compliance with OBRA 90 and revised actuarial assumptions.

While no one or two numeric indices can fully describe the financial condition of a retirement plan, the ratio of unfunded actuarial accrued liabilities divided by active member payroll ("UNFUNDED / PAYROLL" above) is significant. Unfunded accrued liabilities represent plan debt, while active member payroll represents the plan's capacity to collect contributions to pay toward debt --- thus the ratio is a relative index of condition. The lower the ratio, the greater the financial strength. And vice-versa.

LOCAL GOVERNMENT DIVISION
ACTIVE MEMBERS IN VALUATION DECEMBER 31, 1998
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Ages	Years of Service to Valuation Date														Total Number
	Men							Women							
	0-4	5-9	10-14	15-19	20-24	25-29	30+	0-4	5-9	10-14	15-19	20-24	25-29	30+	
15-19	5,220							6,314							11,534
20-24	7,207	81						8,302	168						15,758
25-29	7,601	1,445	31					9,487	1,944	88					20,596
30-34	6,144	3,240	1,091	27				7,329	3,905	1,508	75				23,319
35-39	5,689	3,509	2,944	1,315	122			7,547	3,894	2,948	1,452	141			29,561
40-44	5,370	3,451	3,016	2,565	1,873	110		7,613	4,270	2,975	2,319	1,590	116		35,268
45-49	4,289	3,044	2,434	2,036	2,740	1,382	53	5,905	4,071	2,906	1,920	1,840	900	46	33,566
50	745	570	427	380	430	391	71	969	753	622	338	319	232	42	6,289
51	755	483	405	329	397	404	84	955	726	611	438	324	212	37	6,160
52	770	549	445	330	360	408	100	932	772	649	445	315	234	70	6,379
53	470	345	292	225	214	212	84	630	483	419	279	205	103	51	4,012
54	488	297	296	215	224	169	93	591	471	414	319	211	109	54	3,951
55	516	276	262	210	198	175	73	524	447	404	322	259	89	59	3,814
56	594	373	302	213	185	177	91	556	495	425	421	266	133	62	4,293
57	506	301	259	187	160	153	101	477	438	415	318	217	104	55	3,691
58	467	269	234	179	148	109	78	364	370	363	277	224	93	43	3,218
59	384	271	231	166	128	129	62	354	329	321	254	216	110	58	3,013
60	410	251	191	157	148	103	76	338	286	253	238	198	89	47	2,785
61	358	211	222	152	135	95	58	275	264	230	192	174	81	23	2,470
62	360	213	187	123	103	75	54	239	206	170	160	113	79	30	2,112
63	320	218	132	104	85	67	46	182	163	167	121	108	70	30	1,813
64	310	175	126	81	71	59	40	163	156	133	112	109	55	31	1,621
65	281	151	104	58	46	34	34	144	118	88	81	80	54	26	1,299
66	297	131	81	42	32	31	20	134	93	75	50	61	32	15	1,094
67	261	105	68	49	31	20	17	113	72	67	58	41	28	17	947
68	297	137	56	34	29	19	21	121	66	61	41	42	26	9	959
69	243	92	41	35	26	13	15	96	60	37	34	43	25	14	774
70 & Over	1,398	806	254	156	122	69	68	547	340	153	108	128	79	77	4,305
Totals	51,750	20,994	14,131	9,368	8,007	4,404	1,339	61,201	25,360	16,502	10,372	7,224	3,053	896	234,601

LOCAL GOVERNMENT DIVISION

COMPARATIVE SCHEDULE OF GAINS AND LOSSES

(\$ IN MILLIONS)

Year	Gain (Loss) During The Year Due To					
	Service Retirement	Disability Retirement	Survivor Benefits	Other Turnover	Pay Increases	Investment Income
1982	\$ 16.3	\$ (2.7)	\$ 11.6	\$ (8.2)	\$ (92.7)	\$ 129.4
1983#	9.7	(3.7)	9.9	(22.8)	23.8	68.4
1984	0.5	13.3	5.1	(45.3)	38.7	57.9
1985	1.3	9.0	5.4	(81.4)	79.6	539.7
1986@	(0.7)	6.8	5.7	(66.9)	72.9	584.3
1987#	(0.3)	(0.1)	16.8	(83.4)	129.2	79.3
1988@	13.1	5.9	11.5	(131.5)	(112.0)	136.5
1989	9.4	20.4	12.3	(51.5)	182.2	290.6
1990	12.8	10.2	18.8	(123.8)	114.3	0.5
1991@	6.6	11.7	21.3	(110.3)	108.1	220.9
1992	7.7	12.7	22.9	(121.6)	127.5	472.5
1993	8.5	17.7	20.5	(118.1)	230.7	564.6
1994	11.3	23.3	21.1	(128.0)	167.7	(26.7)
1995	14.0	39.1	2.1	(171.0)	205.3	224.9
1996@	10.2	39.1	1.9	(92.1)	194.8	326.3
1997	16.7	31.2	2.0	(88.0)	156.5	445.6
1998	27.8	35.5	1.9	(89.8)	133.2	963.7
						1,072.3

* Excluding Health and Medicare experience.

After amendments.

@ Revised assumptions.

LOCAL GOVERNMENT DIVISION
SALARY INCREASES DURING CALENDAR 1998
TO MEMBERS ACTIVE BOTH AT BEGINNING & END OF YEAR

Age Group Beginning of Year	Number	Actual	Expected	Age Group Beginning of Year
Under 25	13,854	3.25 %	10.13 %	Under 25
25-29	15,530	10.22 %	7.92 %	25-29
30-34	19,714	6.83 %	6.94 %	30-34
35-39	26,179	6.05 %	6.58 %	35-39
40-44	31,660	5.59 %	6.35 %	40-44
45-49	30,367	5.20 %	5.99 %	45-49
50-54	23,570	4.89 %	5.63 %	50-54
55-59	16,290	4.46 %	5.37 %	55-59
60-64	9,355	4.18 %	5.22 %	60-64
65 & Over	7,863	3.52 %	4.76 %	65 & Over
Total	194,382			

Average (including new entrants) 4.00 % 4.75 %

LOCAL GOVERNMENT DIVISION
ACTIVE MEMBERS WHO BECAME AGE & SERVICE RETIRANTS
(RETIREMENT WITH MONTHLY PAYMENTS BEGINNING IMMEDIATELY)
DURING CALENDAR 1998

Ages	Number Retiring at Indicated Ages						Grand Total	Ages
	Regular Retirement		Retirement Incentive Plan		Total			
	Men	Women	Men	Women	Men	Women		
Under 55	194	114	44	44	238	158	396	Under 55
55	42	24	3	6	45	30	75	55
56	50	32	2	4	52	36	88	56
57	32	24	3	9	35	33	68	57
58	36	27	4	3	40	30	70	58
59	36	26	2	8	38	34	72	59
60	100	185	1	13	101	198	299	60
61	103	117	7	10	110	127	237	61
62	136	141	8	16	144	157	301	62
63	124	104	10	10	134	114	248	63
64	89	93	5	7	94	100	194	64
65	118	85	1	3	119	88	207	65
66	90	79	5	5	95	84	179	66
67	56	63	2	3	58	66	124	67
68	54	31	3	3	57	34	91	68
69	45	33	3	1	48	34	82	69
70 & Over	217	131	1	5	218	136	354	70 & Over
Totals	1,522	1,309	104	150	1,626	1,459	3,085	Totals

Expected service retirements

3,317

A year ago 2,774 active members became age and service retirants.

**LOCAL GOVERNMENT DIVISION
ACTIVE MEMBERS WHO BECAME DISABILITY RETIRANTS
DURING CALENDAR 1998**

Ages	Number			Ages
	Men	Women	Total	
20-24				20-24
25-29	3	5	8	25-29
30-34	8	7	15	30-34
35-39	26	22	48	35-39
40-44	50	52	102	40-44
45-49	75	50	125	45-49
50-54	94	70	164	50-54
55-59	85	83	168	55-59
60 & Over	39	27	66	60 & Over
Totals	380	316	696	

Expected disability retirements 558

A year ago, 720 active members became disability retirants.

LOCAL GOVERNMENT DIVISION
ACTIVE MEMBERS WHO LEFT ACTIVE STATUS WITH
NO IMMEDIATE ALLOWANCE PAYABLE
(OTHER THAN DEATHS)
DURING CALENDAR 1998

Ages	Total			With 5 or more years of service			Ages
	Men	Women	Total	Men	Women	Total	
Under 25	5,035	5,275	10,310	6	14	20	Under 25
25-29	2,043	2,540	4,583	117	162	279	25-29
30-34	1,562	1,984	3,546	251	373	624	30-34
35-39	1,312	1,923	3,235	326	404	730	35-39
40-44	1,294	1,794	3,088	377	464	841	40-44
45-49	1,043	1,366	2,409	299	394	693	45-49
50-54	782	950	1,732	279	313	592	50-54
55-59	545	603	1,148	179	198	377	55-59
60-64	389	299	688	95	77	172	60-64
65-69	303	145	448	55	38	93	65-69
70 & Over	374	149	523	80	39	119	70 & Over
Totals	14,682	17,028	31,710	2,064	2,476	4,540	Totals

Expected terminations

24,215

Service at Termination	Men	Women	Total
0	8,268	9,140	17,408
1	2,152	2,596	4,748
2	1,015	1,349	2,364
3	623	882	1,505
4	560	585	1,145
5 & Over	2,064	2,476	4,540
Totals	14,682	17,028	31,710

A year ago, 30,927 active members terminated with no immediate allowance payable.

LOCAL GOVERNMENT DIVISION
ACTIVE MEMBERS WHO DIED DURING CALENDAR 1998

Ages	With DEATH-IN-SERVICE Allowance Payable			With NO ALLOWANCE Payable			Ages
	Men	Women	Total	Men	Women	Total	
Under 30	2		2	8	3	11	Under 30
30-34	2	2	4	3	2	5	30-34
35-39	6		6	3	3	6	35-39
40-44	9	4	13	6	5	11	40-44
45-49	13	6	19	6	3	9	45-49
50-54	14	5	19	19	10	29	50-54
55-59	32	8	40	13	11	24	55-59
60-64	17	9	26	12	11	23	60-64
65-69	11	3	14	9	7	16	65-69
70 & Over	33	1	34	18	10	28	70 & Over
Totals	139	38	177	97	65	162	Totals

Expected deaths

261

A year ago, 209 active members died with a death-in-service allowance payable and 149 active members died with no allowance payable.

**LOCAL GOVERNMENT DIVISION
ACTIVE MEMBERS BY YEARS OF SERVICE
JANUARY 1, 1998 TO DECEMBER 31, 1998**

Years of Service to Valuation Date	Number Active			
	Beginning of Year		End of Year	
	Men	Women	Men	Women
0	21,358	24,802	21,239	25,400
1	11,080	12,851	11,495	13,257
2	7,868	8,924	7,503	9,246
3	6,096	7,167	6,358	7,165
4	5,176	5,968	5,155	6,133
5 & Over	57,959	62,419	58,243	63,407
Totals	109,537	122,131	109,993	124,608

LAW ENFORCEMENT DIVISION

LAW ENFORCEMENT DIVISION

Law Enforcement active members included in the valuation totaled 7,507, involving an annual payroll totaling \$277,239,390.

Active Members in Valuation December 31, 1998

Groups	Number	Annual Payroll	Average		
			Pay	Age	Service
Men	6,684	\$249,274,513	\$37,294	39.4	11.8
Women	823	27,964,877	33,979	38.5	10.0
Totals	7,507	\$277,239,390	\$36,931	39.3	11.6

Also included with the Law Enforcement members were 249 inactive members eligible for deferred retirement allowances or contribution refunds.

LAW ENFORCEMENT DIVISION

EMPLOYEES SAVINGS FUND AND EMPLOYER ACCUMULATION FUND

The Law Enforcement fund balances, at December 31, 1998, in the Employees Savings Fund and Employer Accumulation Fund were reported to the actuary as follows:

Reserve Fund	Reserve Allocation			Total
	Pension	Health#	Survivor Benefit	
Employees Savings Fund	\$ 218,851,280	\$ 0	\$ 0	\$ 218,851,280
Employer Accumulation Fund*	562,236,218	259,232,484	33,349,793	854,818,495
Market Value Adjustment	94,614,348	22,024,810	6,519,894	123,159,052
Accrued Transfers	(20,305,568)		(616,316)	(20,921,884)
Actuarial Value of Assets	\$ 855,396,278	\$ 281,257,294	\$ 39,253,371	\$1,175,906,943

In financing the Law Enforcement Member's liabilities, the actuarial value of assets was applied to the accrued liabilities for members.

* After transfers (please see page 7).

Not available for financing basic retirement allowances.

**LAW ENFORCEMENT DIVISION RETIREMENT ALLOWANCES
DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES
DECEMBER 31, 1998**

Actuarial Present Value December 31, of	(1) Total Actuarial Present Value	Allocation by Entry Age	
		(2) Portion Covered By Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1)-(2)
Age and service allowances based on service rendered before and likely to be rendered after valuation date	\$1,103,386,705	\$ 396,149,101	\$ 707,237,604
Disability allowances likely to be paid present active members who become permanently disabled	238,578,387	109,752,139	128,826,248
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	59,235,325	26,501,848	32,733,477
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active and inactive members	85,112,739	66,735,028	18,377,711
Total	\$1,486,313,156	\$599,138,116	\$887,175,040
Actuarial Value of Assets			894,649,649
Unfunded Actuarial Accrued Liability			\$ (7,474,609)

**LAW ENFORCEMENT DIVISION
EMPLOYER CONTRIBUTIONS TO SUPPORT
RETIREMENT ALLOWANCES
EXPRESSED AS PERCENTS OF ACTIVE MEMBER PAYROLL**

Contributions for	Contributions Computed December 31	
	1998	1997
Normal Cost		
Age and Service Allowances	12.90 %	12.89 %
Disability Allowances	3.60 %	3.61 %
Survivor's Benefits	0.87 %	0.88 %
Separation Benefits	2.11 %	2.11 %
Total Normal Cost	19.48 %	19.49 %
(Member Current Contributions)	9.00 %	9.00 %
Employer Normal Cost	10.48 %	10.49 %
Unfunded Actuarial Accrued Liabilities		
Financing Years*	#	10
Member Benefits	#	2.12 %
Survivor benefits	#	(0.11)%
Total	2.02 %	2.01 %
Total Employer Contribution Rate	12.50 %	12.50 %

Law Enforcement Division accrued liabilities are fully funded.

* The period sufficient to produce an Employer Contribution Rate of 12.50% of payroll for retirement allowances and survivor benefits.

LAW ENFORCEMENT DIVISION COMPARATIVE STATEMENT

December 31	Active Members in Valuation			Total Employer Contributions as % of Payroll				
	No.	Annual Payroll		Normal Cost	Unfunded Accrued	Basic Total	Retiree Health	Grand Total
		Total	Average					
		(Thousands)						
1990	5,804	\$156,339	\$26,936	9.52 %	1.29 %	10.81 %	5.19 %	16.00 %
1991@	6,088	169,008	27,761	9.32 %	1.49 %	10.81 %	5.89 %	16.70 %
1992	5,852	169,337	28,937	9.65 %	1.16 %	10.81 %	5.89 %	16.70 %
1993	6,032	182,576	30,268	9.53 %	1.28 %	10.81 %	5.89 %	16.70 %
1994	6,252	196,467	31,425	9.71 %	1.10 %	10.81 %	5.89 %	16.70 %
1995	6,605	214,273	32,441	9.69 %	1.12 %	10.81 %	5.89 %	16.70 %
1996@	6,742	229,138	33,987	10.50 %	0.74 %	11.24 %	5.46 %	16.70 %
1997	7,256	258,897	35,680	10.49 %	2.01 %	12.50 %	4.20 %	16.70 %
1998	7,507	277,239	36,931	10.48 %	2.02 %	12.50 %	4.20 %	16.70 %

@ Revised actuarial assumptions.

LAW ENFORCEMENT DIVISION
DEVELOPMENT OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES
COMPARATIVE STATEMENT
(\$ IN MILLIONS EXCEPT AVERAGES)

Dec. 31	Active Payroll		Active Member Accrued Liabilities for Retirement Allowances				Unfunded /Payroll
			Computed Total	Valuation Assets	Unfunded	Amort. Years	
	Total	Average					
1990	\$ 156	\$26,936	\$ 388	\$ 341	\$ 47	32	0.30
1991@	169	27,761	438	399	39	19	0.23
1992	169	28,937	467	452	15	8	0.09
1993	183	30,268	533	512	21	10	0.11
1994	196	31,425	580	555	25	13	0.13
1995	214	32,441	638	612	26	12	0.12
1996@	229	33,987	711	676	35	30	0.15
1997	259	35,680	821	773	48	10	0.19
1998	277	36,931	887	895	(8)	-	-

@ Revised actuarial assumptions.

While no one or two numeric indices can fully describe the financial condition of a retirement plan, the ratio of unfunded actuarial accrued liabilities divided by active member payroll ("UNFUNDED / PAYROLL" above) is significant. Unfunded accrued liabilities represent plan debt, while active member payroll represents the plan's capacity to collect contributions to pay toward debt --- thus the ratio is a relative index of condition. The lower the ratio, the greater the financial strength. And vice-versa.

LAW ENFORCEMENT DIVISION
ACTIVE MEMBERS IN VALUATION DECEMBER 31, 1998
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Ages	Years of Service to Valuation Date														Total Number
	Men							Women							
	0-4	5-9	10-14	15-19	20-24	25-29	30+	0-4	5-9	10-14	15-19	20-24	25-29	30+	
15-19	193	5						35	38	2					233
20-24	769	329	4					84							1,226
25-29								59	60	27	2				1,266
30-34	370	573	170	5				31	48	54	21	1			1,203
35-39	144	334	386	179	5	6		16	35	42	35	23			1,276
40-44	101	160	229	434	195	116	4	11	18	24	24	26	5		1,096
45-49	53	114	126	242	333										
50	5	18	19	32	40	52	4	1	1	5	4	3			184
51	13	7	19	29	33	40	4	1	3	2	4	3			158
52	7	20	16	29	47	40	10		1	4	5	3			182
53	4	15	10	20	17	22	5	2		3	3	1	1		103
54	3	7	12	9	14	12	6			2	5	1			71
55	1	4	13	17	17	9	7		1	2	4	1			76
56	1	6	11	9	13	18	9				3	2	1		73
57	4	4	6	17	7	10	8	1			1	2			60
58	2	3	4	7	9	19	2	1	2	2	3	2			56
59	1	2	7	16	12	15	3		1			1			58
60		4	8	12	8	6	2		1		1				42
61	1	4	8	6	10	4	5				2				40
62	3	4	6	4	4	3	4				1	1		1	31
63	5	1	3	3	4	6	1			1					23
64	2		1	1	2	1	1					1			9
65		3	1	2	3		1				1				11
66		2	2	2	2		3					1	1		12
67			2		1										3
68	1	1	1	1	1	1									4
69															3
70 & Over	1	1	1	1	1		2	1							8
Totals	1,684	1,621	1,063	1,077	778	381	80	243	209	170	119	72	8	2	7,507

LAW ENFORCEMENT DIVISION
COMPARATIVE SCHEDULE OF GAINS AND LOSSES
(\$ IN MILLIONS)

Year	Gain (Loss) During The Year Due To					
	Service Retirement	Disability Retirement	Survivor Benefits	Other Turnover	Pay Increases	Investment Income
1982	\$ 0.3	\$ 0.1	\$ 0.3	\$ 0.5	\$ (2.2)	\$ 2.2
1983#	0.4	(0.5)	0.1	0.3	(0.2)	1.8
1984	0.8	(0.2)	0.2	0.0	0.1	2.0
1985	(0.3)	(0.3)	0.3	(0.7)	1.2	15.4
1986@	0.0	(0.3)	0.4	(2.3)	(3.5)	18.7
1987#	0.1	(0.6)	0.3	(3.1)	3.0	1.1
1988@	0.1	0.6	0.5	(4.9)	1.1	5.3
1989	0.2	(0.1)	0.7	(4.3)	10.3	9.6
1990	(0.2)	0.2	0.9	(6.4)	8.1	(2.6)
1991@	0.2	(0.2)	0.6	(5.6)	3.7	10.4
1992	0.5	(2.5)	0.9	(5.6)	5.5	23.1
1993	(1.4)	(0.9)	1.3	(5.0)	9.3	27.6
1994	(0.6)	(0.2)	1.4	(6.8)	7.9	(1.4)
1995	1.6	3.2	0.3	(8.4)	8.8	11.8
1996@	0.3	1.5	0.1	(4.3)	5.8	17.2
1997	1.9	(1.1)	0.2	(3.3)	5.8	25.6
1998	1.6	(3.4)	0.2	(4.5)	14.6	57.2
						\$ 1.2
						1.9
						2.9
						15.6
						13.0
						0.8
						2.7
						16.4
						0.0
						9.1
						21.9
						30.9
						0.3
						17.3
						20.6
						29.1
						65.7

* Excluding Health and Medicare experience.

After amendments.

@ Revised assumptions.

LAW ENFORCEMENT DIVISION
SALARY INCREASES DURING CALENDAR 1998
TO MEMBERS ACTIVE BOTH AT BEGINNING & END OF YEAR

Age Group Beginning of Year	Number	Actual	Expected	Age Group Beginning of Year
Under 25	139	21.98 %	10.85 %	Under 25
25-29	994	11.52 %	8.94 %	25-29
30-34	1,076	5.93 %	7.49 %	30-34
35-39	1,107	5.09 %	6.71 %	35-39
40-44	1,216	4.42 %	6.29 %	40-44
45-49	1,052	3.88 %	6.01 %	45-49
50-54	615	3.68 %	5.86 %	50-54
55-59	300	3.30 %	5.67 %	55-59
60-64	125	3.87 %	5.34 %	60-64
65 & Over	32	6.77 %	4.76 %	65 & Over
Total	6,656			

Average (including new entrants) 3.50 % 4.75 %

LAW ENFORCEMENT DIVISION
ACTIVE MEMBERS WHO BECAME AGE & SERVICE RETIRANTS
(RETIREMENT WITH MONTHLY PAYMENTS BEGINNING IMMEDIATELY)
DURING CALENDAR 1998

Ages	Number Retiring at Indicated Ages							Ages
	Regular Retirement		Retirement Incentive Plan		Total		Grand Total	
	Men	Women	Men	Women	Men	Women		
Under 55	35		1		36		36	Under 55
55	6				6		6	55
56	5	1			5	1	6	56
57	3				3		3	57
58	4				4		4	58
59	2	1			2	1	3	59
60	5				5		5	60
61	1				1		1	61
62	7				7		7	62
63	6				6		6	63
64								64
65	2				2		2	65
66	2	1			2	1	3	66
67	1				1		1	67
68	3				3		3	68
69	2				2		2	69
70 & Over	3				3		3	70 & Over
Totals	87	3	1		88	3	91	Totals

Expected service retirements

92

A year ago 77 active members became age and service retirants.

**LAW ENFORCEMENT DIVISION
ACTIVE MEMBERS WHO BECAME DISABILITY RETIRANTS
DURING CALENDAR 1998**

Ages	Number			Ages
	Men	Women	Total	
20-24				20-24
25-29				25-29
30-34	2	1	3	30-34
35-39	11	2	13	35-39
40-44	20	4	24	40-44
45-49	18	3	21	45-49
50-54	13	1	14	50-54
55-59	8		8	55-59
60 & Over	2		2	60 & Over
Totals	74	11	85	

Expected disability retirements

46

A year ago, 74 active members became disability retirants.

LAW ENFORCEMENT DIVISION
ACTIVE MEMBERS WHO LEFT ACTIVE STATUS WITH
NO IMMEDIATE ALLOWANCE PAYABLE
(OTHER THAN DEATHS)
DURING CALENDAR 1998

Ages	Total			With 5 or more years of service			Ages
	Men	Women	Total	Men	Women	Total	
Under 25	16	3	19				Under 25
25-29	63	16	79	7		7	25-29
30-34	52	7	59	22	3	25	30-34
35-39	24	2	26	18	2	20	35-39
40-44	22	4	26	12	2	14	40-44
45-49	11	1	12	5	1	6	45-49
50-54	11	2	13	7	1	8	50-54
55-59	7	1	8	5	1	6	55-59
60-64	2		2	1		1	60-64
65-69	3		3				65-69
70 & Over							70 & Over
Totals	211	36	247	77	10	87	Totals

Expected terminations

250

Service at Termination	Men	Women	Total
0	40	5	45
1	32	5	37
2	28	7	35
3	17	7	24
4	17	2	19
5 & Over	77	10	87
Totals	211	36	247

A year ago, 249 active members terminated with no immediate allowance payable.

LAW ENFORCEMENT DIVISION
ACTIVE MEMBERS WHO DIED DURING CALENDAR 1998

Ages	With DEATH-IN-SERVICE Allowance Payable			With NO ALLOWANCE Payable			Ages
	Men	Women	Total	Men	Women	Total	
Under 30							Under 30
30-34							30-34
35-39	2		2				35-39
40-44	1		1	1		1	40-44
45-49	1		1				45-49
50-54	3		3				50-54
55-59	2		2				55-59
60-64	1		1				60-64
65-69	1		1				65-69
70 & Over							70 & Over
Totals	11		11	1		1	Totals

Expected deaths

10

A year ago, 6 active members died with a death-in-service allowance payable and 4 active members died with no allowance payable.

LAW ENFORCEMENT DIVISION
ACTIVE MEMBERS BY YEARS OF SERVICE
JANUARY 1, 1998 TO DECEMBER 31, 1998

Years of Service to Valuation Date	Number Active			
	Beginning of Year		End of Year	
	Men	Women	Men	Women
0	246	39	266	34
1	296	41	287	51
2	367	47	319	53
3	390	55	392	45
4	317	44	420	60
5 & Over	4,864	550	5,000	580
Totals	6,480	776	6,684	823

BENEFITS AND CONDITIONS EVALUATED

BENEFITS AND CONDITIONS EVALUATED

Age and service retirement - State and Local Government Members. A member who (i) has attained age 60 years and has 5 or more years of service credit, or (ii) has attained age 55 years and has 25 or more years of service credit, or (iii) has 30 or more years of service credit, may retire with an age and service retirement allowance.

Final average salary ("FAS") means the average of the annual earnings for the 3 highest calendar years of compensation.

Age and service allowance - State and Local Government Members. A retiring member's age and service allowance is equal to Ohio service credit times the greater of \$86, or 2.1% of FAS (2.5% for years of service over 30 years). The allowance is then adjusted by factors based on attained age or years of service as determined in the following schedule:

Attained Age	OR	Years of Service Credit	Percentage of Base Amount
58		25	75%
59		26	80
60		27	85
61			88
		28	90
62			91
63			94
		29	95
64			97
65		30 or more	100

Maximum allowance is 100% of FAS. Minimum allowance is based upon twice the member's savings funding balance at retirement together with interest credits.

Age and service allowance - Law Enforcement Members. A law enforcement member who has attained age 52 and has 25 or more years of credited service may retire with an age and service allowance equal to 2.5% of FAS times the first 20 years of service credit, plus 2.1% of FAS times service credit in excess of 20 years but less than 25 years, and 1.5% of FAS times service credit in excess of 25 years. Maximum allowance is 90% of FAS. Minimum allowance is based upon twice the member's savings fund balance at retirement together with interest credits.

A law enforcement member may retire as early as age 48 with reduced benefits.

Health Care Coverage. Health care coverage is available to persons being paid a monthly allowance from PERS. Members retiring after June 13, 1986 must have 10 or more years of service credit to be eligible for this benefit.

Medicare premiums. Medicare part B premiums are paid for those eligible, upon proof of coverage. Members retiring after June 13, 1986 must have 10 or more years of service credit to be eligible for this benefit.

Disability retirement. The disability program was revised in order to comply with the Older Workers Benefit Protection Act. Employees becoming members after July 29, 1992 are covered by the post July 29, 1992 program. Other members can remain covered by the pre July 29, 1992 program or elect to be covered by the post July 29, 1992 program.

Features of the pre July 29, 1992 disability program are:

- a) Upon becoming permanently disabled after completion of at least 5 years of service but before attaining age 60, a member is eligible for a disability allowance.
- b) The amount of the allowance is 2.1% of FAS times the service the member would have had if employment had continued to age 60.
- c) Maximum allowance is 75% of FAS, minimum allowance is 30% of FAS.

Features of the post July 29, 1992 disability program are:

- a) A member may apply at any age after completion of 5 years of service.
- b) A disability benefit equal to the greater of 45% of FAS or the accrued benefit based on actual service with no early retirement reduction (maximum 60% of FAS). The disability benefit period is to age 65 if the member is disabled prior to age 60. The benefit period declines gradually from 60 months for members disabled at ages 60 and 61 to 12 months for members disabled at age 69 or older.
- c) After the disability benefit ends, a service retirement benefit equal to the greater of the benefit based on actual service plus service credit granted for the period of disability benefits (maximum 45% of FAS) or the accrued benefit based on actual service is payable for life.

~~*Death while eligible to retire.*~~ If a member dies in service after becoming eligible to retire with an age and service allowance and leaves a surviving spouse or other sole dependent beneficiary, the survivor receives the same amount that would have been paid had the member retired the last day of the month of death and elected the 100% joint and survivor form of payment.

Survivor (death-in-service) allowances. Upon the death of a member with at least 1-1/2 years of Ohio service credit and with at least 1/4 year of Ohio contributing service credit within the 2-1/2 years prior to the date of death, the following allowances are payable:

- (a) Spouse: A monthly allowance, commencing at age 62, or age 50 if the deceased member had 10 or more years of Ohio service credit, or regardless of age if caring for a dependent child or if mentally or physically incompetent. Allowance equals 25% of the deceased member's FAS. Minimum monthly allowance is \$96, or \$106 if deceased member had 10 or more years of Ohio service credit. Allowance terminates upon remarriage.

(b) Spouse's child-care allowance: An allowance of 40% of FAS is payable to the spouse of a deceased member while caring for 1 dependent child, with a minimum monthly allowance of \$186. Allowance is 50% of FAS if 2 dependent children, or 55% of FAS if 3 dependent children, or 60% of FAS if 4 or more dependent children. Minimum monthly allowance is \$236 for 2 or more children. A dependent child is defined to be an unmarried child under the age of 18, or 22 if attending an approved school.

(c) Children's allowances: A monthly allowance payable to each child of the deceased member who is unmarried and under the age of 18, or 22 if attending an approved school. Allowances equal 25% of the deceased member's FAS for 1 child, an equal share of 40% of FAS if there are 2 children, an equal share of 50% of FAS if there are 3 children, an equal share of 55% of FAS if there are 4 children, or an equal share of 60% of FAS if there are 5 or more children. Minimum monthly allowance is \$96 for 1 child, \$186 for 2 children, and \$236 for 3 or more children.

(d) Dependent parent's allowance: A monthly allowance is payable to a dependent parent aged 65 or more (earlier if mentally or physically incompetent) who received at least one-half support from the member during the 12-month period immediately preceding the member's death. Allowance equals 25% of FAS for 1 parent with a minimum monthly allowance of \$96, and 40% of FAS shared equally for 2 parents with minimum monthly allowances totaling \$186.

Post-retirement increases. Each July after June 30, 1971 or the annual anniversary established 12 months after the initial date of retirement, each allowance is recomputed to be equal to the initial allowance increased by 3.0% for each completed year of retirement. The maximum recomputed allowance equals the initial allowance adjusted for increases in the Consumer Price Index. The minimum recomputed allowance equals the initial allowance.

Post-retirement death benefit. Upon the death of an age and service or disability retirant, a death benefit in the following amount is payable:

Service Credit At Retirement	Amount of Death Benefit
5 to 9 years	\$ 500
10 to 14 years	1,000
15 to 19 years	1,500
20 to 24 years	2,000
25 or more years	2,500

Deferred benefits. A member with at least 5 years of service credit who leaves service before being eligible for an immediate allowance and who does not withdraw accumulated contributions will be entitled to a deferred allowance at age 60. The amount of the allowance will be based on credited service and final average salary at time of leaving service.

Optional Benefit Forms. Retiring members may elect to have benefits paid in straight life form, in a form that guarantees a minimum number of monthly payments, or in a form that provides a continuation of all or a portion of the monthly benefit to a beneficiary after the death of the retiree. If a retiring member elects benefits in other than straight life form, the monthly amount is adjusted. The adjustment is based upon valuation interest and mortality assumptions (with a blend of male and female mortality rates to produce unisex election factors consistent with the gender distribution of members electing optional forms of payment).

Member contributions. State and Local Government members contribute 8.5% of pay. Law enforcement members contribute 9.0% of pay. The maximum statutory rate is 10%.

Refund of members accumulated contributions. In the event a member leaves service before any monthly benefits are payable, accumulated contributions are refunded.

Employer contributions. Each employer contributes the remainder amounts necessary to finance PERS benefits. Employer contributions are expressed as percents of member covered payroll. The maximum statutory rate is 14%, except for law enforcement members.

ACTUARIAL METHODS AND ASSUMPTIONS

**SUMMARY OF
ACTUARIAL METHODS AND ASSUMPTIONS USED FOR PERS
ACTUARIAL VALUATIONS
ASSUMPTIONS ADOPTED BY RETIREMENT BOARD
AFTER CONSULTING WITH ACTUARY**

The entry age actuarial cost method of valuation was used in determining liabilities and normal cost.

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce payments (principal & interest) which are level percent of payroll contributions.

The actuarial assumptions used in the valuation are shown in this Section. Both the economic and decrement assumptions were established following the December 31, 1995 actuarial valuations.

ECONOMIC ASSUMPTIONS

The investment return rate used in making the valuations was 7.75% per year, compounded annually (net after administrative expenses). The real rate of return is the portion of total investment return which is more than the inflation rate. Considering other financial assumptions, the 7.75% investment return rate translates to an assumed real rate of return of 3.00%.

Pay increase assumptions for individual active members are shown for sample ages on pages V-4, V-5, & V-6. Part of the assumption for each age is for merit and/or seniority increase, and the other 4.75% recognizes inflation.

The active member payroll is assumed to increase 4.75% annually, which is the portion of the individual pay increase assumptions attributable to inflation.

The number of active members is assumed to continue at the present number.

NON-ECONOMIC ASSUMPTIONS

The post-retirement mortality rates used in evaluating age and service survivor benefit allowances to be paid were 90% of rates in the 1971 Group Annuity Mortality Male and Female Tables, projected to 1984. Related values are shown on page V-7. The mortality rates for disability allowances were the same as those for age and service retirees 10 years older.

The probabilities of normal and early age and service retirement are shown on page V-3.

The probabilities of withdrawal from service, disability and death-in-service are shown for sample ages on pages V-4, V-5 & V-6. For withdrawal from service it was assumed that members terminating before age 35, members terminating with less than 5 years of service, and a percentage of all other members would withdraw their contributions and forfeit their entitlement to an employer financed benefit. The percentage is 100% at age 35 and is reduced for each year of age after 35, becoming 0% at age 55 (age 45 for law enforcement members).

The probabilities of having an eligible survivor (spouse, child, parent) in the event of death in service were 80% for state and local government members and 90% for law enforcement members.

Additional assumptions for Health Care Coverages are shown on page V-7.

Employer contributions were assumed to be *paid in equal installments* throughout the employer fiscal year.

Present assets (cash & investments) at funding value are shown on pages 7 and 8.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.)

Probabilities of Normal Age and Service Retirement

Ages	Percent of Eligible Active Members Retiring Within Next Year				
	State		Local Government		Law Enforcement
	Men	Women	Men	Women	
50-54	15%	20%	23%	20%	25%
55-58	15%	20%	23%	20%	25%
59	18%	21%	20%	20%	20%
60	20%	22%	25%	25%	15%
61	21%	25%	25%	28%	15%
62	22%	30%	27%	30%	15%
63	25%	30%	28%	30%	15%
64	25%	30%	30%	30%	15%
65	25%	25%	25%	25%	30%
66	25%	20%	25%	25%	30%
67	25%	20%	20%	20%	25%
68	25%	20%	20%	20%	25%
69-79	25%	20%	20%	20%	30%
80	100%	100%	100%	100%	100%
Ref	505	506	507	508	511

Probabilities of Early Retirement

Ages	Percent of Eligible Active Members Retiring Within Next Year				
	State		Local Government		Law Enforcement
	Men	Women	Men	Women	
48					3%
49					3%
50					7%
51					7%
55	15%	18%	10%	12%	
56	15%	18%	10%	12%	
57	15%	18%	10%	12%	
58	15%	18%	10%	12%	
59	15%	18%	10%	12%	
60	12%	15%	12%	13%	
61	12%	15%	12%	13%	
62	12%	15%	15%	13%	
63	15%	15%	15%	13%	
64	18%	18%	15%	13%	
Ref	503	504	509	510	515

STATE
SEPARATIONS FROM ACTIVE EMPLOYMENT BEFORE AGE & SERVICE RETIREMENT
& INDIVIDUAL PAY INCREASE ASSUMPTIONS

Sample Ages	Years of Service	Percent of Active Members Separating Within the Next Year						Pay Increase Assumptions For An Individual Employee		
		Death		Withdrawal		Disability		Merit & Seniority	Base (Economy)	Increase Next Year
		Men	Women	Men	Women	Men	Women			
	0			39.00%	35.00%					
	1			17.00%	17.00%					
	2			13.00%	14.00%					
	3			9.00%	10.00%					
	4			6.50%	8.00%					
	5 & Over	0.04%	0.02%	6.20%	7.30%	0.07%	0.06%	3.86%	4.75%	8.61%
25		0.05%	0.03%	5.16%	6.66%	0.08%	0.06%	2.62%	4.75%	7.37%
30		0.07%	0.04%	4.18%	5.20%	0.16%	0.11%	2.06%	4.75%	6.81%
35		0.11%	0.06%	3.36%	4.00%	0.27%	0.21%	1.66%	4.75%	6.41%
40										
45		0.19%	0.08%	2.64%	3.36%	0.46%	0.37%	1.20%	4.75%	5.95%
50		0.34%	0.13%	2.28%	2.90%	0.75%	0.69%	0.88%	4.75%	5.63%
55		0.55%	0.19%	2.08%	2.52%	1.26%	0.94%	0.68%	4.75%	5.43%
60		0.84%	0.32%	0.60%	0.70%	2.06%	1.50%	0.54%	4.75%	5.29%
Ref		0.7	* 68	0.7	* 69	183	184	191	120	148
				324	325					

LOCAL GOVERNMENT
SEPARATIONS FROM ACTIVE EMPLOYMENT BEFORE AGE & SERVICE RETIREMENT
& INDIVIDUAL PAY INCREASE ASSUMPTIONS

Sample Ages	Years of Service	Percent of Active Members Separating Within the Next Year						Pay Increase Assumptions For An Individual Employee		
		Death		Withdrawal		Disability		Merit & Seniority	Base (Economy)	Increase Next Year
		Men	Women	Men	Women	Men	Women			
	0			36.00%	34.50%					
	1			17.00%	18.00%					
	2			13.00%	14.00%					
	3			10.00%	11.00%					
	4			8.00%	9.00%					
25	5 & Over	0.04%	0.02%	6.80%	8.40%	0.07%	0.06%	3.80%	4.75%	8.55%
30		0.05%	0.03%	5.40%	7.28%	0.11%	0.09%	2.40%	4.75%	7.15%
35		0.07%	0.04%	4.40%	5.72%	0.25%	0.15%	1.95%	4.75%	6.70%
40		0.11%	0.06%	3.52%	4.40%	0.39%	0.26%	1.70%	4.75%	6.45%
45		0.19%	0.08%	3.08%	3.76%	0.62%	0.39%	1.40%	4.75%	6.15%
50		0.34%	0.13%	2.82%	3.36%	0.95%	0.63%	1.00%	4.75%	5.75%
55		0.55%	0.19%	2.58%	2.96%	1.46%	0.97%	0.65%	4.75%	5.40%
60		0.84%	0.32%	0.60%	0.80%	1.88%	1.70%	0.54%	4.75%	5.29%
Ref		0.7	* 68	0.7	* 69	185	186	192	193	149
				326	327					

**LAW ENFORCEMENT
SEPARATIONS FROM ACTIVE EMPLOYMENT BEFORE AGE & SERVICE RETIREMENT
& INDIVIDUAL PAY INCREASE ASSUMPTIONS**

Sample Ages	Years of Service	Percent of Active Members Separating Within the Next Year				Pay Increase Assumptions For An Individual Employee		
		Death		Withdrawal		Disability Men & Women	Merit & Seniority	Base (Economy)
		Men	Women	Men	Women			
	0				18.00%			
	1				10.00%			
	2				8.00%			
	3				7.00%			
	4				6.00%			
	5 & Over							
25		0.04%	0.02%		4.80%	0.20%	5.10%	4.75%
30		0.05%	0.03%		3.52%	0.26%	3.10%	4.75%
35		0.07%	0.04%		2.78%	0.42%	2.10%	4.75%
40		0.11%	0.06%		2.32%	0.62%	1.70%	4.75%
45		0.19%	0.08%		1.96%	1.06%	1.35%	4.75%
50		0.34%	0.13%		1.62%	1.54%	1.14%	4.75%
55		0.55%	0.19%		1.60%	2.12%	1.00%	4.75%
60		0.84%	0.32%		0.50%	2.76%	0.70%	4.75%
Ref		0.7	* 68	0.7	* 69	187	150	
					328	194		

Single Life Retirement Values

Sample Attained Ages	Present Value of \$1 Monthly for Life Increasing 3.0% Annually (First Increase After 1 Year)		Future Life Expectancy (years)	
	Males	Females	Males	Females
50	\$169.73	\$186.48	28.55	34.58
55	156.48	175.64	24.26	29.89
60	141.12	162.15	20.19	25.31
65	123.82	146.02	16.40	20.92
70	105.70	127.19	13.02	16.76
75	88.21	106.96	10.17	13.03
80	71.30	87.22	7.75	9.89
Ref:	68 x 0.90	69 x 0.90		

FINANCING PRINCIPLES

FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES OF PERS

Promises Made, and To Be Paid For. As each year is completed, PERS in effect hands an "IOU" to each member then acquiring a year of service credit --- the "IOU" says: "The Public Employees Retirement System of Ohio owes you one year's worth of retirement benefits, payments 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 Ohio at the time the IOU becomes a cash demand, years and often decades later?

The law governing PERS financing intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. With this financial objective, *the employer contribution rate is expected to remain approximately level from generation to generation of taxpayers.*

There are systems which have a design for deferring contributions to future taxpayers. Lured by a lower contribution rate now, they put aside the consequence that the contribution rate must then relentlessly grow to a level much higher than would be required if a level contribution pattern were followed.

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. *Investment income* becomes *the 3rd and largest contributor* for benefits to employees, and is interlocked with the contribution amounts required from employees and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Normal Cost (the cost of members' service being rendered this year)

... plus ...

Interest on Unfunded Actuarial Accrued Liabilities (unfunded actuarial accrued liabilities are the difference between: liabilities for service already rendered; and the accrued assets of PERS).

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

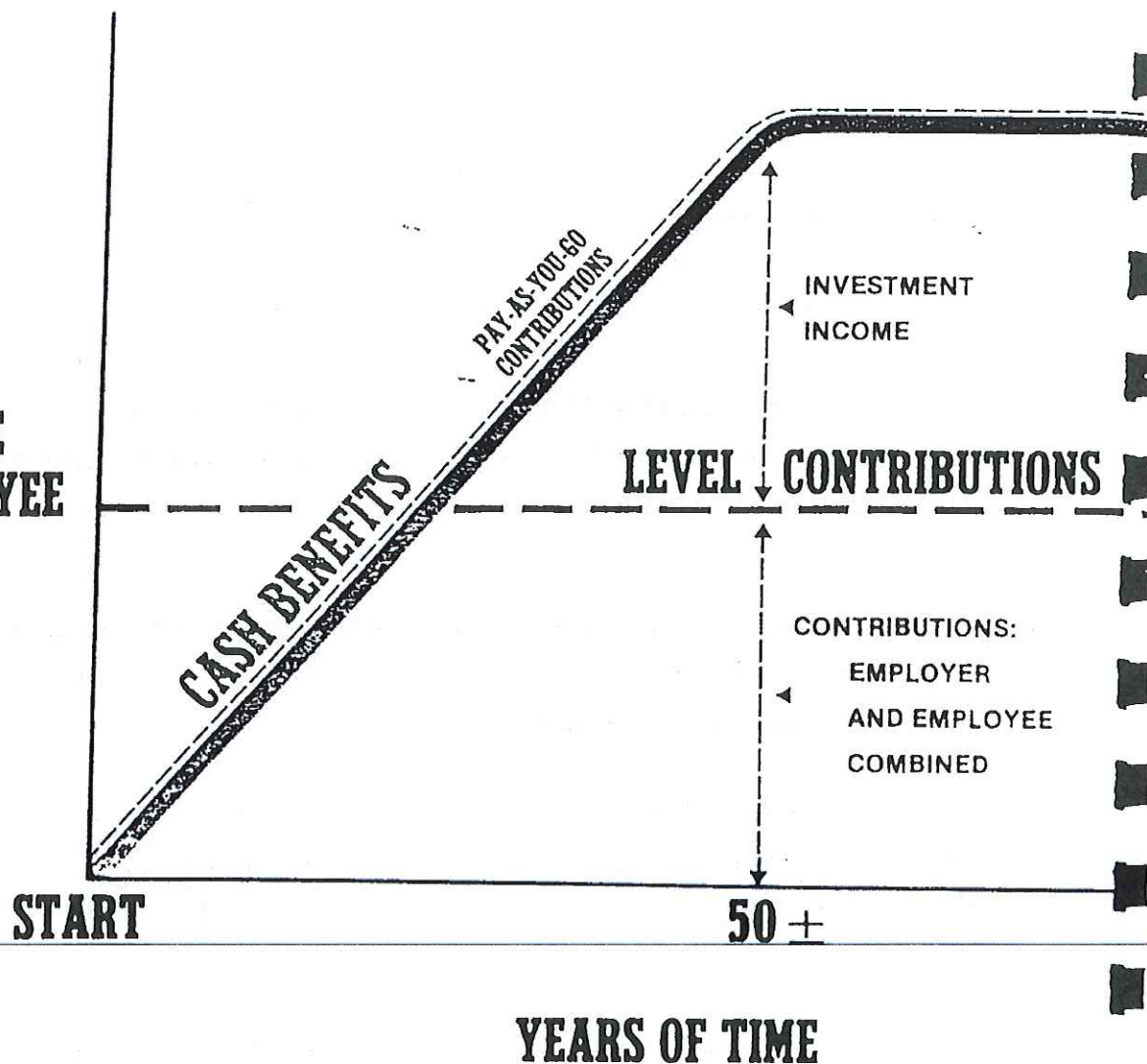
An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

In an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. The assumptions are established by the Retirement Board after receiving the advice of the actuary.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and has been observed, it will not coincide exactly with assumed experience, regardless of the skill of the actuary and the many calculations made. The future can not be predicted with 100% precision.

PERS copes with these continually changing differences by having annual 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 adjustments in financial position*.

**% OF
ACTIVE
EMPLOYEE
PAYS**



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

THE ACTUARIAL VALUATION PROCESS

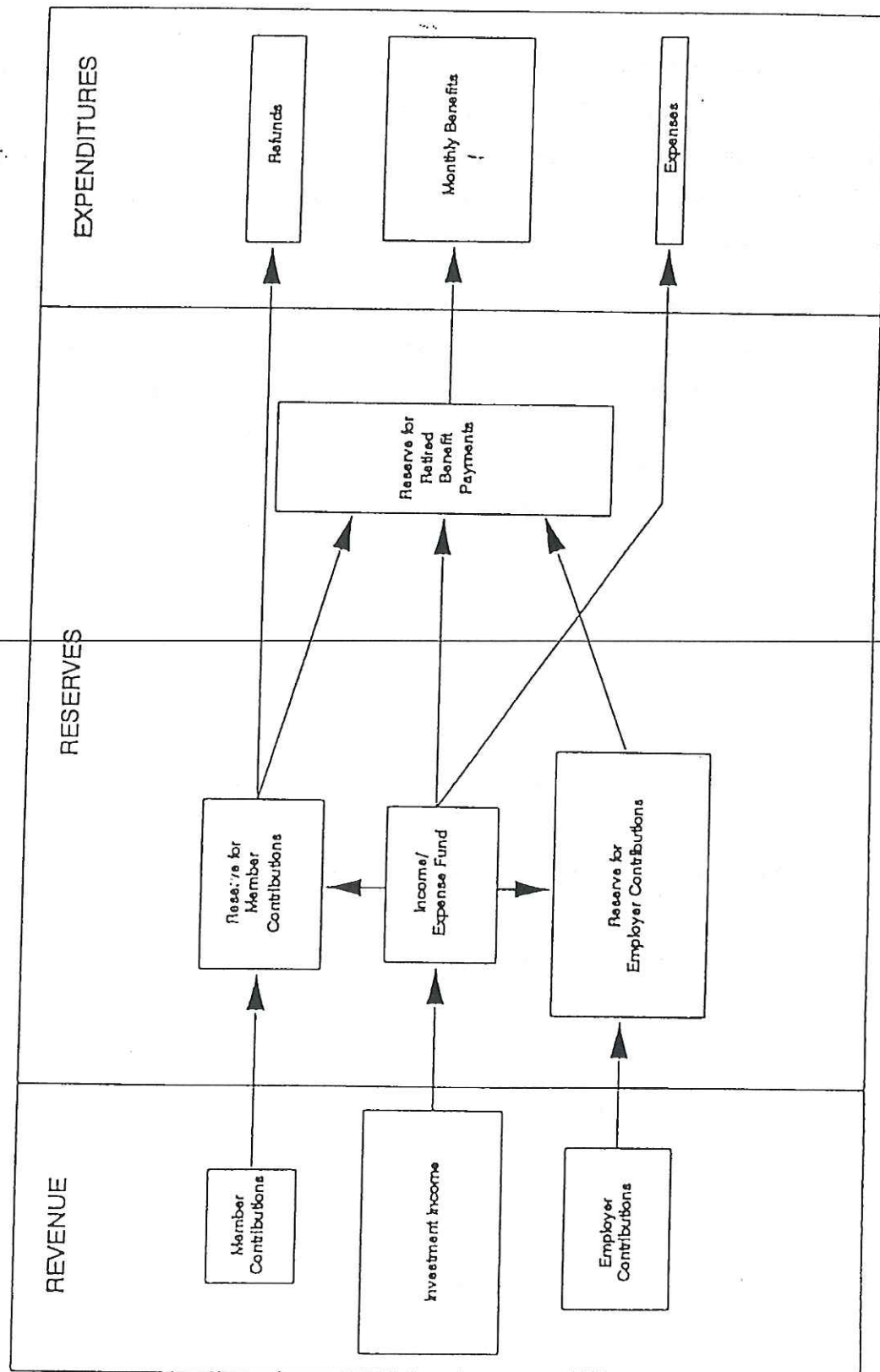
The financing diagram on the opposite page shows the relationship between *the two fundamentally different philosophies of paying* for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) which is thus an *increasing contribution method*; and, the *level contribution method* which attempts to equalize contributions between the generations.

The actuarial valuation is the mathematical process by which the level contribution rate is determined. The activity constituting the valuation may be summarized as follows:

- A. *Census Data*, including:
 - Retired lives now receiving benefits
 - Former employees with vested benefits not yet payable
 - Active employees

- B. + *Asset data* (cash & investments)
- C. + *Benefit provisions* that establish eligibility and amounts of payments to members
- D. + *Assumptions concerning future experience* in various risk areas
- E. + *The funding method* for employer contributions (the long-term, planned pattern for employer contributions)
- F. + *Mathematically combining the assumptions, the funding method, and the data*
- G. = Determination of:
 - Plan Financial Position; and/or
 - New Employer Contribution Rate

Flow of Money Through the Retirement System



GLOSSARY

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

Accumulated Benefit Obligation. The actuarial present value of vested and non-vested benefits based on service to date and past and current salary levels.

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."

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.

Actuary. A person who is trained in the applications of probability and compound interest to problems in business and finance that involve payment of money in the future, contingent upon the occurrence of future events. Most actuaries in the United States are Members of the American Academy of Actuaries. The Society of Actuaries is an international research, education and membership organization for actuaries in the life and health insurance, employee benefits, and pension fields. It administers a series of examinations leading initially to Associateship and the designation A.S.A. and ultimately to Fellowship with the designation F.S.A.

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.

~~*Funding Value of Assets.* The value of current plan assets recognized for valuation purposes.~~

Generally based on a phased-in recognition of all or a portion of market related investment return. Sometimes referred to as Actuarial Value of Assets.

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.

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."

MEANING OF "UNFUNDED ACTUARIAL ACCRUED LIABILITIES"

"Actuarial accrued liabilities" are the present value of the portions of promised benefits that are not covered by future normal cost contributions --- 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.

If "actuarial accrued liabilities" at any time exceed the plan's accrued assets (cash & investments), 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 the plan can't print instant cash 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 15-40 year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual plan experience is less favorable than assumed, the difference is added to unfunded actuarial accrued liabilities. For example, in plans where benefits are directly related to an employee's pay near time of retirement, unfunded actuarial accrued liabilities increased rapidly during the 1970's because unexpected rates of pay increase created additional actuarial accrued liabilities which could not be matched by reasonable investment results. Most of the unexpected pay increases were the direct result of inflation, which is a very destructive force on financial stability.

The existence of unfunded actuarial accrued liabilities is not bad but the changes from year to year in amount of unfunded actuarial accrued liabilities are important--- "bad" or "good" or somewhere in between.

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

GASB REPORTING

SCHEDULE OF FUNDING PROGRESS
FOR COMPLIANCE WITH GASB STATEMENT NO. 25
(\$ AMOUNTS IN MILLIONS)

The schedule below measures the funding progress with respect to the *retirement allowance* portion of PERS benefits for compliance with GASB Statement No. 25. Assets and liabilities related to post-employment health care benefits are specifically excluded from the schedule. Assets do, however, include market value adjustments.

Valuation Year	Actuarial Accrued Liabilities (AAL)	Valuation Assets	Unfunded Actuarial Accrued Liabilities (UAAL)	Ratio of Assets to AAL	Active Member Payroll	UAAL as a % of Active Member Payroll
1987	\$16,231	\$11,975	\$4,256	74 %	\$4,543	94 %
1988	17,246	13,249	3,997	77 %	5,307	75 %
1989	18,310	14,629	3,681	80 %	5,597	66 %
1990	20,125	16,245	3,880	81 %	6,036	64 %
1991	22,027	18,108	3,919	82 %	6,651	59 %
1992	23,961	20,364	3,597	85 %	6,889	52 %
1993	26,506	23,063	3,443	87 %	7,236	48 %
1994	28,260	25,066	3,194	89 %	7,625	42 %
1995	30,556	27,651	2,905	90 %	7,973	36 %
1995*	30,224	27,651	2,573	91 %	7,973	32 %
1996	32,631	30,534	2,097	94 %	8,340	25 %
1997	34,971	33,846	1,125	97 %	8,640	13 %
1998	37,687	38,360	(673)	102 %	9,017	(7)%

* Revised actuarial assumptions.