



**PERS Ohio**

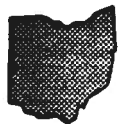
**Annual Actuarial Valuations  
of Retired Lives**

**December 31, 1989**

**Gabriel, Roeder, Smith & Company  
Actuaries and Consultants**

# **Ohio PERS**

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**Annual Actuarial Valuation  
of Active and Inactive Members  
December 31, 1989**

**Gabriel, Roeder, Smith & Company  
Actuaries and Consultants**

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March 8, 1991

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

Ladies and Gentlemen:

The results of the **December 31, 1989 annual actuarial valuations of 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 are covered in a separate report. This is a revision to the report dated October 11, 1990. The revision includes additional data on participants that was obtained after the release of the earlier report.

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 the Appendix of this report. The assumptions are established by the Retirement Board after consulting with the actuary.

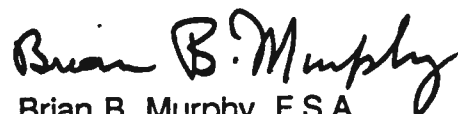
The valuation was completed using generally accepted actuarial principles and in conformance with Chapter 145 of the Revised Code of Ohio. To the best of our knowledge this report is complete and accurate and the actuarial method and assumptions produced results which are reasonable.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY



Norman L. Jones, F.S.A.



Brian B. Murphy, F.S.A.

BBM:ct

COMMENTS

The December 31, 1989 actuarial valuations of members indicate the following about the previously established employer contribution rates:

- (1) The employer rates are sufficient to fully fund the cost of benefit commitments being made to members for service currently being rendered.
- (2) After satisfying current cost requirements, the remainder of the employer rates are sufficient to fund over a reasonable period of future years the unfunded portion of liabilities for service already rendered.

Key valuation results are summarized below.

<u>Division</u>	<u>Active Members</u>		<u>Employer Contribution Rate</u>	<u>Amortization Years For Unfunded Accrued Liabilities</u>	
	<u>Number</u>	<u>Annual Payroll</u> (\$ millions)		<u>Total</u>	<u>Change from Prior Year</u>
State	95,687	\$2,290	13.71%	35	- 2
Local	169,409	3,164	13.95	37	- 2
Law Enforcement	5,587	143	16.00	33	+14
Totals	270,683	\$5,597			

The cost of Health Insurance for retired lives has had an unsettling impact on the financial position of PERS in recent years. Health and Medicare payout was 3.6% of payroll during 1989. Cost control measures recently adopted include Aetna's Health Line program (eff. July 1, 1988) and a \$100 per person/\$200 per family deductible (eff. January 1, 1989). Preliminary indications are that claims have levelled somewhat. However, if health and medicare costs escalate substantially faster than active member pays in the future, additional measures will be necessary to avoid a contribution rate increase.

Experience. Overall experience was more favorable than assumed during 1989. Results in the Law Enforcement division were affected by a statutory transfer of covered positions from the other two divisions. Additional detail concerning 1989 experience is contained in a separate Gain/Loss Analysis.

Conclusion. Based on the results of the December 31, 1989 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.

## Ohio PERS

## Active Members in Valuation

## Group Averages - Comparative Statement

<u>Valuation Group</u>	<u>Dec. 31</u>	<u>No. of Active Members</u>	<u>Group Averages</u>			
			<u>Attained Age</u>	<u>Accrued Service Yrs.</u>	<u>Annual Payroll Average</u>	<u>Increase</u>
STATE	1975	83,220	40.6 yrs.	6.5 yrs.	\$ 9,441	6.40%
	1980	92,872	39.4	7.3	13,934	8.10
	1985	89,256	39.2	8.4	18,677	7.40
	1986	91,532	39.9	8.5	19,664	5.3
	1987	93,579	40.3	8.5	21,304	8.3
	1988	94,772	40.3	8.6	23,162	8.7
	1989	95,687	40.5	8.5	23,928	3.3
	LOCAL GOV'T	1975	149,557	40.8 yrs.	6.1 yrs.	\$ 8,771
1980		160,797	40.7	7.4	13,035	8.20
1985		158,285	40.1	8.3	15,983	6.20
1986		158,755	40.8	8.4	16,685	4.4
1987		161,066	41.3	8.4	17,204	3.1
1988		165,613	41.3	8.3	18,134	5.4
1989		169,409	41.4	7.9	18,675	3.0
LAW ENFORCEMENT MEMBERS		1975	2,111	35.0 yrs.	4.9 yrs.	\$10,467
	1980	3,019	36.1	6.8	16,846	10.00
	1985	4,207	36.5	8.4	20,103	5.50
	1986	4,332	37.7	8.7	21,746	8.2
	1987	4,336	38.3	9.0	22,945	5.5
	1988	4,483	38.6	9.4	24,419	6.4
	1989	5,587	38.6	9.8	25,557	4.7

@ 5 year annual compound rate.

## Financial Principles and Operational Techniques of PERS

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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.

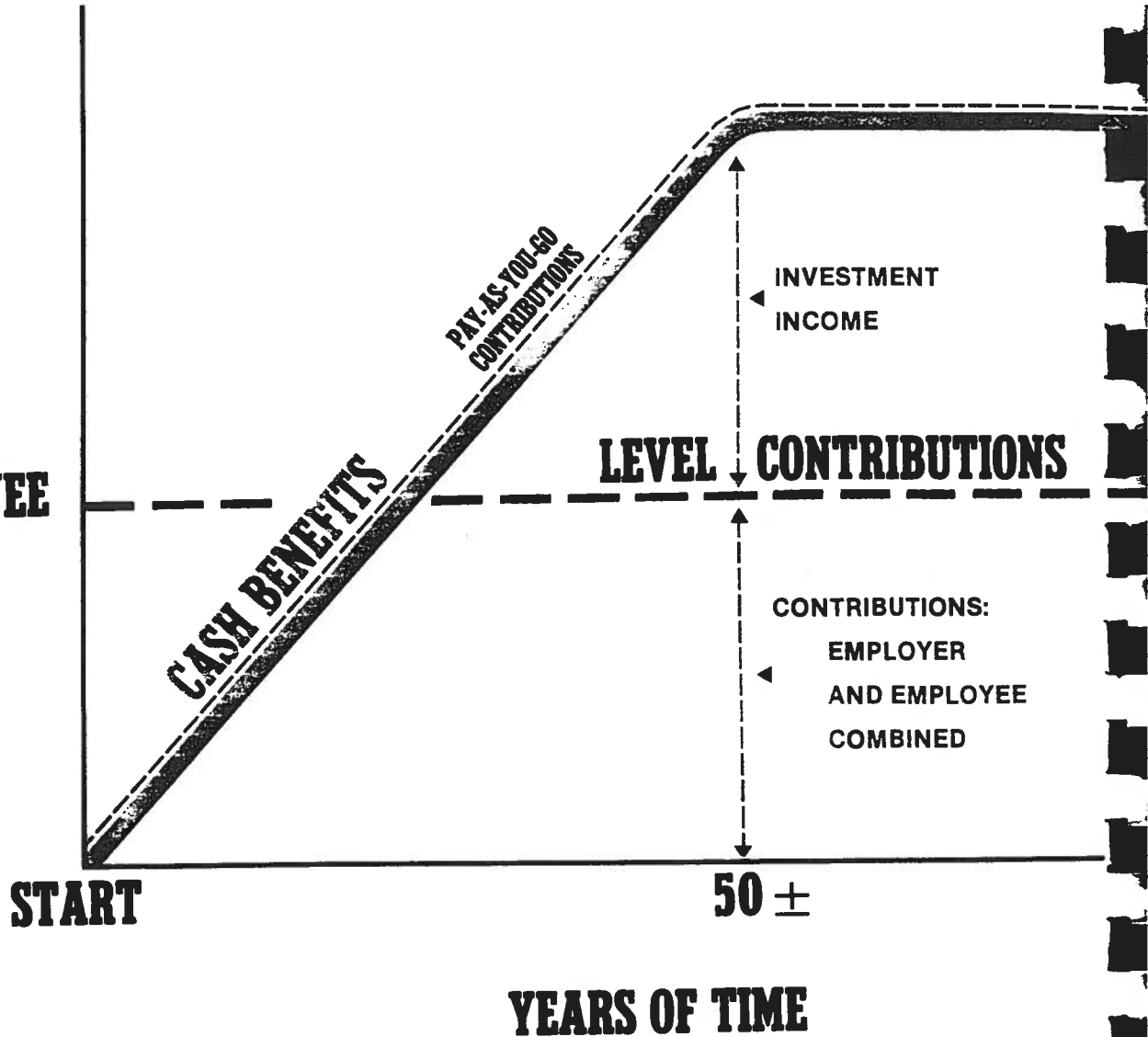
In an actuarial valuation, assumptions must be made as to what the above rates will be for the next year and for decades in the future. The assumptions are established by the Retirement Board after receiving the advice of the actuary.

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.

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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)

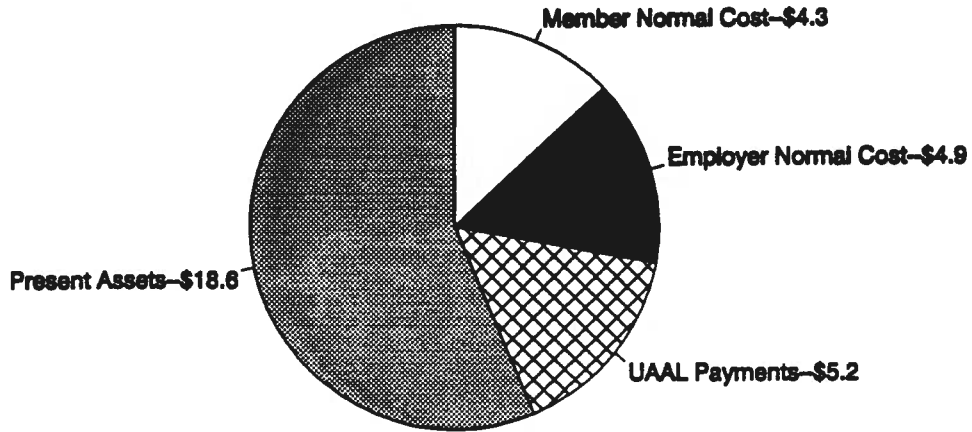
F. + Mathematically combining the assumptions, the funding method, and the data

G. = Determination of:

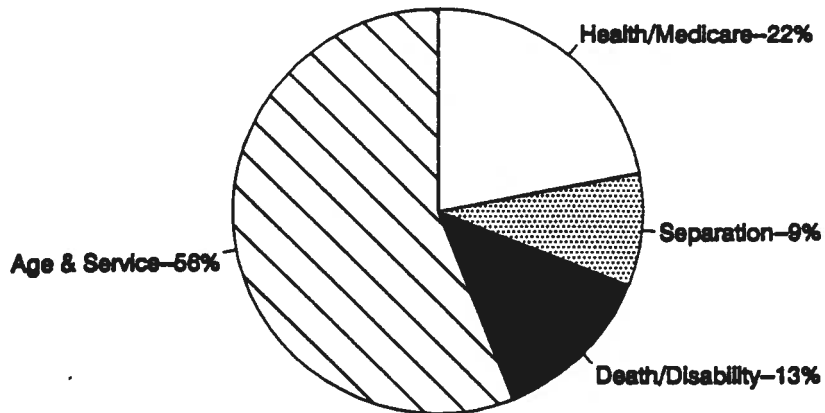
- Plan Financial position and/or
- New Employer Contribution Rate

# PERS OHIO

## Financing \$33.0 Billion\* of Benefit Promises For Present Active and Retired Members December 31, 1989



**SOURCES OF FUNDS**

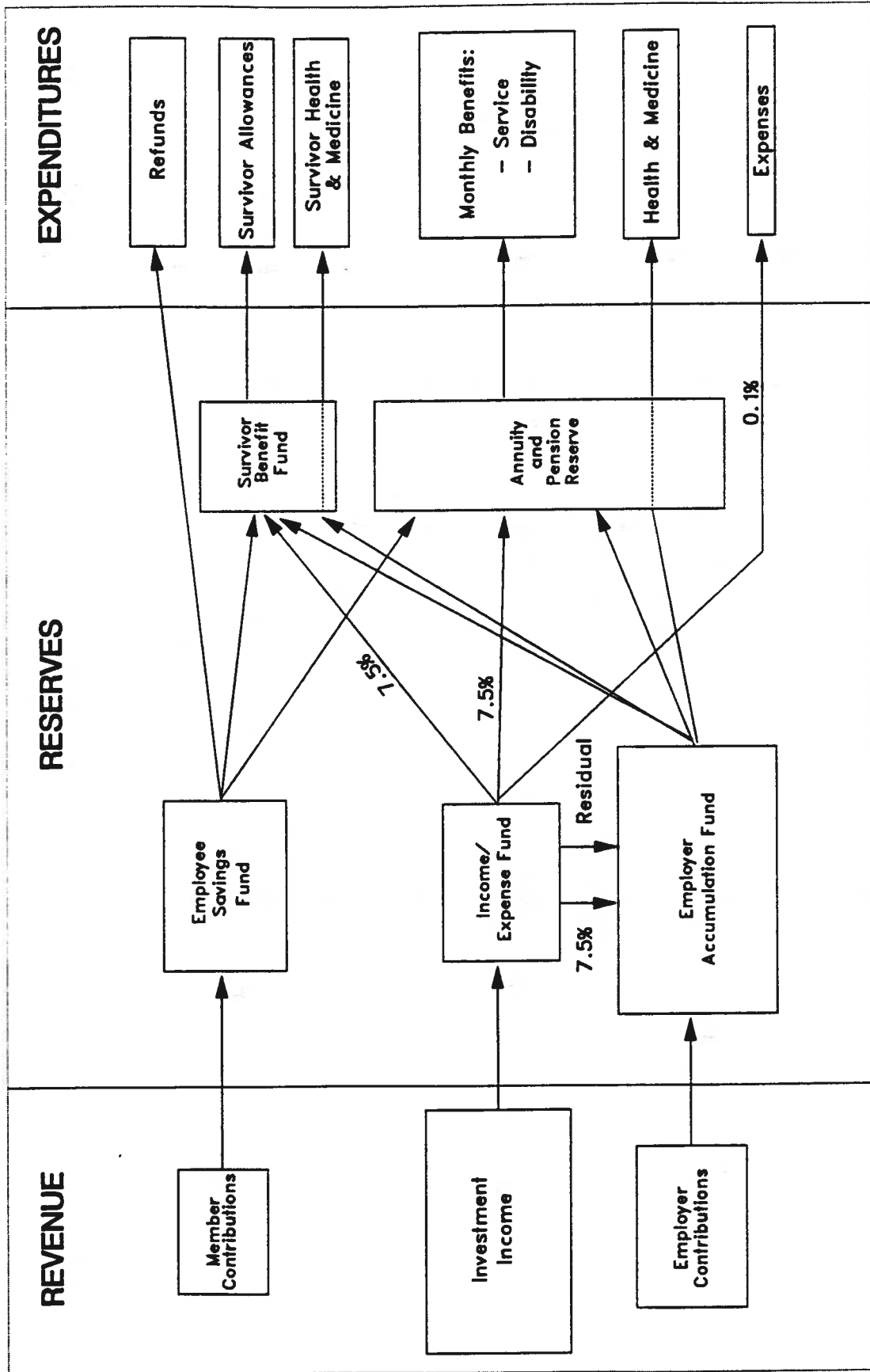


**USES OF FUNDS**

\* Present value of future benefits - all divisions combined.  
\$ amounts are in billions.

# PERS Ohio

## Flow of Money Through the Retirement System



**BENEFITS and CONDITIONS EVALUATED**

Public Employees Retirement System of Ohio  
Benefits and Conditions Evaluated

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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:

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

Maximum allowance is 100% of FAS.

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 72% of FAS.

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

Health insurance premiums. Health insurance premiums are paid on behalf of retired 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. 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. 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. Maximum allowance is 75% of FAS, minimum allowance is 30% of FAS.

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:

<u>Service Credit at Retirement</u>	<u>Amount of Death Benefit</u>
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.

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.

STATE DIVISION

STATE DIVISION

State Division active members included in the valuation totaled 95,687, involving an annual payroll totaling \$2,289,597,840.

Active Members in Valuation December 31, 1989

<u>Groups</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Average Pay</u>
Men	42,859	\$1,138,613,877	\$26,567
Women	<u>52,828</u>	<u>1,150,983,963</u>	21,787
Totals	95,687	\$2,289,597,840	23,928

Also included in the State Division valuation were inactive members eligible for deferred retirement allowances.

STATE DIVISION

MEN Active Members in Valuation December 31, 1989

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
Under 20	51							51	\$ 508,015
20-24	1,629	18						1,647	25,973,665
25-29	4,230	1,243	89					5,562	116,385,684
30-34	3,285	2,597	1,299	60				7,241	171,110,985
35-39	2,534	2,124	1,835	921	54			7,468	197,879,431
40-44	1,840	1,509	1,311	1,483	575	22	1	6,741	199,313,389
45-49	1,005	871	651	754	691	289	12	4,273	129,734,124
50-54	706	689	521	504	476	349	135	3,380	101,184,499
55-59	596	636	456	433	416	270	221	3,028	89,062,891
60	95	123	94	95	73	54	44	578	17,039,929
61	88	90	105	98	89	33	37	540	16,765,963
62	76	100	83	74	74	40	41	488	14,842,270
63	65	94	74	63	53	35	30	414	12,071,799
64	42	76	53	56	58	33	37	355	10,846,231
65	33	71	54	51	43	35	31	318	9,947,021
66	19	26	37	32	32	27	20	193	6,379,476
67	12	24	26	32	23	19	24	160	5,424,548
68	16	15	21	15	18	10	12	107	3,571,498
69	14	12	18	18	18	12	10	102	3,350,822
70 & Over	27	29	28	29	35	23	42	213	7,221,637
Totals	16,363	10,347	6,755	4,718	2,728	1,251	697	42,859	\$1,138,613,877

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

Age: 40.8 years.

Service: 9.2 years.

Annual Pay: \$26,567.

STATE DIVISION

WOMEN Active Members in Valuation December 31, 1989

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
Under 20	102							102	\$ 1,035,432
20-24	2,462	42						2,504	39,320,902
25-29	5,424	1,468	155					7,047	138,495,243
30-34	4,250	2,826	1,607	84				8,767	186,017,547
35-39	3,672	2,212	2,018	966	74			8,942	202,682,085
40-44	3,027	1,809	1,492	1,061	586	17		7,992	184,714,531
45-49	1,896	1,416	1,153	730	466	140	8	5,809	134,309,803
50-54	1,148	1,030	1,073	701	448	174	84	4,658	106,907,988
55-59	645	798	827	673	483	149	74	3,649	82,965,095
60	92	111	163	141	96	29	10	642	14,050,214
61	80	95	115	105	103	25	12	535	12,025,711
62	68	85	130	93	85	18	14	493	11,017,391
63	46	72	104	75	63	26	21	407	9,124,332
64	26	72	79	77	48	21	9	332	7,259,684
65	19	58	56	62	52	23	15	285	6,745,271
66	18	41	43	48	44	11	4	209	4,552,397
67	12	29	31	26	27	10	12	147	3,094,040
68	6	22	16	24	23	6	3	100	2,365,134
69	3	14	16	16	13	3	7	72	1,555,089
70 & Over	22	8	25	28	25	8	20	136	2,746,074
Totals	23,018	12,208	9,103	4,910	2,636	660	293	52,828	\$1,150,983,963

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

Age: 40.3 years.

Service: 7.9 years.

Annual Pay: \$21,787.

**Recommended Reserve Transfers**

STATE DIVISION

TOTAL Active Members in Valuation December 31, 1989

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
Under 20	153							153	\$ 1,543,447
20-24	4,091	60						4,151	65,294,567
25-29	9,654	2,711	244					12,609	254,880,927
30-34	7,535	5,423	2,906	144				16,008	357,128,532
35-39	6,206	4,336	3,853	1,887	128			16,410	400,561,516
40-44	4,867	3,318	2,803	2,544	1,161	39	1	14,733	384,027,920
45-49	2,901	2,287	1,804	1,484	1,157	429	20	10,082	264,043,927
50-54	1,854	1,719	1,594	1,205	924	523	219	8,038	208,092,487
55-59	1,241	1,434	1,283	1,106	899	419	295	6,677	172,027,986
60	187	234	257	236	169	83	54	1,220	31,090,143
61	168	185	220	203	192	58	49	1,075	28,791,674
62	144	185	213	167	159	58	55	981	25,859,661
63	111	166	178	138	116	61	51	821	21,196,131
64	68	148	132	133	106	54	46	687	18,105,915
65	52	129	110	113	95	58	46	603	16,692,292
66	37	67	80	80	76	38	24	402	10,931,873
67	24	53	57	58	50	29	36	307	8,518,588
68	22	37	37	39	41	16	15	207	5,936,632
69	17	26	34	34	31	15	17	174	4,905,911
70 & Over	49	37	53	57	60	31	62	349	9,967,711
Totals	39,381	22,555	15,858	9,628	5,364	1,911	990	95,687	\$2,289,597,840

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

Age: 40.5 years.

Service: 8.5 years.

Annual Pay: \$23,928.

STATE DIVISION

Employees Savings Fund and Employer Accumulation Fund

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The State Division's balances, at December 31, 1989, in the Employees Savings Fund and Employer Accumulation Fund were reported to the actuary as follows:

	<u>Fund Balances</u>
Employees Savings Fund	\$1,218,232,315
Employer Accumulation Fund*	
Pension	1,666,639,123
Health	1,393,040,989
Survivor Benefit	<u>116,103,933</u>
Total	3,175,784,045
Market Value Adjustment	<u>(39,087,717)</u>
Actuarial Value of Assets	\$4,354,928,643

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 42).



## STATE DIVISION

## Development of Unfunded Actuarial Accrued Liabilities

December 31, 1989

Actuarial Present Value, December 31, of	(1) Total Actuarial Present Value	(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	\$ 5,360,245,396	\$1,710,699,932	\$3,649,545,464
Disability allowances likely to be paid present active members who become permanently disabled	692,407,133	376,728,738	315,678,395
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	438,709,521	207,662,967	231,046,554
Separation benefits (refunds of contributions and deferred allowances) likely to be paid present active and inactive members	1,153,095,193	866,050,110	287,045,083
Health Insurance and Medicare Premiums likely to be paid on behalf of active members, inactive members, and retirants and beneficiaries	<u>2,678,745,973</u>	<u>668,902,610</u>	<u>2,009,843,363</u>
TOTAL	\$10,323,203,216	\$3,830,044,357	\$6,493,158,859
Actuarial Value of Assets			4,354,928,643
UNFUNDED ACTUARIAL ACCRUED LIABILITY			<u>\$2,138,230,216</u>

STATE DIVISION  
 COMPUTED EMPLOYER CONTRIBUTION RATE  
 Expressed as Percents of Active Member Payroll  
 December 31, 1989

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Contributions for	Contributions Expressed as Percents of Payroll		
	Health & Medicare Premiums	Survivor Benefit Fund	Total
Normal Cost			
Age and service Allowances			8.33 %
Disability Allowances			1.71
Survivor's Benefits		1.02%	1.02
Separation Benefits			3.99
Health and Medicare Premiums	3.28%		<u>3.28</u>
Total Normal Cost			18.33
(Member Current Contributions)			<u>(8.50)</u>
Employer Normal Cost			9.83
Unfunded Actuarial Accrued Liabilities (35 year amortization*)	<u>1.14</u>	<u>0.21</u>	<u>3.88</u>
COMPUTED EMPLOYER CONTRIBUTIONS	4.42%	1.23%	<u>13.71 %</u>

\* The period sufficient to produce the total Employer Contribution Rate of 13.71% of payroll.

STATE DIVISION

Comparative Statement

December 31	No.	Active Members in Valuation			Employer Contributions as % of Payroll		
		Total	Annual Payroll Average	Increase			
1970	73,202	\$ 506	\$ 6,913	6.8 %	Normal Cost 7.57%	Unfunded Accrued 2.43%	Total 10.00%
1971#	73,664	521	7,068	2.2	7.88	2.52	10.40
1972*	78,660	653	8,303	17.5	9.11	2.19	11.30
1973#	80,775	663	8,203	(1.2)	9.85	2.15	12.00
1974	83,910	800	9,531	16.2	9.71	2.29	12.00
1975*	83,220	786	9,441	(0.9)	9.24	4.47	13.71
1976	84,640	929	10,975	16.2	9.43	4.28	13.71
1977	91,817	1,000	10,893	(0.7)	9.19	4.52	13.71
1978*	94,176	1,139	12,097	11.1	9.06	4.65	13.71
1979	92,110	1,223	13,278	9.8	8.71	5.00	13.71
1980*	92,872	1,294	13,934	4.9	7.86	5.85	13.71
1981+	91,257	1,243	13,626	4.3	7.06	6.65	13.71
1982	89,187	1,419	15,906	16.7	7.11	6.60	13.71
1983#	87,996	1,464	16,637	4.6	7.74	5.97	13.71
1984	87,648	1,574	17,962	8.0	7.82	5.89	13.71
1985@	89,256	1,667	18,677	4.0	8.68	5.03	13.71
1986	91,532	1,800	19,664	5.3	9.27	4.44	13.71
1987#	93,579	1,994	21,304	8.3	9.61	4.10	13.71
1988@	94,772	2,195	23,162	8.7	9.32	4.39	13.71
1989	95,687	2,290	23,928	3.3	9.83	3.88	13.71

\* Includes benefit increases and revised actuarial assumptions.

# Benefits changed.

+ Revised actuarial assumptions and method of reporting payroll.

@ 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				UNFUNDED /PAYROLL
	Total	Average	Computed Total	Valuation Assets	Unfunded	Amort. Years	
1972* <sup>@</sup>	\$ 653	\$ 8,303	\$ 687	\$ 375	\$ 312	28	.48
1973*	663	8,203	747	448	299	27	.45
1974	800	9,531	888	501	387	27	.48
1975* <sup>@</sup>	786	9,441	1,424	549	875	35	1.11
1976 <sup>@</sup>	929	10,975	1,700	619	1,081	40	1.16
1977	1,000	10,893	1,872	711	1,161	37	1.16
1978* <sup>@</sup>	1,139	12,097	2,221	812	1,409	39	1.24
1979	1,223	13,278	2,530	829	1,701	41	1.39
1980 <sup>@</sup>	1,294	13,934	2,914	967	1,947	37	1.50
1981+	1,243	13,626	2,922	1,097	1,825	30	1.47
1982	1,419	15,906	3,399	1,378	2,021	29	1.42
1983*	1,464	16,637	3,829	1,606	2,223	36	1.52
1984	1,574	17,962	4,242	1,809	2,433	38	1.55
1985 <sup>@</sup>	1,667	18,677	4,512	2,332	2,180	37	1.31
1986	1,800	19,664	5,058	3,076	1,982	35	1.10
1987*	1,994	21,304	5,655	3,487	2,168	38	1.09
1988 <sup>@</sup>	2,195	23,162	6,206	3,814	2,392	37	1.09
1989	2,290	23,928	6,493	4,355	2,138	35	0.93

\* Includes benefit changes.

<sup>@</sup> Revised actuarial assumptions.

+ Revised actuarial assumptions and method of reporting payroll.

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.

**LOCAL GOVERNMENT DIVISION**  
**(Excluding Law Enforcement Members)**

LOCAL GOVERNMENT DIVISION  
(Excluding Law Enforcement Members)

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Local Government Division active members included in the valuation totaled 169,409 involving an annual payroll totaling \$3,163,643,656.

Active Members in Valuation December 31, 1989

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<u>Groups</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Average Payroll</u>
Men	82,662	\$1,700,050,316	\$20,566
Women	<u>86,747</u>	<u>1,463,593,340</u>	16,872
Totals	169,409	\$3,163,643,656	18,675

Also included in the Local Government Division were inactive members eligible for deferred retirement allowances.

LOCAL GOVERNMENT DIVISION

MEN Active Members in Valuation December 31, 1989

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
Under 20	303							303	\$ 2,097,941
20-24	3,585	54						3,639	44,333,658
25-29	6,919	1,764	155					8,838	150,849,860
30-34	6,283	3,616	2,246	165				12,310	248,898,291
35-39	5,212	3,364	3,468	1,839	104		1	13,988	314,092,027
40-44	3,974	2,675	2,424	2,487	930	36	1	12,527	295,011,547
45-49	2,450	1,810	1,438	1,246	1,005	386	26	8,361	189,373,176
50-54	1,951	1,485	1,201	1,031	906	657	262	7,493	163,483,930
55-59	1,747	1,256	1,071	953	705	461	321	6,514	137,483,697
60	313	255	232	181	147	90	58	1,276	25,789,343
61	284	240	205	203	130	76	62	1,200	24,009,263
62	267	208	205	190	129	90	56	1,145	23,053,528
63	232	182	171	168	109	69	57	988	19,194,094
64	169	173	131	116	100	65	39	793	14,686,953
65	171	137	140	92	79	41	40	700	12,497,597
66	138	107	88	71	60	29	35	528	8,909,499
67	142	74	67	38	43	18	29	411	6,245,690
68	91	76	50	43	29	15	19	323	4,824,213
69	78	42	42	35	22	12	25	256	3,704,687
70 & Over	274	224	185	150	109	61	66	1,069	11,511,322
Totals	34,583	17,742	13,519	9,008	4,607	2,106	1,097	82,662	\$1,700,050,316

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

Age: 42.1 years.

Service: 8.7 years.

Annual Pay: \$20,566.

LOCAL GOVERNMENT DIVISION

WOMEN Active Members in Valuation December 31, 1989

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
Under 20	538							538	\$ 4,020,487
20-24	5,049	113						5,162	61,828,691
25-29	8,141	2,179	239					10,559	165,762,741
30-34	7,259	3,613	2,302	153			1	13,328	228,243,326
35-39	6,598	2,998	2,727	1,379	61	1		13,764	242,838,242
40-44	5,846	2,818	2,137	1,363	612	26		12,802	228,724,864
45-49	3,820	2,426	1,858	900	515	239	12	9,770	172,548,762
50-54	2,465	1,778	1,709	1,039	565	233	78	7,867	136,945,134
55-59	1,569	1,365	1,550	1,133	668	205	102	6,592	114,106,985
60	223	228	275	230	148	50	17	1,171	20,132,059
61	200	173	254	196	115	49	18	1,005	17,770,884
62	156	182	230	162	105	48	30	913	16,060,397
63	111	160	170	157	90	29	26	743	12,943,050
64	100	114	153	120	77	41	25	630	10,896,154
65	58	92	129	114	57	36	16	502	8,739,269
66	49	75	79	76	54	27	19	379	6,344,773
67	48	39	48	43	41	20	12	251	3,972,931
68	26	31	35	31	24	15	13	175	3,066,611
69	19	30	32	34	17	7	11	150	2,321,217
70 & Over	89	59	80	72	68	40	38	446	6,326,763
Totals	42,364	18,473	14,007	7,202	3,217	1,066	418	86,747	\$1,463,593,340

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

Age: 40.7 years.

Service: 7.2 years.

Annual Pay: \$16,872.



LOCAL GOVERNMENT DIVISION

TOTAL Active Members in Valuation December 31, 1989

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
Under 20	841							841	\$ 6,118,428
20-24	8,634	167						8,801	106,162,349
25-29	15,060	3,943	394					19,397	316,612,601
30-34	13,542	7,229	4,548	318			1	25,638	477,141,617
35-39	11,810	6,362	6,195	3,218	165	1	1	27,752	556,930,269
40-44	9,820	5,493	4,561	3,850	1,542	62	1	25,329	523,736,411
45-49	6,270	4,236	3,296	2,146	1,520	625	38	18,131	361,921,938
50-54	4,416	3,263	2,910	2,070	1,471	890	340	15,360	300,429,064
55-59	3,316	2,621	2,621	2,086	1,373	666	423	13,106	251,590,682
60	536	483	507	411	295	140	75	2,447	45,921,402
61	484	413	459	399	245	125	80	2,205	41,780,147
62	423	390	435	352	234	138	86	2,058	39,113,925
63	343	342	341	325	199	98	83	1,731	32,137,144
64	269	287	284	236	177	106	64	1,423	25,583,107
65	229	229	269	206	136	77	56	1,202	21,236,866
66	187	182	167	147	114	56	54	907	15,254,272
67	190	113	115	81	84	38	41	662	10,218,621
68	117	107	85	74	53	30	32	498	7,890,824
69	97	72	74	69	39	19	36	406	6,025,904
70 & Over	363	283	265	222	177	101	104	1,515	17,838,085
Totals	76,947	36,215	27,526	16,210	7,824	3,172	1,515	169,409	\$3,163,643,656

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

Age: 41.4 years.

Service: 7.9 years.

Annual Pay: \$18,675.

**LOCAL GOVERNMENT DIVISION**  
**(Excluding Law Enforcement Members)**  
**Employees Savings Fund and Employer Accumulation Fund**

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The Local Government Division's balances, at December 31, 1989, in the Employees Savings Fund and Employer Accumulation Fund were reported to the actuary as follows:

	Fund Balances
Employees Savings Fund	\$1,765,865,255
Employer Accumulation Fund*	
Pension	1,981,969,133
Health	2,450,228,531
Survivor Benefit	162,215,150
Total	4,594,412,814
Market Value Adjustment	(57,932,278)
Actuarial Value of Assets	\$6,302,345,791

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 42).

LOCAL GOVERNMENT DIVISION

(Excluding Law Enforcement Members)

Development of Actuarial Accrued Liabilities December 31, 1989

Actuarial Present Value, December 31, of	(1) Total Actuarial Present Value	(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	\$ 6,786,228,873	\$2,049,360,055	\$4,736,868,818
Disability allowances likely to be paid present active members who become permanently disabled	997,163,193	528,937,509	468,225,684
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	571,020,382	263,252,812	307,767,570
Separation benefits (refunds of contributions and deferred allowances) likely to be paid present active and inactive members	1,610,411,582	1,150,767,251	459,644,331
Health Insurance and Medicare Premiums likely to be paid on behalf of active members, inactive members, and retirants and beneficiaries	<u>4,445,582,531</u>	<u>1,074,382,116</u>	<u>3,371,200,415</u>
TOTAL	\$14,410,406,561	\$5,066,699,743	\$9,343,706,818
Actuarial Value of Assets			6,302,345,791
UNFUNDED ACTUARIAL ACCRUED LIABILITY			<u>\$3,041,361,027</u>

LOCAL GOVERNMENT DIVISION  
 (Excluding Law Enforcement Members)  
 COMPUTED EMPLOYER CONTRIBUTION RATE  
 Expressed as Percents of Active Member Payroll  
 December 31, 1989

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<u>Contributions for</u>	<u>Contributions Expressed as Percents of Payroll</u>		
	<u>Health &amp; Medicare Premiums</u>	<u>Survivor Benefit Fund</u>	<u>Total</u>
Normal Cost:			
Age and service Allowances			7.69 %
Disability Allowances			1.83
Survivors Benefits		1.00%	1.00
Separation Benefits			4.02
Health & Medicare Premiums	4.06%		<u>4.06</u>
Total Normal Cost			<u>18.60</u>
(Member Current Contributions)			<u>(8.50)</u>
Employer Normal Cost			10.10
Unfunded Actuarial Accrued Liabilities (37 year amortization*)	<u>1.20</u>	<u>0.18</u>	<u>3.85</u>
COMPUTED EMPLOYER CONTRIBUTIONS	5.26%	1.18%	<u>13.95 %</u>

\* The period sufficient to produce the total Employer Contribution Rate of 13.95% of payroll.

**LOCAL GOVERNMENT DIVISION**  
**(Excluding Law Enforcement Members)**  
**Comparative Statement<sup>e</sup>**

December 31	No.	Active Members in Valuation			%	Employer Contributions as % of Payroll		
		Total (Millions)	Average	Increase		Normal Cost	Unfunded Accrued	Total
1969*#	112,591	\$ 717	\$ 6,365	-	7.17%	1.83%	9.00%	
1970	118,717	844	7,111	11.7	7.02	1.98	9.00	
1971#	118,044	860	7,289	2.5	7.28	2.12	9.40	
1972*#	125,145	920	7,534	3.4	8.98	2.22	11.20	
1973#	132,278	1,019	7,701	2.2	9.80	2.10	11.90	
1974	140,388	1,213	8,641	12.2	9.65	2.25	11.90	
1975*#	149,557	1,312	8,771	1.5	9.27	4.68	13.95	
1976	153,785	1,394	9,068	3.4	10.12	3.83	13.95	
1977	177,034	1,662	9,388	3.5	9.94	4.01	13.95	
1978*#	177,825	1,878	10,563	12.5	9.92	4.03	13.95	
1979	166,536	1,951	11,714	10.9	9.38	4.57	13.95	
1980*#	160,797	2,096	13,035	11.3	8.37	5.58	13.95	
1981+	157,753	2,007	12,722	7.5	7.75	6.20	13.95	
1982	155,920	2,171	13,923	9.4	7.91	6.04	13.95	
1983#	156,330	2,278	14,571	4.7	8.43	5.52	13.95	
1984	156,765	2,392	15,261	4.7	8.51	5.44	13.95	
1985*	158,285	2,530	15,983	4.7	8.47	5.48	13.95	
1986	158,775	2,649	16,685	4.4	9.23	4.72	13.95	
1987#	161,066	2,771	17,204	3.1	9.63	4.32	13.95	
1988*	165,613	3,003	18,134	5.4	9.56	4.39	13.95	
1989	169,409	3,164	18,675	3.0	10.10	3.85	13.95	

<sup>e</sup> Includes Law Enforcement Members before 1975.

\* Revised actuarial assumptions.

# Includes benefit changes.

+ Revised actuarial assumptions and method of reporting payroll.

LOCAL GOVERNMENT DIVISION  
(Excluding Law Enforcement Members)

Development of Unfunded Actuarial Accrued Liabilities

Comparative Statement#

(\$ in Millions Except Averages)

Dec. 31	Active Payroll		Active Accrued Liabilities				UNFUNDED /PAYROLL
	Total	Average	Computed Total	Valuation Assets	Unfunded	Amort Years	
1972* <sup>@</sup>	\$ 920	\$ 7,354	\$1,065	\$ 591	\$ 474	30	.52
1973*	1,019	7,701	1,205	684	521	33	.51
1974	1,213	8,641	1,401	734	667	34	.55
1975	1,332	8,771	2,334	811	1,523	35	1.14
1976 <sup>@</sup>	1,394	9,068	2,405	907	1,498	42	1.07
1977	1,662	9,388	2,848	986	1,862	42	1.12
1978* <sup>@</sup>	1,878	10,563	3,372	1,156	2,216	44	1.18
1979	1,951	11,714	3,947	1,215	2,732	48	1.40
1980 <sup>@</sup>	2,096	13,035	4,670	1,425	3,245	41	1.55
1981+	2,007	12,722	4,728	1,655	3,073	35	1.53
1982	2,171	13,923	5,286	2,105	3,181	34	1.47
1983*	2,278	14,571	5,985	2,445	3,540	42	1.55
1984	2,392	15,261	6,562	2,743	3,819	44	1.60
1985 <sup>@</sup>	2,530	15,983	7,127	3,534	3,593	37	1.42
1986	2,649	16,685	7,715	4,584	3,131	35	1.18
1987*	2,771	17,204	8,238	5,067	3,171	38	1.14
1988 <sup>@</sup>	3,003	18,134	8,964	5,526	3,438	39	1.14
1989	3,164	18,675	9,343	6,302	3,041	37	0.96

\* Includes benefit changes.

<sup>@</sup> Revised actuarial assumptions.

+ Revised actuarial assumptions and method of reporting payroll.

# Includes Law Enforcement members prior to 1975.

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

LAW ENFORCEMENT MEMBERS

Law Enforcement active members included in the valuation totaled 5,587, involving an annual payroll totaling \$142,787,619.

Active Members in Valuation December 31, 1989

<u>Groups</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Average Pay</u>
Men	5,032	\$130,221,833	\$25,879
Women	<u>555</u>	<u>12,565,786</u>	22,641
Totals	5,587	\$142,787,619	\$25,557

Also included with the Law Enforcement members were inactive members eligible for deferred retirement allowances.



LAW ENFORCEMENT DIVISION

MEN Active Members in Valuation December 31, 1989

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
Under 20	4							4	\$ 50,440
20-24	163	1						164	2,690,837
25-29	470	190	4					664	14,603,408
30-34	293	448	251	7				999	25,150,639
35-39	184	300	425	168	2			1,079	28,816,268
40-44	106	221	207	281	59	2		876	24,517,096
45-49	70	101	89	124	110	26	3	523	14,939,810
50-54	40	64	59	80	61	23	15	342	9,242,107
55-59	24	27	33	36	42	30	17	209	5,892,109
60	5	4	5	7	7	6	4	38	961,283
61	4	5	4	8	2	4	3	30	760,328
62	3	4	6	7	7	1	1	29	767,055
63	1	3	3	6	2	2	2	19	508,644
64	3	1	3	5		1	1	14	318,153
65	3	2	4	1	1		2	13	292,553
66	2	4	1		2		1	10	244,582
67		3		1			1	5	122,064
68	1	1	1	1				4	91,871
69		1	1		1			3	69,180
70 & Over		2	2	2			1	7	183,406
Totals	1,376	1,382	1,098	734	296	95	51	5,032	\$130,221,833

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

Age: 38.9 years.

Service: 10.1 years.

Annual Pay: \$25,879.

LAW ENFORCEMENT DIVISION

WOMEN Active Members in Valuation December 31, 1989

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	34	3						37	\$ 633,862
25-29	89	23						112	2,331,630
30-34	41	42	28	2				113	2,778,274
35-39	39	39	39	5				122	2,811,239
40-44	17	20	21	11	1			70	1,723,508
45-49	10	13	19	2	1			45	1,015,969
50-54	2	8	11	2	1	1	1	26	651,487
55-59	6	2	7	4	2	2		23	484,416
61	1							1	16,726
62		1		1				2	45,080
63					1			1	28,814
64		1						1	12,919
68							1	1	14,950
70 & Over	—	—	—	1	—	—	—	1	16,912
Totals	239	152	125	28	6	3	2	555	\$12,565,786

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

Age: 36.3 years.

Service: 7.1 years.

Annual Pay: \$22,641.

LAW ENFORCEMENT DIVISION

TOTAL Active Members in Valuation December 31, 1989

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
Under 20	4							4	\$ 50,440
20-24	197	4						201	3,324,699
25-29	559	213	4					776	16,935,038
30-34	334	490	279	9				1,112	27,928,913
35-39	223	339	464	173	2			1,201	31,627,507
40-44	123	241	228	292	60	2		946	26,240,604
45-49	80	114	108	126	111	26	3	568	15,955,779
50-54	42	72	70	82	62	24	16	368	9,893,594
55-59	30	29	40	40	44	32	17	232	6,376,525
60	5	4	5	7	7	6	4	38	961,283
61	5	5	4	8	2	4	3	31	777,054
62	3	5	6	8	7	1	1	31	812,135
63	1	3	3	6	3	2	2	20	537,458
64	3	2	3	5		1	1	15	331,072
65	3	2	4	1	1		2	13	292,553
66	2	4	1		2		1	10	244,582
67		3		1			1	5	122,064
68	1	1	1	1			1	5	106,821
69		1	1		1			3	69,180
70 & Over		2	2	3			1	8	200,318
Totals	1,615	1,534	1,223	762	302	98	53	5,587	\$142,787,619

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

Age: 38.6 years.

Service: 9.8 years.

Annual Pay: \$25,557.

LAW ENFORCEMENT MEMBERS

Employees Savings Fund and Employer Accumulation Fund

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The Law Enforcement fund balances, at December 31, 1989, in the Employees Savings Fund and Employer Accumulation Fund were reported to your actuary as follows:

	<u>Fund Balances</u>
Employees Savings Fund	\$ 92,208,394
Employer Accumulation Fund*	
Pension	203,094,193
Health	77,839,919
Survivor Benefit	<u>12,602,721</u>
Total	293,536,833
Market Value Adjustment	<u>(2,354,014)</u>
Actuarial Value of Assets	\$383,391,213

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 42).

**LAW ENFORCEMENT MEMBERS**

**Development of Unfunded Actuarial Accrued Liabilities**

**December 31, 1989**

<u>Actuarial Present Value, December 31, of</u>	<u>(1) Total Actuarial Present Value</u>	<u>(2) Portion Covered By Future Normal Cost Contributions</u>	<u>(3) Actuarial Accrued Liabilities (1) - (2)</u>
Age and service allowances based on service rendered before and likely to be rendered after valuation date	\$431,999,806	\$164,216,765	\$267,783,041
Disability allowances likely to be paid present active members who become permanently disabled	75,682,383	42,950,736	32,731,647
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	42,861,881	21,833,123	21,028,758
Separation benefits (refunds of contributions and deferred allowances) likely to be paid present active and inactive members	77,691,582	55,485,786	22,205,796
Health Insurance and Medicare Premiums likely to be paid on behalf of active members, inactive members, and retirants and beneficiaries	<u>171,678,365</u>	<u>67,113,289</u>	<u>104,565,076</u>
<b>TOTAL</b>	<b>\$799,914,017</b>	<b>\$351,599,699</b>	<b>\$448,314,318</b>
Actuarial Value of Assets			<u>383,391,213</u>
<b>UNFUNDED ACTUARIAL ACCRUED LIABILITIES</b>			<b><u>\$ 64,923,105</u></b>

LAW ENFORCEMENT MEMBERS  
 COMPUTED EMPLOYER CONTRIBUTION RATE  
 Expressed as Percents of Active Member Payroll  
 December 31, 1989

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Contributions for	Contributions Expressed as Percents of Payroll		
	Health & Medicare Premiums	Survivor Benefit Fund	Total
Normal Cost:			
Age and service Allowances			11.00 %
Disability Allowances			2.74
Survivor's Benefits		1.45%	1.45
Separation Benefits			3.49
Health and Medicare Premiums	4.37%		<u>4.37</u>
Total Normal Cost			23.05
(Member Contributions)			<u>(9.00)</u>
Employer Normal Cost			14.05
Unfunded Actuarial Accrued Liabilities (33 year amortization*)	<u>0.82</u>	<u>0.25</u>	<u>1.95</u>
COMPUTED EMPLOYER CONTRIBUTIONS	5.19%	1.70%	<u>16.00 %</u>

\* The period sufficient to produce the total Employer Contribution Rate of 16.00% of payroll.

LAW ENFORCEMENT MEMBERS

Comparative Statement

December 31	No.	Active Members in Valuation			- %	Normal Cost	Employer Contributions as % of Payroll	
		Total (\$1,000's)	Annual Payroll Average	Increase			Unfunded	Total
1975	2,111	\$ 22,134	\$10,467	-	13.49%	4.61%	18.10%	
1976	2,214	22,213	10,033	(4.1)	13.37	4.73	18.10	
1977	2,537	32,204	12,694	26.5	14.20	3.90	18.10	
1978*@	2,699	38,129	14,127	11.3	14.51	3.59	18.10	
1979	2,867	43,249	15,085	6.8	14.28	3.82	18.10	
1980*@	3,019	50,858	16,846	11.7	13.23	4.87	18.10	
1981*+@	3,613	57,147	15,817	2.6	12.08	6.02	18.10	
1982	3,748	64,625	17,243	9.0	12.04	6.06	18.10	
1983	3,981	72,273	18,155	5.3	12.65	5.45	18.10	
1984	4,070	77,979	19,159	5.5	12.72	5.38	18.10	
1985@	4,207	84,574	20,103	4.9	12.78	5.32	18.10	
1986	4,332	94,202	21,746	8.2	13.58	4.52	18.10	
1987*	4,336	99,487	22,945	5.5	14.09	4.01	18.10	
1988@#	4,483	109,469	24,419	6.4	14.01	1.99	16.00	
1989	5,587	142,788	25,557	4.7	14.05	1.95	16.00	

\* Includes benefit changes.

+ Revised method of reporting payroll.

@ Revised actuarial assumptions.

# Employee and employer contribution rates reduced.

LAW ENFORCEMENT MEMBERS

Development of Unfunded Actuarial Accrued Liabilities

Comparative Statement

(\$ in Millions Except Averages)

Dec. 31	Active Payroll		Active Member Accrued Liabilities				UNFUNDED /PAYROLL
	Total	(Average)	Computed Total	Valuation Assets	Unfunded	Amortization Years	
1975	\$ 22	\$10,467	\$ 22	\$ -	\$22		0.99
1976	22	10,033	33	6	27	36	1.20
1977	32	12,694	44	12	32	36	0.99
1978* <sup>@</sup>	38	14,127	60	21	39	43	1.03
1979	43	15,085	73	30	43	38	1.00
1980 <sup>@</sup>	51	16,846	95	41	54	29	1.06
1981* <sup>+@</sup>	57	15,817	110	59	51	18	0.89
1982	65	17,243	126	74	52	16	0.80
1983*	72	18,155	153	96	57	18	0.79
1984	78	19,159	182	117	65	19	0.83
1985 <sup>@</sup>	85	20,103	208	152	56	15	0.66
1986	94	21,746	245	203	42	11	0.45
1987*	99	22,945	277	233	44	13	0.44
1988 <sup>@</sup>	109	24,419	323	290	33	19	0.30
1989	143	25,557	448	383	65	33	0.45

\* Includes benefit changes.

+ Revised method of reporting payroll.

@ 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.



**Retirement System Totals**

Public Employees Retirement System of Ohio  
 Summary of Reserve Transfers Affecting the Employer Accumulation Fund

Division	EAF Balance Reported 12/31/89	Transfers (From) To EAF				EAF Balance Used 12/31/89	
		Medicare Reimbursement	Health Care	Other	Law Enforcement Transfer Pension Health		
State	\$ 3,212,409,140	\$ (9,816,644)	\$ (63,157,863)	\$ 52,373,412	\$(12,196,000)	\$(3,828,000)	\$ 3,175,784,045
Local	4,648,026,572	(17,111,134)	(111,856,657)	81,930,033	(4,700,000)	(1,876,000)	4,594,412,814
Law	271,350,337	(56,066)	(1,626,633)	1,269,195	16,896,000	5,704,000	293,536,833
Total	\$ 8,131,786,049	\$(26,983,844)	\$(176,641,153)	\$ 135,572,640	\$ 0	\$ 0	\$ 8,063,733,692

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.
3. To cover the cost of ad-hoc post-retirement benefit increases.
4. To adjust retired life 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.

Public Employees Retirement System of Ohio  
Retirement System Totals

December 31, 1989

Division	Active Members		Retired Lives		Actuarial Accrued Liabilities*		Val'n Assets	Active Member Unf'd Accrued Liabilities	Amort. Years	
	Number	Annual Payroll	Number	Annual Allowances	Active Members	Retired Lives				Total
State	95,687	\$2,290	38,110	\$278	\$ 6,493	\$2,926	\$ 9,419	\$ 7,281	\$2,138	35
Local	169,409	3,164	67,019	432	9,343	4,506	13,849	10,808	3,041	37
Law Enforcement	5,587	143	514	5	448	78	526	461	65	33
<b>Totals</b>	<b>270,683</b>	<b>\$5,597</b>	<b>105,643</b>	<b>\$715</b>	<b>\$16,284</b>	<b>\$7,510</b>	<b>\$23,794</b>	<b>\$18,550</b>	<b>\$5,244</b>	

\* Including retired life contingency reserves.

**The Pension Benefit Obligation  
And Certain Other Disclosures  
For Compliance With Statement No. 5 of  
The Governmental Accounting Standards Board**

PERS OHIO  
 PENSION BENEFIT OBLIGATION  
 December 31, 1989

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The amount shown below as the "pension benefit obligation" is a 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 prepared because of the requirements of GASB Statement 5 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, but does depend on actuarial assumptions.

The pension benefit obligation was determined as part of an actuarial valuation of the plan. 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 5.5% per year compounded annually, attributable to inflation, (c) additional projected salary increases ranging from 0% to 4% per year, depending on age, attributable to seniority/merit, and (d) the assumption that benefits will increase 3% per year after retirement.

The pension benefit obligation was determined as follows:

Pension Benefit Obligation:	<u>\$ Millions</u>
Retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits	\$ 7,752.7
Current employees --	
Accumulated employee contributions including allocated investment income	3,006.1
Employer financed - Vested	5,726.3
Employer financed - Non-vested	<u>213.6</u>
Total Pension Benefit Obligation	\$16,698.7
Gross assets available for benefits, at cost	18,650.7
Assets assigned to funding health care program	<u>3,921.1</u>
Net assets available for benefits, at cost	14,729.6
Unfunded Pension Benefit Obligation	\$ 1,969.1

During the year the retirement system experienced an increase of \$1,040.8 million in the Pension Benefit Obligation.

PERS OHIO  
 GASB 5 ANALYSIS OF FUNDING PROGRESS  
 \$ MILLIONS

Fiscal Year	(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)
1986	\$10,841.2	\$13,284.0	81.6%	\$2,442.8	\$4,543	53.8%
1987	11,900.4	14,469.4	82.2	2,569.0	4,864	52.8
1988 <sup>@</sup>	13,290.3	15,657.9	84.9	2,367.6	5,307	44.6
1989	14,729.6	16,698.7	88.2	1,969.1	5,597	35.2

<sup>@</sup> After legislated benefit changes and revision in assumptions.

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.

**APPENDIX**

APPENDIX

SUMMARY OF

ASSUMPTIONS USED FOR PERS ACTUARIAL VALUATIONS

Assumptions Adopted by Retirement Board After Consulting With Actuary

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The actuarial assumptions used in the valuation are shown in this Appendix. The economic assumptions were established for the December 31, 1988 actuarial valuations, and the non-economic assumptions were established for the December 31, 1986 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 2.25%.

Pay increase assumptions for individual active members are shown for sample ages on pages 49 & 50. Part of the assumption for each age is for merit and/or seniority increase, and the other 5.5% recognizes inflation.

The active member payroll is assumed to increase 5.5% 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 mortality table, for post-retirement mortality, used in evaluating allowances to be paid were the 1971 Group Annuity Mortality Male and Female Tables, projected to 1984. Related values are shown on page 48.



The probabilities of age and service retirement are shown on page 48.

The probabilities of withdrawal from service, disability and death-in-service are shown for sample ages on pages 49 and 50. For disability retirement, impaired longevity was recognized by basing benefit values on an adjusted age mid-way between attained age and normal retirement age. For other withdrawal it was assumed that members terminating before age 40, members terminating with less than 5 years of service, and 20% of all other members would withdraw their contributions and forfeit their entitlement to an employer financed benefit.

Additional assumptions for Health Care Coverages are shown on page 51.

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.

Employer contribution dollars were assumed to be paid in equal installments throughout the employer fiscal year.

Present assets (cash & investments) at funding value as shown on page 52.

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

### Single Life Retirement Values

<u>Sample Attained Ages</u>	<u>Present Value of \$1 Monthly for Life Increasing 3.0% Annually (1st Increase After 1 Year)</u>		<u>Future Life Expectancy (years)</u>	
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
	50	\$166.89	\$184.58	27.52
55	153.18	173.30	23.28	28.99
60	137.36	159.32	19.27	24.44
65	119.69	142.71	15.55	20.09
70	101.39	123.42	12.25	15.99
75	83.83	102.88	9.50	12.33
80	67.06	83.12	7.17	9.28
Ref.	68	69		

### Probabilities of Age and Service Retirement

<u>Retirement Ages</u>	<u>Percent of Eligible Active Members Retiring Within Next Year</u>		
	<u>State &amp; Local Government</u>		<u>Law Enforcement</u>
	<u>Men</u>	<u>Women</u>	
50-59	15%	20%	20%
60	15	20	20
61	15	20	20
62	15	20	20
63	15	20	20
64	20	25	25
65	30	30	30
66	25	25	25
67	25	25	25
68	25	25	25
69	40	40	40
70	100	100	100
Ref	211	210	210

A member other than a Law Enforcement officer was assumed to be eligible for retirement after attaining age 50 with 30 years of service, or at age 55 with 25 years of service, or after attaining age 60 with 5 or more years of service.

A Law Enforcement member was assumed to be eligible for retirement after attaining age 52 with 25 years of service, or, after attaining age 60 with 5 or more years of service.

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 Men	Death Women	Withdrawal Men	Withdrawal Women	Disability Men	Disability Women	Merit & Seniority (Economy)	Base Increase Next Year	
	0			30.00%	30.00%					
	1			22.00	22.00					
	2			18.00	18.00					
	3			12.00	15.00					
	4			10.00	12.00					
	5 & Over	0.10%	0.10%	9.00	12.00	0.08%	0.06%	4.0%	5.5%	9.5%
25		0.12	0.10	8.30	10.70	0.08	0.06	3.3	5.5	8.8
30		0.15	0.12	7.10	8.70	0.17	0.11	2.8	5.5	8.3
35		0.25	0.15	5.40	6.60	0.33	0.21	2.3	5.5	7.8
40		0.43	0.25	3.80	5.10	0.56	0.37	1.9	5.5	7.4
45		0.71	0.43	2.60	3.80	0.93	0.69	1.5	5.5	7.0
50		1.16	0.71	1.50	2.50	1.22	0.94	1.1	5.5	6.6
55		1.80	1.16	0.50	0.80	1.30	1.00	0.7	5.5	6.2
60										
Ref		9	32	84	86	59	58	94		
				138	140					

LOCAL GOVERNMENT AND LAW ENFORCEMENT

Separations From Active Employment Before Age & Service Retirement  
& Individual Pay Increase Assumptions

Sample Ages	Years of Service	Death		Percent of Active Members Separating Within the Next Year				Disability		Pay Increase Assumptions	
		Men	Women	Law Enforcement	Men	Women	Law Enforcement	Men	Women	Merit & Seniority (Economy)	Base Increase Next Year
	0			20.00%	30.00%	25.00%					
	1			15.00	22.00	20.00					
	2			12.00	18.00	18.00					
	3			10.00	12.00	15.00					
	4			7.00	10.00	12.00					
25	5 & Over	0.10%	0.10%	6.00	10.00	12.00	0.08%	0.06%	0.06%	3.6%	5.5%
30		0.12	0.10	5.40	8.10	10.70	0.08	0.06	0.06	2.8	5.5
35		0.15	0.12	4.70	7.10	8.70	0.18	0.21	0.11	2.3	5.5
40		0.25	0.15	4.00	5.70	6.60	0.39	0.39	0.21	1.9	5.5
45		0.43	0.25	3.40	4.40	5.10	0.70	0.64	0.37	1.5	5.5
50		0.71	0.43	2.40	3.20	3.80	1.12	1.10	0.69	1.1	5.5
55		1.16	0.71	1.40	2.00	2.50	1.67	1.43	0.94	0.7	5.5
60		1.80	1.16	0.40	0.60	0.80	--	1.50	1.00	0.6	5.5
Ref		9	32	87	84	85	35	57	58	93	
				141	139	140					

Additional Assumptions for Health Care Coverages

Status	Monthly Rates January 1*				
	1990	1989	1988	1987	1986
<b>Members</b>					
<b>Standard Risks</b>					
Health Care Rate to age 65	\$347.49	\$353.45	\$321.58	\$223.32	\$192.66
Health Care Rate at age 65	94.47	96.11	82.37	90.00	78.52
<b>Substandard Risks</b>					
Health Care Rate to age 65	342.47	350.56	317.61	226.13	194.15
Health Care Rate at age 65	103.64	105.31	90.42	105.86	93.36
<b>Survivors</b>					
Health Care Rate to age 65	281.49	290.78	268.20	181.95	157.61
Health Care Rate at age 65	72.42	73.37	63.30	66.99	58.01
<b>All Risks</b>					
Medicare Premium	28.60	31.90	24.80	17.90	15.50

\* Rates are averages based upon amounts reported for present retired lives.

Eligibility for Medicare Coverage: All benefit recipients were assumed to be eligible for Medicare on attainment of age 65, or immediately if retired for disability.

Health Care Inflation: Health care inflation was assumed to equal wage inflation in the long-term. An additional 10% provision was made for near term increases in excess of wage inflation.

Part Time Service Credit: A part time employee in PERS must receive \$3,000 a year to earn a full year of contributing service. It was assumed that 5% of local government members who terminate in the future with over 10 years of employment will have less than 10 years of service credit and therefore will not qualify for health care coverage.

Revisions in the Benefit Structure: The Health Line program was adopted effective July 1, 1988. A \$100 per person/\$200 per family deductible was adopted effective January 1, 1989.

Ohio PERS  
 Development of Funding Value of Assets  
 December 31, 1989

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A. Funding Value Beginning of Year	\$16,515,282,955
B. Cost Basis End of Year	18,650,681,146
C. Cost Basis Beginning of Year	16,556,554,186
D. Realized Losses	200,428,945
E. Realized Gains	700,476,277
F. Net Contribution: (B) - (C) + (D) - (E)	1,594,079,628
G. Projected Funding Value: (A) + (F)	18,109,362,583
H. Market Value End of Year	20,319,085,351
I. Current Adjustment: $0.20 \times [(H) - (G)]$	441,944,554
J. Funding Value End of Year: (G) + (I)	18,551,307,137
K. Market Adjustment to Ending Cost: (J) - (B)	\$ (99,374,009)

The funding value in (J) is applied to the financing of actuarial accrued liabilities. The funding value is intended to give recognition to long-term changes in asset values while minimizing the effect of short-term fluctuations in the capital markets. It treats realized and unrealized capital gains and losses in the same manner. The market adjustment shown in (K) is apportioned among State, Local, and Law Enforcement groups according to total assets.

## GLOSSARY

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.

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 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.

Actuarial Present Value of Credited Projected Benefits or Pension Benefit Obligation. The present value of future benefits based on service to date and the effect projected salary increases.

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 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.

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 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 equalled the plan's "actuarial accrued liabilities", the plan would be termed "fully funded". This is an unusual condition.

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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 20-50 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.

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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.

**Ohio Public Employees Retirement System**  
**Annual Actuarial Valuations of Retired Lives**  
**December 31, 1989**

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September 13, 1990

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

Ladies and Gentlemen:

Presented in this report are the results of the Annual Actuarial Valuation of Liabilities for Allowances Being Paid to Retirants and Beneficiaries as of December 31, 1989.

The statistical data required for the valuation was furnished by your Executive Director and his staff. Data was examined for reasonableness, but was not otherwise audited by the actuary.


The interest rate used in the valuation was 7.75% per annum, compounded annually. The mortality tables used in the valuation were the 1971 Male and Female Group Annuity Mortality Tables projected to 1984. Please see Appendix page 33 for sample retirement values.

Assets available for financing benefit promises to people currently being paid retirement allowances are held in retired life reserves: the Annuity and Pension Reserve from which superannuation and disability allowances are paid and the Survivor Benefit Fund from which death before retirement allowances are paid.

Your attention is directed particularly to the comments on page 2, the comparative statement on pages 6, 12, 18 and 24 and to the recommendation for reserve transfers on pages 30 and 31.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

  
Norman L. Jones, F.S.A.

  
Brian B. Murphy, F.S.A.

Ohio Public Employees Retirement System

December 31, 1989

COMMENTS

Retirant and beneficiary liabilities are the actuarial present values of benefits likely to be paid retirants and beneficiaries currently on the rolls and deferred survivor beneficiaries whose benefits have been determined, but will not begin until a future date. If an amount equal to the retired life liabilities is credited each year with interest at the rate assumed in the valuation and if retirants and beneficiaries live and die in accordance with the mortality assumptions, then this amount together with interest credited thereon will just be sufficient to pay the allowances for the remaining lifetimes of the retirants and beneficiaries included in the valuation. Actual experience does not coincide exactly with assumed experience, resulting in changing ratios of assets to liabilities.

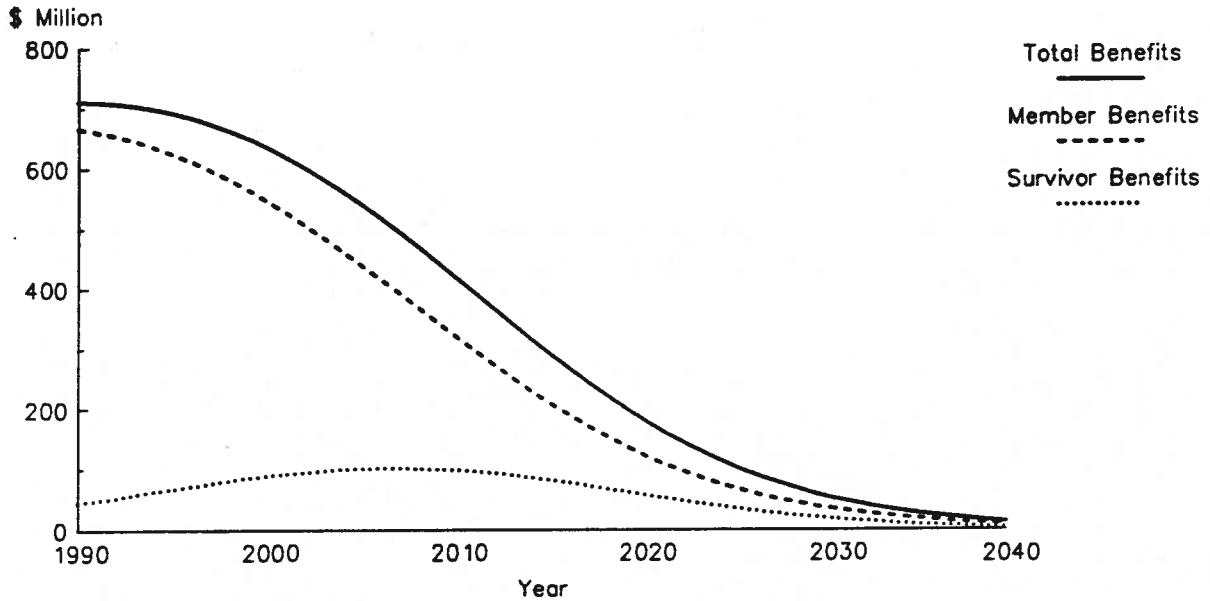
The results of the valuation are summarized in the following schedule.

<u>Fund</u>	<u>Number</u>	<u>Monthly Benefits Valued</u>	<u>Actuarial Liabilities</u>	<u>Assets*</u>	<u>Ratio of Assets to Liabilities</u>
		- - - - - \$ millions - - - - -			
A & PR	92,504	\$55.07	\$6,911	\$6,985	101.1%
SBF - State	4,486	1.64	190	191	
- Local	8,550	2.81	326	328	
- Law	103	0.05	6	6	
- Total	13,139	4.50	522	525	100.6
Totals	105,643	\$59.57	\$7,433	\$7,510	101.0%

\* After transfers.

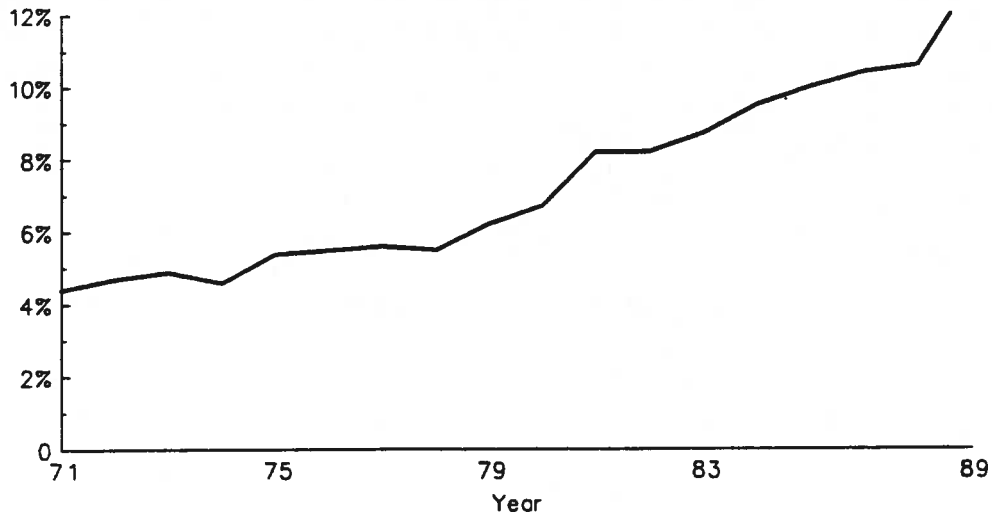
# PERS Ohio

## Projected Future Benefit Payments On Behalf of Present Retired Lives



Total future payments: \$16,898 million  
From present assets: \$7,510 million  
From future earnings: \$9,388 million

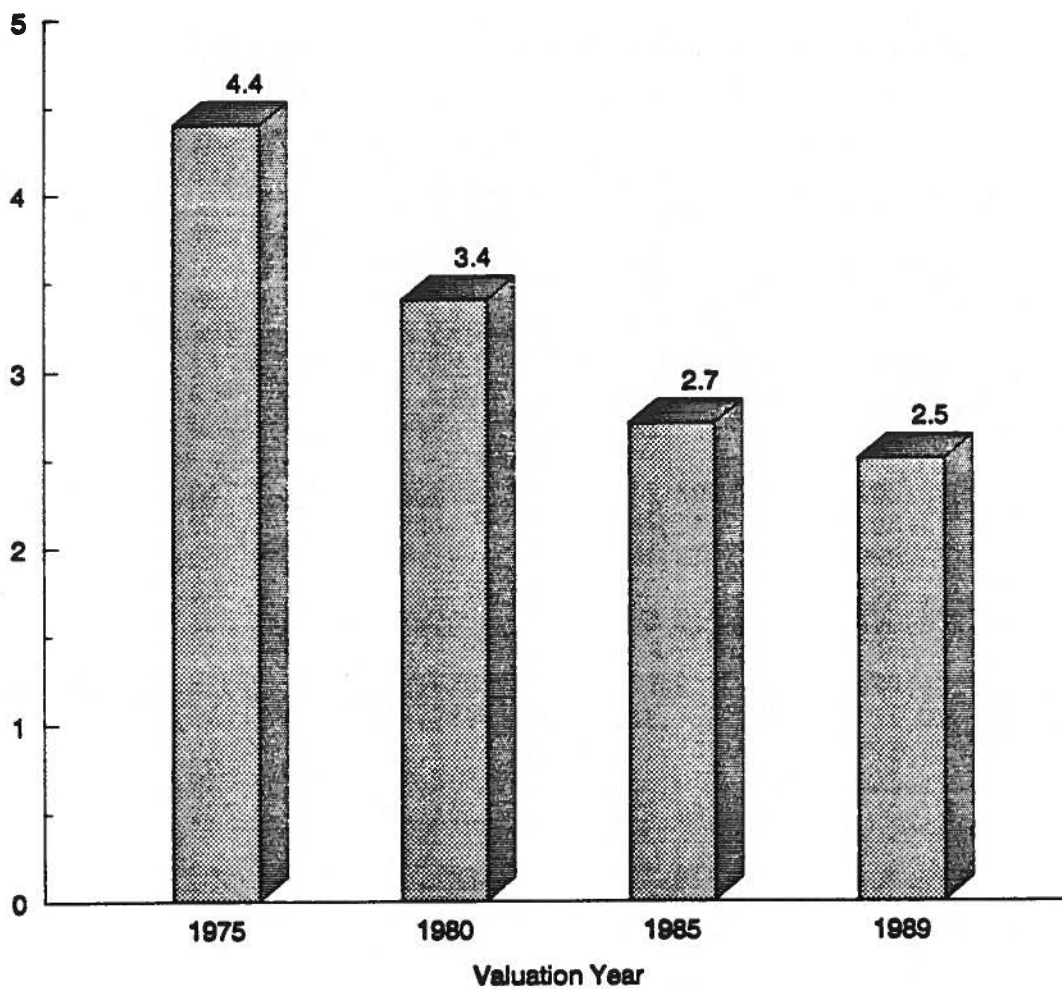
## Retirement Benefits Being Paid as a Percent of Member Payroll





# PERS Ohio

## Active Members Per Retired Life



## Ohio Public Employees Retirement System

## Monthly Allowances of Retired Lives

by Year of Retirement

as of December 31, 1989

Year of Retirement	Current Monthly Allowances				
	No.	Initial	Post-Ret. Increase	Total	Average
1989	5,077	\$ 4,555,762	\$ 0	\$ 4,555,762	\$897
1988	6,654	5,730,476	184,163	5,914,639	889
1987	6,036	4,759,629	247,600	5,007,229	830
1986	6,876	3,901,423	282,505	4,183,928	608
1985	6,367	3,791,914	407,455	4,199,369	660
1984	6,259	3,366,067	508,247	3,874,314	619
1983	5,787	2,881,429	742,551	3,623,980	626
1982	5,623	2,473,795	766,825	3,240,620	576
1981	6,014	2,479,878	866,719	3,346,597	556
1980	5,332	1,955,228	759,958	2,715,186	509
1979	4,982	1,804,934	867,018	2,671,952	536
1978	4,900	1,613,556	841,976	2,455,532	501
1977	4,842	1,570,880	831,131	2,402,011	496
1976	4,691	1,314,095	781,309	2,095,404	447
1975	4,009	1,064,042	665,948	1,729,990	432
1974	3,647	828,696	576,399	1,405,095	385
1973	3,137	642,170	466,349	1,108,519	353
1972	2,657	510,779	387,277	898,056	338
1971	2,300	419,223	362,137	781,360	340
1970	1,683	270,369	288,211	558,580	332
1969	1,522	229,629	259,830	489,459	322
1968	1,349	192,229	242,798	435,027	322
1967	920	120,978	171,705	292,683	318
1966	1,026	132,386	192,845	325,231	317
1965	694	80,358	139,832	220,190	317
1964	603	70,183	127,366	197,549	328
1963	608	63,769	121,991	185,760	306
1962	525	55,044	107,014	162,058	309
1961	392	44,544	91,708	136,252	348
1960	296	30,850	64,913	95,763	324
1959	229	21,981	48,436	70,417	307
1958	171	15,234	39,148	54,382	318
1957	109	9,914	25,685	35,599	327
1956	101	8,573	21,894	30,467	302
1955	64	4,411	14,079	18,490	289
Before 1955	161	7,504	47,145	54,649	339
Totals	105,643	\$47,021,932	\$12,550,167	\$59,572,099	\$564

**PERS OHIO**  
**ANNUITY AND PENSION RESERVE FUND**



Ohio Public Employees Retirement System  
December 31, 1989 Retired Lives Valuation  
ANNUITY AND PENSION RESERVE FUND

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Retirants and beneficiaries receiving benefits from the Annuity and Pension Reserve Fund as of December 31, 1989 totaled 92,504, involving current monthly retirement allowances of \$55,073,767.

Post-retirement pension increases being paid to present retirants and beneficiaries totaled \$11.3 million monthly; these amounts are included in the above current total.

The balance in the Annuity and Pension Reserve Fund was reported to be \$6,985,244,163 including routine adjusting transfers made following December 31.

The computed actuarial liabilities of the Annuity and Pension Reserve Fund totaled \$6,910,759,961, which represents the present value of future retirement allowance payments from this fund to present retirants and beneficiaries. Computed actuarial liabilities do not include an allowance for health insurance premiums and medicare reimbursements. These items are provided for by annual transfers from the Employer Accumulation Fund equal to actual disbursements during the preceding year.

Ohio Public Employees Retirement System  
Annuity and Pension Reserve Fund  
Annual Allowances, Reported Assets and Actuarial Liabilities  
Comparative Statement

(\$ Millions)

Valuation Date	Annual Allowances			Reported Assets*	Actuarial Liabilities	Ratio of Assets to Liabilities	Ratio of Active to Retired
	No.	Amount	% of Payroll #				
June 30, 1971	33,714	\$ 61	4.4%	\$ 602	\$ 576	104.5%	5.7
June 30, 1972	36,314	74	4.7	769	741	103.7	5.6
June 30, 1973	38,940	83	4.9	871	831	104.7	5.5
June 30, 1974	41,453	92	4.6	984	933	105.5	6.4
June 30, 1975	45,197	115	5.4	1,162	1,111	104.7	5.2
June 30, 1976	48,675	129	5.5	1,294	1,253	103.2	4.9
June 30, 1977	52,240	150	5.6	1,513	1,478	102.3	5.2
June 30, 1978	55,827	169	5.5	1,724	1,698	101.5	4.9
June 30, 1979	59,303	190	5.9	2,007	1,973	101.7	4.4
December 31, 1979	60,887	207	6.4	2,209	2,154	102.6	4.3
December 31, 1980	64,231	231	6.7	2,477	2,424	102.2	4.0
December 31, 1981 <sup>①</sup>	68,089	272	8.2	3,084	2,994	103.0	3.7
December 31, 1982 <sup>②</sup>	71,253	299	8.2	3,173	3,068	103.4	3.5
December 31, 1983	74,442	333	8.7**	3,554	3,428	103.7	3.3
December 31, 1984 <sup>②②</sup>	77,493	386	9.5**	3,993	3,993	100.0	3.2
December 31, 1985	80,999	429	10.0**	4,498	4,456	100.9	3.1
December 31, 1986	84,892	474	10.4**	4,965	4,935	100.6	3.0
December 31, 1987	86,924	518	10.6**	5,485	5,437	100.9	3.0
December 31, 1988	89,972	581	10.9**	6,182	6,173	100.1	2.9
December 31, 1989 <sup>②</sup>	92,504	661	12.4**	6,985	6,911	101.1	2.8

\* Including recommended transfers.

# Through 1979, June allowances are compared to December payroll.

① Revised actuarial assumptions.

②② Includes benefit increase.

\*\* Excluding health insurance and medicare payments which now total 3.8% of active member payroll.

Ohio Public Employees Retirement System

Annuity and Pension Reserve Fund

Retirants and Beneficiaries December 31, 1989

Type of Benefit, Monthly Amount and Actuarial Liabilities

Type of Allowance	Number	% of Current Total \$		Current Total \$	Actuarial Liabilities
		Member Annuities	Initial Pension Increases		
Superannuation Retirement					
Straight Life	46,778	24.1%	22.3%	\$24,984,097	\$2,759,258,428
Option 1 - Joint & 100%	12,612	25.2	14.1	8,508,135	1,324,416,571
Option 2 - Joint & 50%	12,844	24.1	16.9	10,669,432	1,413,889,112
Option 3 - Life & 0 to 5 Years Guaranteed	463	22.2	27.5	274,904	26,485,843
- Life & 6 to 10 Years Guaranteed	828	21.2	29.2	458,178	43,641,716
- Life & 11 to 15 Years Guaranteed	996	20.9	24.8	673,271	73,419,790
- Life & 16 to 20 Years Guaranteed	16	11.7	43.7	13,640	990,184
- Special Joint & Survivor	176	25.7	5.2	219,286	34,005,472
Survivor Beneficiary - Life Benefit	9,696	19.6	35.5	3,299,325	349,042,575
Survivor Beneficiary - Temporary Benefit	276	22.4	27.0	174,622	7,950,131
Total Superannuation	84,685			49,274,890	6,033,099,822
Disability Retirement	7,819	13.8	19.9	5,798,877	877,660,139
Total From A & PR	92,504	22.8%	20.6%	\$55,073,767	\$6,910,759,961

Ohio Public Employees Retirement System  
Annuity and Pension Reserve Fund

Retirants and Beneficiaries December 31, 1989  
Type of Benefit and Amount by Sex of Recipient

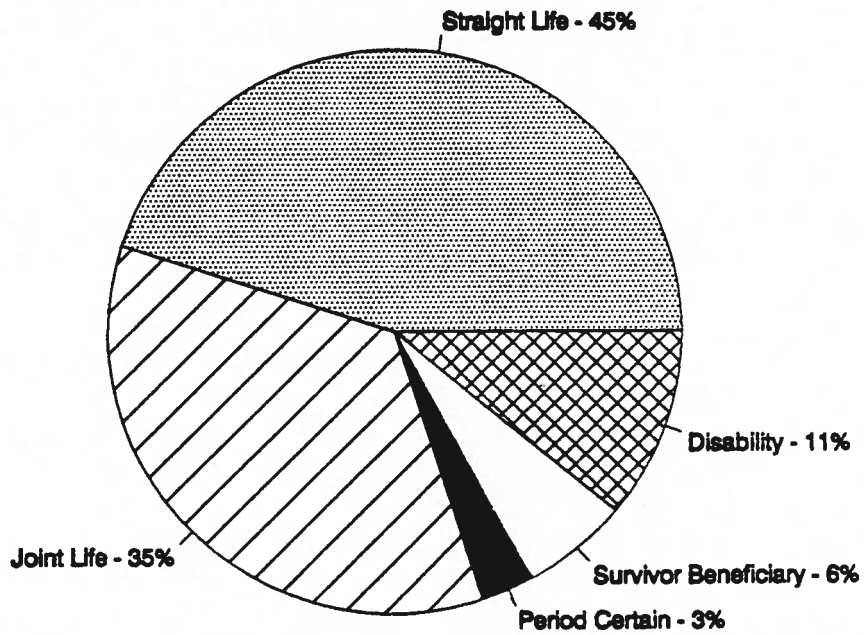
Type of Allowance	Men		Women		Total	
	Number	Monthly Allowances	Number	Monthly Allowances	Number	Monthly Allowances
Superannuation Retirement						
Straight Life	16,187	\$10,130,814	30,591	\$14,853,283	46,778	\$24,984,097
Option 1 - Joint & 100%	11,251	7,914,902	1,361	593,233	12,612	8,508,135
Option 2 - Joint & 50%	10,960	9,441,778	1,884	1,227,654	12,844	10,669,432
Option 3 - Life & 0 to 5 Years Guaranteed	312	205,104	151	69,800	463	274,904
- Life & 6 to 10 Years Guaranteed	653	374,996	175	83,182	828	458,178
- Life & 11 to 15 Years Guaranteed	831	590,974	165	82,297	996	673,271
- Life & 16 to 20 Years Guaranteed	13	11,828	3	1,812	16	13,640
- Special Joint & Survivor	88	150,867	88	68,419	176	219,286
Survivor Beneficiary - Life Benefit	286	87,036	9,410	3,212,289	9,696	3,299,325
Survivor Beneficiary - Temporary Benefit	36	22,450	240	152,172	276	174,622
Total Superannuation	40,617	28,930,749	44,068	20,344,141	84,685	49,274,890
Disability Retirement	4,781	4,065,858	3,038	1,733,019	7,819	5,798,877
Total From A & PR	45,398	\$32,996,607	47,106	\$22,077,160	92,504	\$55,073,767

# PERS Ohio

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## Annuities Being Paid By Type December 31, 1989

### Annuity and Pension Reserve Fund



Ohio Public Employees Retirement System  
 Annuity and Pension Reserve Fund  
 Retirants and Beneficiaries December 31, 1989  
 Current Monthly Total \$ By Attained Ages

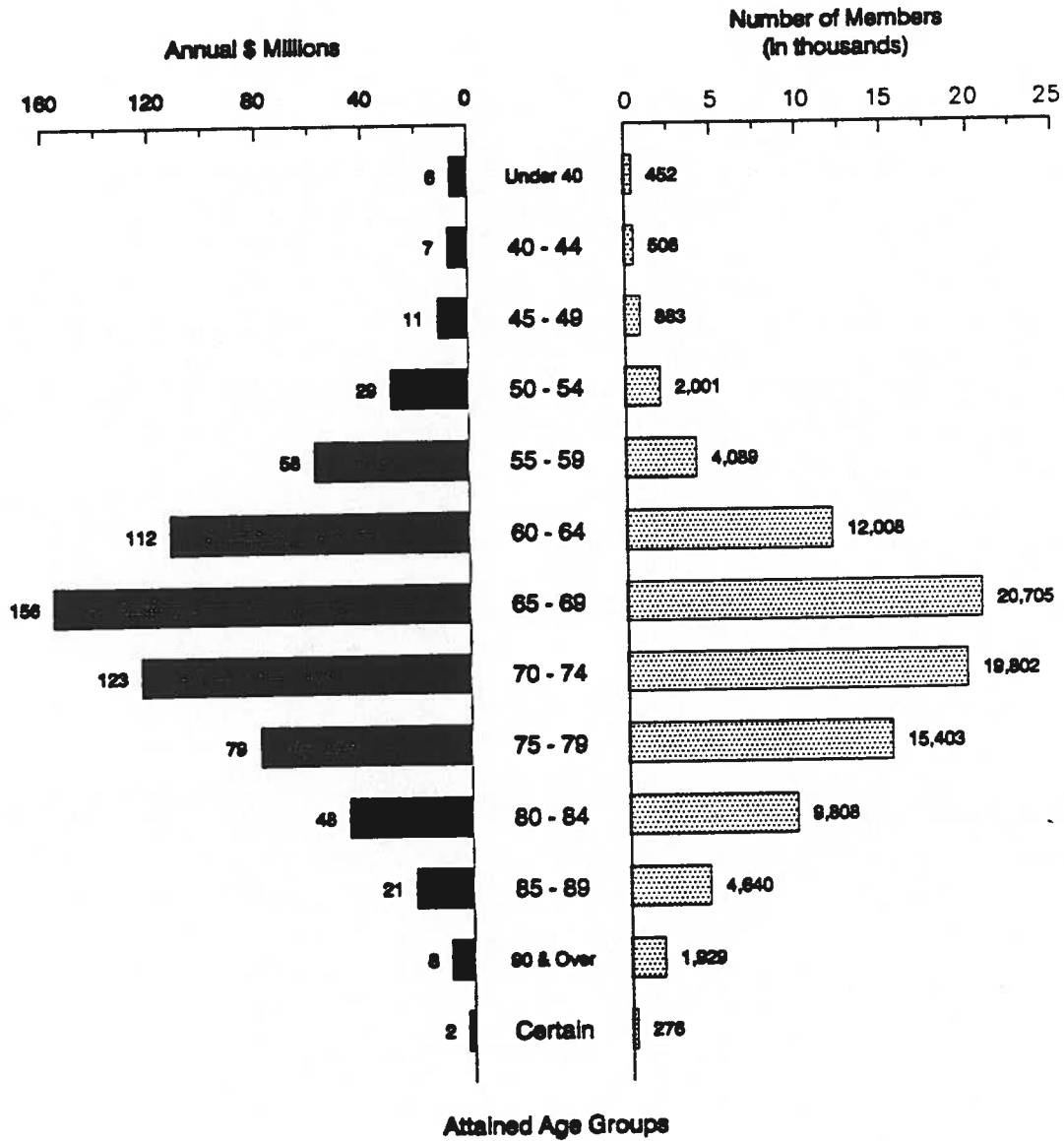
Attained Ages	Superannuation		Disability		Totals	
	No.	Monthly Total \$	No.	Monthly Total \$	No.	Monthly Total \$
Under 20	1	\$ 129		\$	1	\$ 129
20-24	4	898			4	898
25-29	3	848	16	15,886	19	16,734
30-34	13	2,819	107	119,829	120	122,648
35-39	11	4,253	297	342,617	308	346,870
40-44	26	11,692	482	531,971	508	543,663
45-49	212	284,951	671	668,747	883	953,698
50-54	1,106	1,638,553	895	819,047	2,001	2,457,600
55-59	2,677	3,718,693	1,412	1,082,774	4,089	4,801,467
60-64	10,318	8,267,285	1,690	1,105,799	12,008	9,373,084
65-69	19,453	12,291,270	1,252	720,545	20,705	13,011,815
70-74	19,148	9,969,036	654	276,344	19,802	10,245,380
75-79	15,165	6,514,691	238	80,199	15,403	6,594,890
80-84	9,728	3,964,816	80	25,804	9,808	3,990,620
85-89	4,617	1,733,105	23	8,638	4,640	1,741,743
90-94	1,573	564,633	2	677	1,575	565,310
95-99	314	117,312			314	117,312
Over 99	40	15,284			40	15,284
Period Certain	276	17,4622			276	174,622
Totals	84,685	\$49,274,890	7,819	\$5,798,877	92,504	\$55,073,767

Averages in Years

Age at Retirement	63.3	50.1
Current Age	72.6	58.8

# PERS Ohio - A & PR Fund

## Benefits Being Paid By Attained Ages December 31, 1989



Total annual amount = \$661 million  
 Number on rolls = 92,504

**PERS OHIO**  
**SURVIVOR BENEFIT FUND**  
**STATE DIVISION**



PERS OHIO: STATE DIVISION

Survivor Benefit Fund

Reported Assets and Actuarial Liabilities

Comparative Statement

Valuation Date	Monthly Allowances				Reported Assets  - - - \$	Actuarial Liabilities - - -   millions-	Ratio of Assets to Liabilities
	Current		Deferred				
	No.	Amount	No.	Amount			
June 30, 1971	2,053	\$ 288,154	373	\$ 34,347	\$ 50.2	\$ 42.9	117%
June 30, 1972	2,190	320,299	392	38,173	53.5	46.8	114
June 30, 1973	2,336	378,605	397	40,724	60.5	54.1	112
June 30, 1974	2,482	412,793	398	42,924	66.8	58.7	114
June 30, 1975	2,662	513,045	409	46,027	75.2	65.4	115
June 30, 1976	2,817	560,648	386	47,828	81.3	69.4	117
June 30, 1977	2,944	601,268	382	49,425	92.0	75.1	122
June 30, 1978	3,068	650,030	377	52,616	105.3	82.0	128
June 30, 1979	3,146	687,306	379	54,172	122.3	88.9	138
December 31, 1979	3,190	727,528	377	55,664	133.7	93.1	144
December 31, 1980	3,325	790,076	368	59,763	151.3	101.4	149
December 31, 1981 <sup>@</sup>	3,429	898,798	378	66,223	162.9	121.1	135
December 31, 1982 <sup>@</sup>	3,547	961,365	348	65,344	177.3	119.1	149
December 31, 1983	3,639	1,020,217	343	74,675	164.0	126.9	129
December 31, 1984 <sup>*</sup>	4,120	1,127,779	337	82,604	178.6	160.7	111
December 31, 1985	4,111	1,184,591	329	88,478	194.4	166.5	117
December 31, 1986	4,148	1,267,274	325	91,083	211.3	162.9	130
December 31, 1987	4,173	1,335,198	323	99,262	232.5	173.4	134
December 31, 1988	4,191	1,395,945	320	99,828	179.0 <sup>#</sup>	179.0	100
December 31, 1989 <sup>@</sup>	4,185	1,537,102	301	103,757	191.3	190.4	100

<sup>@</sup> Revised actuarial assumptions.

<sup>\*</sup> Benefits increased.

<sup>#</sup> Change in funding procedure.

PERS OHIO: STATE DIVISION

Survivor Benefit Fund

Survivor Benefit Beneficiaries December 31, 1989

Tabulated by Type of Benefit Being Paid and Monthly Amount

<u>Group</u>	<u>Number</u>	<u>Current Total \$</u>	<u>Actuarial Liabilities</u>
<b>S-1 - Survivor Benefit to Beneficiary of Deceased Member Joint and Survivor Computation</b>			
Men	58	\$ 23,550	\$ 2,394,834
Women	<u>961</u>	<u>557,349</u>	<u>69,019,051</u>
Totals	1,019	\$ 580,899	\$ 71,413,885
<b>S-2 - Survivor Benefit to Beneficiary of Deceased Member Fixed Rate Amount</b>			
Widower - no child	213	\$ 57,832	\$ 6,182,212
Widower - child	33	11,374	1,987,223
Child's record	<u>46</u>	<u>10,912</u>	<u>613,536</u>
Subtotals - male	292	80,118	8,782,971
Widow - no child	2,191	669,748	80,000,200
Widow - child	198	67,273	12,422,782
Child's record	279	75,873	3,847,299
Parent	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>
Subtotals - female	2,668	812,894	96,270,281
Child only	<u>206</u>	<u>63,191</u>	<u>3,736,314</u>
Totals	3,166	\$ 956,203	\$108,789,566
<b>Total Benefits Being Paid from Survivor Benefit Fund</b>			
Men	350	\$ 103,668	\$ 11,177,805
Women	3,629	1,370,243	165,289,332
Children only	<u>206</u>	<u>63,191</u>	<u>3,736,314</u>
Totals	4,185	\$1,537,102	\$180,203,451

PERS OHIO: STATE DIVISION

Survivor Benefit Fund

Deferred Survivor Benefit Beneficiaries December 31, 1989

Tabulated by Type of Benefit to be Paid and Monthly Amount

<u>Group</u>	<u>Number</u>	<u>Deferred Allowances</u>	<u>Actuarial Liabilities</u>
Fixed Rate Amounts			
Widowers			
Deferred to age 50	3	\$ 1,241	\$ 160,809
Deferred to age 62	35	11,479	875,602
Deferred to age 65	7	848	57,711
Totals	<u>45</u>	<u>13,568</u>	<u>1,094,122</u>
Widows			
Deferred to age 50	23	11,711	1,685,093
Deferred to age 62	227	77,779	7,355,869
Deferred to age 65	6	699	73,272
Totals	<u>256</u>	<u>90,189</u>	<u>9,114,234</u>
Totals	301	\$103,757	\$10,208,356

**OHIO PERS: STATE DIVISION**  
**Survivor Benefit Fund Beneficiaries**  
**as of December 31, 1989**

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<u>Attained Ages</u>	<u>No.</u>	<u>Monthly Allowances</u>
Under 10	79	\$ 22,557
10-14	130	35,513
15-19	214	59,080
20-24	71	22,818
25-29	4	1,027
30-34	25	7,106
35-39	43	13,232
40-44	64	22,593
45-49	60	25,995
50-54	137	69,276
55-59	238	136,281
60-64	536	250,817
65-69	708	279,355
70-74	685	228,693
75-79	554	161,669
80-84	383	118,640
85-89	177	55,101
90-94	62	22,623
95 & Over	15	4,726
<b>Totals</b>	<b>4,185</b>	<b>\$ 1,537,102</b>

PERS OHIO: STATE DIVISION

Survivor Benefit Fund

Tabulated by Attained Ages and Deferment Ages

as of December 31, 1989

Attained Ages	Deferred to age 50		Deferred to age 62		Deferred to age 65		Totals	
	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances
25-29		\$	1	\$ 156		\$	1	\$ 156
30-34			2	392			2	392
35-39	2	655	6	1,567			8	2,222
40-44	4	2,047	12	4,608			16	6,655
45-49	19	10,118	17	7,992	1	159	37	18,269
50-54	1	132	48	16,322	2	245	51	16,699
55-59			102	35,655	3	357	105	36,012
60-64			65	21,247	4	469	69	21,716
65-69			7	816	2	221	9	1,037
70 & Over			2	503	1	96	3	599
<b>Totals</b>	<b>26</b>	<b>\$ 12,952</b>	<b>262</b>	<b>\$ 89,258</b>	<b>13</b>	<b>\$ 1,547</b>	<b>301</b>	<b>\$ 103,757</b>

PERS OHIO: STATE DIVISION

Survivor Benefit Fund

Reported Assets\* and Actuarial Liabilities

Comparative Statement

	Valuation Date		
	12-31-89	12-31-88#	12-31-87
S-1 (Joint and Survivor) Benefits Being Paid:			
Reported Assets	\$ 71,499,303	\$ 65,067,686	\$ 54,767,779
Actuarial Liabilities	71,413,885	65,067,686	62,625,349
Ratio of Assets to Liabilities	100.1%	100.0%	87.5%
S-2 (Fixed Rate) Benefits Being Paid - Including Deferred Cases Where No Monthly Payment Has Been Made:			
Reported Assets	\$119,831,041	\$113,887,031	\$ 94,181,173
Actuarial Liabilities	118,997,922	113,887,031	110,442,274
Ratio of Assets to Liabilities	100.7%	100.0%	85.3%
Total Survivor Benefit Fund			
Reported Assets	\$191,330,344	\$178,954,717	\$232,504,743
Actuarial Liabilities	\$190,411,807	\$178,954,717	\$173,067,623
 RATIO OF ASSETS TO LIABILITIES	 100.5%	 100.0%	 134.3%

\* After routine transfers.

# Change in funding procedure.

**PERS OHIO  
SURVIVOR BENEFIT FUND  
LOCAL GOVERNMENT**

PERS OHIO: LOCAL GOVERNMENT

Survivor Benefit Fund

Reported Assets and Actuarial Liabilities

Comparative Statement

Valuation Date	Monthly Allowances				Reported Assets  - - - \$	Actuarial Liabilities - - -	Ratio of Assets to Liabilities
	Current		Deferred				
	No.	Amount	No.	Amount			
June 30, 1971	3,678	\$ 515,127	599	\$ 53,959	\$ 84.9	\$ 73.7	115%
June 30, 1972	3,912	571,168	620	57,830	91.2	80.2	114
June 30, 1973	4,141	674,758	612	58,954	104.1	92.2	113
June 30, 1974	4,344	724,156	639	63,555	114.9	98.8	116
June 30, 1975	4,684	909,899	645	67,663	130.1	112.5	116
June 30, 1976	5,030	996,569	605	71,158	143.5	120.0	120
June 30, 1977	5,209	1,058,629	621	75,669	165.0	129.5	127
June 30, 1978	5,491	1,149,550	627	83,328	195.9	142.5	137
June 30, 1979	5,678	1,226,945	660	92,377	232.9	156.2	149
December 31, 1979	5,770	1,301,207	666	99,738	246.2	165.8	148
December 31, 1980	6,047	1,423,682	654	110,483	274.5	183.1	150
December 31, 1981 <sup>ⓐ</sup>	6,175	1,577,916	665	124,274	293.2	213.3	137
December 31, 1982 <sup>ⓐ</sup>	6,336	1,677,895	656	133,138	316.9	209.7	151
December 31, 1983	6,460	1,775,651	671	148,339	285.9	223.8	128
December 31, 1984 <sup>*</sup>	7,639	1,970,727	644	161,637	307.6	286.6	107
December 31, 1985	7,711	2,068,996	639	166,710	331.1	298.5	111
December 31, 1986	7,831	2,194,189	624	173,194	354.8	284.0	125
December 31, 1987	7,898	2,289,429	599	175,411	381.8	294.6	130
December 31, 1988	7,958	2,389,242	607	177,211	306.2 <sup>#</sup>	306.2	100
December 31, 1989 <sup>ⓐ</sup>	7,925	2,601,231	625	210,220	327.9	325.8	101

ⓐ Revised actuarial assumptions.

\* Benefits increased.

# Change in funding procedure.



PERS OHIO: LOCAL GOVERNMENT

Survivor Benefit Fund

Survivor Benefit Beneficiaries December 31, 1989

Tabulated by Type of Benefit Being Paid and Monthly Amount

<u>Group</u>	<u>Number</u>	<u>Current Total \$</u>	<u>Actuarial Liabilities</u>
<b>S-1 - Survivor Benefit to Beneficiary of Deceased Member Joint and Survivor Computation</b>			
Men	88	\$ 35,523	\$ 3,463,347
Women	<u>1,658</u>	<u>830,329</u>	<u>101,077,087</u>
Totals	1,746	\$ 865,852	\$104,540,434
<b>S-2 - Survivor Benefit to Beneficiary of Deceased Member Fixed Rate Amounts</b>			
Widower - no child	311	\$ 80,621	\$ 8,717,958
Widower - child	38	10,499	1,770,466
Child's record	<u>55</u>	<u>10,739</u>	<u>494,138</u>
Subtotals - male	404	101,859	10,982,562
Widow - no child	4,193	1,178,061	141,717,574
Widow - child	506	162,482	30,530,673
Child's record	732	190,907	10,778,443
Parent	<u>4</u>	<u>1,266</u>	<u>98,436</u>
Subtotals - female	5,435	1,532,716	183,125,126
Child only	<u>340</u>	<u>100,804</u>	<u>5,683,627</u>
Totals	6,179	\$1,735,379	\$199,791,315
<b>Total Benefits Being Paid from Survivor Benefit Fund</b>			
Men	492	\$ 137,382	\$ 14,445,909
Women	7,093	2,363,045	284,202,213
Children only	<u>340</u>	<u>100,804</u>	<u>5,683,627</u>
Totals	7,925	\$2,601,231	\$304,331,749

PERS OHIO: LOCAL GOVERNMENT

Survivor Benefit Fund

Deferred Survivor Benefit Beneficiaries December 31, 1989

Tabulated by Type of Benefit to be Paid and Monthly Amount

<u>Group</u>	<u>Number</u>	<u>Deferred Allowances</u>	<u>Actuarial Liabilities</u>
Fixed Rate Amounts			
Widowers			
Deferred to age 50	7	\$ 2,360	\$ 307,435
Deferred to age 62	49	15,437	1,220,523
Deferred to age 65	<u>13</u>	<u>1,513</u>	<u>122,961</u>
Totals	69	19,310	1,650,919
Widows			
Deferred to age 50	61	36,097	5,336,384
Deferred to age 62	486	153,709	14,376,552
Deferred to age 65	<u>9</u>	<u>1,104</u>	<u>112,274</u>
Totals	556	190,910	19,825,210
Totals	625	\$210,220	\$21,476,129

**PERS OHIO: LOCAL GOVERNMENT**  
**Survivor Benefit Fund Beneficiaries**  
**as of December 31, 1989**

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<u>Attained Ages</u>	<u>No.</u>	<u>Monthly Allowances</u>
Under 10	148	\$ 43,149
10-14	277	76,861
15-19	469	118,382
20-24	140	36,299
25-29	29	9,107
30-34	63	21,288
35-39	96	30,318
40-44	110	37,704
45-49	142	49,545
50-54	288	127,292
55-59	499	229,465
60-64	947	388,758
65-69	1,359	465,335
70-74	1,208	360,338
75-79	1,037	288,111
80-84	636	174,616
85-89	344	103,122
90-94	109	35,360
95 & Over	24	6,181
<b>Totals</b>	<b>7,925</b>	<b>\$ 2,601,231</b>

PERS OHIO: LOCAL GOVERNMENT

Survivor Benefit Fund

Tabulated by Attained Ages and Deferment Ages  
as of December 31, 1989

Attained Ages	Deferred to age 50		Deferred to age 62		Deferred to age 65		Totals	
	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances
25-29	1	\$ 299	1	\$ 179		\$	2	\$ 478
30-34			1	249			1	249
35-39	2	1,213	4	786			6	1,999
40-44	6	3,134	17	5,653			23	8,787
45-49	49	29,177	57	20,514			106	49,691
50-54	10	4,634	114	40,672	1	145	125	45,451
55-59			198	64,164	5	599	203	64,763
60-64			129	35,374	11	1,354	140	36,728
65-69			9	1,075	3	327	12	1,402
70 & Over			5	480	2	192	7	672
Totals	68	\$ 38,457	535	\$ 169,146	22	\$ 2,617	625	\$ 210,220

PERS OHIO: LOCAL GOVERNMENT

Survivor Benefit Fund

Reported Assets\* and Actuarial Liabilities

Comparative Statement

	Valuation Date		
	<u>12-31-89</u>	<u>12-31-88#</u>	<u>12-31-87</u>
<b>S-1 (Joint and Survivor) Benefits Being Paid:</b>			
Reported Assets	\$106,338,099	\$ 97,301,031	\$ 80,856,782
Actuarial Liabilities	104,540,434	97,301,031	92,514,738
Ratio of Assets to Liabilities	101.3%	100.0%	87.4%
<b>S-2 (Fixed Rate) Benefits Being Paid - Including Deferred Cases Where No Monthly Payment Has Been Made:</b>			
Reported Assets	\$221,597,893	\$208,882,169	\$168,452,585
Actuarial Liabilities	221,267,444	208,882,169	202,065,135
Ratio of Assets to Liabilities	100.1%	100.0%	83.4%
<b>Total Survivor Benefit Fund:</b>			
Reported Assets	\$327,935,992	\$306,183,200	\$381,834,694
Actuarial Liabilities	\$325,807,878	\$306,183,200	\$294,579,873
<b>RATIO OF ASSETS TO LIABILITIES</b>	<b>100.7%</b>	<b>100.0%</b>	<b>129.6%</b>

\* After routine transfers.

# Change in funding procedure.

**PERS OHIO  
SURVIVOR BENEFIT FUND  
LAW ENFORCEMENT**

PERS OHIO: LAW ENFORCEMENT  
Survivor Benefit Fund  
Reported Assets and Actuarial Liabilities  
Comparative Statement

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Valuation Date December 31,	Monthly Allowances		Reported Assets  - - - \$	Actuarial Liabilities - - -	Ratio of Assets to Liabilities
	Current No. Amount	Deferred No. Amount			
1979	11 \$ 4,668	1 \$ 448	\$ 3.14	\$0.61	515%
1980	17 6,883	-	3.56	0.85	419
1981@	25 12,236	2 731	4.46	1.62	275
1982@	30 15,426	2 757	5.51	1.83	301
1983	33 16,771	6 2,461	4.80	2.08	231
1984	60 21,025	9 4,132	5.99	3.83	156
1985	67 24,666	11 4,654	7.30	4.56	160
1986	75 28,452	11 4,654	9.36	4.26	220
1987	82 31,793	11 4,654	11.74	4.87	241
1988	88 36,898	14 5,987	5.57#	5.57	100
1989@	88 39,207	15 6,815	6.13	5.93	103

@ Revised actuarial assumptions.

# Change in funding procedure.

PERS OHIO: LAW ENFORCEMENT

Survivor Benefit Beneficiaries December 31, 1989

Tabulated by Type of Benefit Being Paid and Monthly Amount

<u>Group</u>	<u>Number</u>	<u>Current Total \$</u>	<u>Actuarial Liabilities</u>
<b>S1 - Survivor Benefit to Beneficiary of Deceased Member Joint and Survivor Computation</b>			
Men	-	\$ none	\$ none
Women	<u>16</u>	<u>12,767</u>	<u>1,961,564</u>
Totals	16	\$12,767	\$1,961,564

<b>S2 - Survivor Benefit to Beneficiary of Deceased Member Fixed Rate Amount</b>			
Widower - no child	-	\$ none	\$ none
Widower - child	-	<u>none</u>	<u>none</u>
Subtotals - male	-	none	none
Widow - no child	26	10,300	1,530,302
Widow - child	16	6,860	1,365,460
Child	<u>25</u>	<u>7,018</u>	<u>470,188</u>
Subtotals - female	67	24,178	3,365,950
Child only	5	2,262	144,205
Totals	72	\$26,440	\$3,510,155

**Total Benefits Being Paid from Survivor Benefit Fund**

Men	none	\$ none	\$ none
Women	83	36,945	5,327,514
Children only	<u>5</u>	<u>2,262</u>	<u>144,205</u>
Totals	88	\$39,207	\$5,471,719



PERS OHIO: LAW ENFORCEMENT

Survivor Benefit Fund

Deferred Survivor Benefit Beneficiaries December 31, 1989

Tabulated By Type of Benefit to be Paid and Monthly Amount

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<u>Group</u>	<u>Number</u>	<u>Deferred Allowances</u>	<u>Actuarial Liabilities</u>
Widows			
Deferred to Age 50	2	\$1,172	\$116,914
Deferred to Age 62	<u>13</u>	<u>5,643</u>	<u>344,028</u>
Totals	15	\$6,815	\$460,942

**PERS OHIO: LAW ENFORCEMENT**  
**Survivor Benefit Fund Beneficiaries**  
**as of December 31, 1989**

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<u>Attained Ages</u>	<u>No.</u>	<u>Monthly Allowances</u>
Under 10	11	\$ 3,524
10-14	10	3,082
15-19	9	2,674
20-24	1	398
25-29	1	294
30-34	2	913
35-39	4	1,771
40-44	6	2,572
45-49	3	1,079
50-54	5	3,790
55-59	11	6,005
60-64	9	6,420
65-69	11	4,768
70-74	4	1,718
75-79	<u>1</u>	<u>199</u>
<b>Totals</b>	<b>88</b>	<b>\$ 39,207</b>

PERS OHIO: LAW ENFORCEMENT

Survivor Benefit Fund

Tabulated by Attained Ages and Deferment Ages

as of December 31, 1989

Attained Ages	Deferred to age 50		Deferred to age 62		Deferred to age 65		Totals	
	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances	No.	Monthly Allowances
30-34		\$	1	\$ 286		\$	1	\$ 286
40-44	2	1,172	4	2,074			6	3,246
45-49			2	821			2	821
50-54			4	1,661			4	1,661
60-64			2	801			2	801
Totals	2	\$ 1,172	13	\$ 5,643		\$	15	\$ 6,815

PERS OHIO: LAW ENFORCEMENT

Survivor Benefit Fund

Reported Assets\* and Actuarial Liabilities

Comparative Statement

	Valuation Date		
	<u>12-31-89</u>	<u>12-31-88#</u>	<u>12-31-87</u>
<b>S-1 (Joint and Survivor) Benefits Being Paid:</b>			
Reported Assets	\$1,961,564	\$1,848,408	\$ 1,380,549
Actuarial Liabilities	1,961,564	1,848,408	1,514,743
Ratio of Assets to Liabilities	100.0%	100.0%	91.1%
<b>S-2 (Fixed Rate) Benefits Being Paid - Including Deferred Cases Where No Monthly Payment Has Been Made:</b>			
Reported Assets	\$4,169,427	\$3,725,552	\$ 2,889,078
Actuarial Liabilities	3,971,097	3,725,552	3,356,243
Ratio of Assets to Liabilities	105.0%	100.0%	86.1%
<b>Total Survivor Benefit Fund</b>			
Reported Assets	\$6,130,991	\$5,573,960	\$11,739,309
Actuarial Liabilities	\$5,932,661	\$5,573,960	\$ 4,870,986
<b>RATIO OF ASSETS TO LIABILITIES</b>	<b>103.3%</b>	<b>100.0%</b>	<b>241.0%</b>

\* After routine transfers.

# Change in funding procedure.

**PERS OHIO  
RECOMMENDATIONS FOR  
RESERVE TRANSFERS**

Ohio Public Employees Retirement System  
December 31, 1989 Retired Lives Valuation

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Reserve Transfers

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.
3. To cover the cost of ad-hoc post retirement benefit increases.
4. To adjust retired life reserves for any changes in computed liabilities resulting from assumption changes.

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.

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It is recommended that the transfers shown on the following page be made from the Employer Accumulation Fund to the Annuity & Pension Reserve Fund and Survivor Benefit Funds as indicated.

Ohio Public Employees Retirement System  
Recommended Transfers From Employer Accumulation Fund  
December 31, 1989

	Assets			Reserve Transfer Assumption			Assets			Ratio
	Before Trans.	Medicare	Health	Change	Other	Total	After Trans.	Liabilities		
<b>State</b>										
A&PR Fund	\$2,424,890,216	\$ 8,740,322	\$ 44,517,628	\$(42,416,150)	\$ 0	\$10,841,800	\$2,435,732,016	\$2,418,154,422	100.7	
JR&SR	289,569,472	367,879	15,153,031	(6,144,542)	0	9,376,368	298,945,840	285,743,481	104.6	
DR	2,714,459,688	9,108,201	59,670,659	(48,560,692)	0	20,218,168	2,734,677,856	2,703,897,903	101.1	
<b>Total A&amp;PR</b>										
SBF	71,814,102	187,732	818,944	(1,321,475)	0	(314,799)	71,499,303	71,413,885	100.1	
S-1	119,133,315	520,711	2,668,260	(2,491,245)	0	697,726	119,831,041	118,997,922	100.7	
S-2	190,947,417	708,443	3,487,204	(3,812,720)	0	382,927	191,330,344	190,411,807	100.5	
<b>Total SBF</b>	\$2,905,407,105	\$ 9,816,644	\$ 63,157,863	\$(52,373,412)	\$ 0	\$20,601,095	\$2,926,008,200	\$2,894,309,710	101.1	
<b>Total State</b>										
Local										
A&PR Fund	\$3,559,431,898	\$15,233,203	\$ 76,415,974	\$(62,945,839)	\$ 0	\$28,703,338	\$3,588,135,236	\$3,578,434,857	100.5	
JR&SR	573,841,354	465,428	27,990,345	(12,395,120)	0	16,060,653	589,902,007	568,088,633	103.1	
DR	4,133,273,252	15,698,631	104,406,319	(75,340,959)	0	44,763,991	4,178,037,243	4,146,523,490	100.1	
<b>Total A&amp;PR</b>										
SBF	105,872,729	384,898	2,018,593	(1,938,121)	0	465,370	106,338,099	104,540,434	101.1	
S-1	219,789,496	1,027,605	5,431,745	(4,650,953)	0	1,808,397	221,597,893	221,267,444	100.1	
S-2	325,662,225	1,412,503	7,450,338	(6,589,074)	0	2,273,767	327,935,992	325,807,878	100.3	
<b>Total Local</b>	\$4,458,935,477	\$17,111,134	\$111,856,657	\$(81,930,033)	\$ 0	\$47,037,758	\$4,505,973,235	\$4,472,331,368	100.1	
<b>Total</b>										
A&PR Fund	\$ 39,747,508	\$ 48,073	\$ 620,640	\$(645,295)	\$ 0	\$ 23,418	\$ 39,770,926	\$ 36,510,544	108.1	
JR&SR	32,449,260	4,147	831,689	(526,958)	0	308,878	32,758,138	23,828,024	137.1	
DR	72,196,768	52,220	1,452,329	(1,172,253)	0	332,296	72,529,064	60,338,568	120.1	
<b>Total A&amp;PR</b>										
SBF	1,921,483	1,053	36,864	(44,660)	46,824	40,081	1,961,564	1,961,564	100.0	
S-1	4,128,300	2,793	137,440	(99,106)	0	41,127	4,169,427	3,971,097	105.0	
S-2	6,049,783	3,846	174,304	(143,766)	46,824	81,208	6,130,991	5,932,661	103.0	
<b>Total SBF</b>	\$ 78,246,551	\$ 56,066	\$ 1,626,633	\$(1,316,019)	\$46,824	\$ 413,504	\$ 78,660,055	\$ 66,271,229	118.1	
<b>Total Law</b>										
Grand Total	\$7,442,589,133	\$26,983,844	\$176,641,153	\$(135,619,464)	\$46,824	\$68,052,357	\$7,510,641,490	\$7,432,912,307	101.1	

**PERS OHIO  
HEALTH CARE  
AND  
MEDICARE REIMBURSEMENT**



**Ohio Public Employees Retirement System**  
**Post-Retirement Health Care and Medicare Payments**  
**Comparative Schedule**

<u>Valuation Date</u> <u>December 31</u>	<u>Medicare</u> <u>Part B</u> <u>Premiums</u>	<u>Employer Paid</u> <u>Health Care</u>	<u>Total</u>	<u>Active Member</u> <u>Payroll</u>	<u>Total as a %</u> <u>of Payroll</u>
1981	\$ 6,381,489	\$ 47,651,716	\$ 54,033,205	3,307,571,008	1.6%
1982	7,528,239	70,584,002	78,112,241	3,654,005,558	2.1
1983	8,265,896	87,344,439	95,610,335	3,814,209,173	2.5
1984	10,297,672	101,506,290	111,803,962	4,044,792,929	2.8
1985	11,349,908	105,828,055	117,177,963	4,281,546,422	2.7
1986	11,866,188	131,275,698	143,141,886	4,542,943,511	3.2
1987	14,281,234	151,740,624	166,021,858	4,864,833,656	3.4
1988	20,561,111	198,449,727	219,010,838	5,307,735,356	3.7#
1989	26,983,844	176,641,153	203,624,997	5,327,745,703	3.8

# Adjusted to approximate the effect of a change in accounting method.

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**Derivation of Approximate Monthly Health Care Premium**  
**From December 31, 1989 Retired Life Data**

	<u>Type of Risk</u>					
	<u>Standard(SR)</u>		<u>Substandard(DR)</u>		<u>Survivor(SBF)</u>	
	<u>To Age 65</u>	<u>At Age 65</u>	<u>To Age 65</u>	<u>At Age 65</u>	<u>To Age 65</u>	<u>At Age 65</u>
(1) Total Monthly Risk Charge	\$4,886,160	\$6,546,855	\$1,951,418	\$237,310	\$ 999,787	\$444,882
(2) Number Covered	13,738	67,707	5,567	2,237	3,470	6,002
(3) Preliminary Premium (1)÷(2)	\$355.67	\$96.69	\$350.53	\$106.08	\$288.12	\$74.12
(4) Adjusted Premium	347.49	94.47	342.47	103.64	281.49	72.42

The adjusted premium accounts for differences between the projected annual risk charge based on (1) and the employer paid health care for the year ended December 31.

These premium amounts are used in the active member valuation to estimate the incidence of future health care and medicare payout.

**APPENDIX**

APPENDIX

Ohio Public Employees Retirement System

Single Life Retirement Values

December 31, 1989

<u>Sample Attained Ages</u>	<u>Present Value of \$1 Monthly For Life Increasing 3.0% Annually (1st Increase After 1 Year)</u>		<u>Future Life Expectancy (Years)</u>		<u>Expected Total Lifetime</u>	
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
	40	\$188.81	\$200.55	36.69	43.22	76.69
45	178.78	193.53	32.01	38.41	77.01	83.41
50	166.89	184.58	27.53	33.66	77.53	83.66
55	153.18	173.30	23.28	28.99	78.28	83.99
60	137.36	159.32	19.27	24.44	79.27	84.44
65	119.69	142.71	15.55	20.09	80.55	85.09
70	101.34	123.42	12.25	15.99	82.25	85.99
75	83.83	102.88	9.49	12.33	84.49	87.33
80	67.06	83.12	7.17	9.28	87.17	89.28
85	53.27	64.71	5.43	6.78	90.43	91.78

<u>Sample Attained Ages</u>	<u>Portion of Age 60 Lives Still Alive</u>		<u>\$1,000 Benefit Increasing 3% Annually</u>
	<u>Men</u>	<u>Women</u>	
60	100%	100%	\$1,000
65	93	97	1,150
70	82	92	1,300
75	67	84	1,450
80	48	70	1,600
85	28	51	1,750