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POLICE AND FIREMEN'S DISABILITY  
AND PENSION FUND OF OHIO

Actuarial Evaluation to Determine  
the Actuarial Rate Per Cent of  
Contribution as of January 1, 1990

November 26, 1990

THE *Wyatt* COMPANY

ACTUARIAL SERVICES  
COMPENSATION PROGRAMS  
ADMINISTRATIVE SYSTEMS  
INTERNATIONAL SERVICES  
ORGANIZATION SURVEYS

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EMPLOYEE BENEFITS  
EMPLOYEE COMMUNICATIONS  
RISK MANAGEMENT  
INSURANCE CONSULTING  
HEALTH CARE CONSULTING

November 26, 1990

Board of Trustees  
The Police and Firemen's Disability  
and Pension Fund of Ohio  
230 East Town Street  
Columbus, Ohio 43215

Gentlemen:

We are pleased to submit to you herewith our report presenting the results of the actuarial evaluation to determine the actuarial rate per cent of contribution as of January 1, 1990. This report has been based upon the employee data which were supplied to us by the Executive Secretary and upon statements showing the assets and liabilities of the Fund as of December 31, 1989.

We would like to call your attention to the following items from the report:

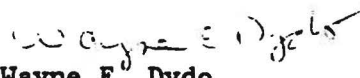
- (1) The 1990 evaluation has been based upon the Fund benefit provisions as in effect on January 1, 1990, including the \$1,000 death benefit for retirees established by Amended Substitute House Bill No. 377. Excluded from the results, however, are the 1971 Amended Substitute House Bill No. 284 and the cost of the Death Benefit Fund established by 1976 Amended House Bill No. 1010, since we understand that these benefits are being funded by the State of Ohio. A brief summary of the main benefit specifications of the Fund considered in this evaluation is contained in Table 3.
- (2) The actuarial assumptions and actuarial cost method are the same as those used in the prior year's evaluation. A summary of the actuarial assumptions and actuarial cost method is set forth in Table 4.
- (3) The basic data used in the evaluation represent all active members, retirants and beneficiary-survivors covered by the Fund as of January 1, 1990. In total, 39,627 members were considered in the evaluation. A distribution of the coverage, by category, membership status and age, is set forth in various Table 2's.

- (4) The highlights of the evaluation results may be found in Table 1. In summary, the total actuarial rate per cent, applicable for the calendar year beginning January 1, 1990, has been developed as follows:

	<u>Police</u>	<u>Fire</u>
Current Rate Per Cent for Disability and Pension Benefits	28.02%	29.34%
Current Rate Per Cent for Health Care Plan and Medicare	6.26	6.26
Total Current Rate Per Cent	34.28	35.60

We look forward to discussing this report with the Board of Trustees in the near future.

Sincerely yours,

  
Wayne E. Dydo  
Fellow-Society of Actuaries

WED:dld

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO  
Actuarial Evaluation to Determine the Actuarial Rate Per Cent  
of Contribution as of January 1, 1990

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POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Actuarial Evaluation to Determine the Actuarial Rate Per Cent  
of Contribution as of January 1, 1990

A. PURPOSE

The Board of Trustees of the Police and Firemen's Disability and Pension Fund of Ohio has retained The Wyatt Company, as Actuary to the Fund, to perform the necessary actuarial evaluations required pursuant to the terms of the 1965 Amended House Bill No. 642. This report sets forth the results of our evaluation to determine the actuarial rate per cent for the year beginning January 1, 1990.

Section 742.14 of House Bill No. 642 provided for the initial determination of the appropriate current rate per cent, to be used as of January 1, 1967. The aforementioned section, as amended in 1986 by Amended Substitute House Bill No. 721, furthermore, provides as follows:

"The Board shall annually thereafter have prepared by a competent Actuary familiar with retirement systems, a report showing the adequacy of the rate of the Policemen Employers' Contribution provided for by Section 742.33 of the Revised Code, and the adequacy of the rate of the Firemen Employers' Contribution provided for by Section 742.34 of the Revised Code."

In addition, House Bill No. 721 added Section 742.311 which reads as follows:

"The Ohio Retirement Study Commission shall annually review the adequacy of the contribution rates provided under Sections 742.31, 742.33, and 742.34 of the Revised Code and the contribution rates recommended by the Actuary of the Police and Firemen's Disability and Pension Fund for the forthcoming year. The Ohio Retirement Study Commission shall make recommendations to the General Assembly which it finds necessary for the proper financing of the Police and Firemen's Disability and Pension Fund."

Pursuant to these two Sections, we have performed an actuarial evaluation based upon the January 1, 1990 membership data and upon the Annual Report and audited financial statements for the fiscal year ending December 31, 1989. The highlights of the evaluation are set forth in Table 1 at the end of this report, and are discussed in a subsequent section of this report.

B. BASIC DATA

The evaluation is based upon the data that were prepared and submitted to us under the direction of Mr. Henry E. Helling, III, Executive Director of the Board of Trustees. This information represented a complete census of members as of the valuation date and showed a total count of 39,627 members.

A summary of the data is as follows:

	<u>Police</u>	<u>Firemen</u>	<u>Total</u>
Actives	13,088	9,698	22,786
Retirants	5,963	5,475	11,438
Beneficiary-Survivors	<u>3,072</u>	<u>2,331</u>	<u>5,403</u>
Total	<u>22,123</u>	<u>17,504</u>	<u>39,627</u>

The total membership count of 39,627 compares to a membership of 38,538 individuals as of January 1, 1989, an increase of about 3%.

A compilation of the membership data, as of January 1, 1990, is contained in Tables 2(a) and 2(b) for police and firemen, respectively. The first page of each table shows a distribution of active members by attained age group and length of service as of the evaluation date. Also shown are the average attained age and average hire age, which are 39 and 26, respectively, for both police and firemen; these measurements are unchanged from last year. Also shown are the average annual salaries for each age group, and in total, as of the two valuation dates. For police, the total averages are \$32,351 based on the 1990 data, and \$30,853, based on the 1989 data, for an increase of 4.9%; for firemen, the corresponding amounts are \$31,863, \$31,060 and 2.6%, respectively. The small increase in average compensation for firemen was discussed with the Fund administrators and has been judged to be correct.

The second pages of Tables 2(a) and 2(b) set forth the distribution of retirants by attained age group and sex as of January 1, 1990. Also shown are the annual rate of pension, average attained age, and average annual pension payable to retirants. The prior year's corresponding information is also shown. The average attained age of retirants is 62 years for police and 64 years for

firemen, the same as the corresponding ages one year ago. This year we find that the average annual benefit to retirants, without considering the benefit increase (up to \$50 a month) effective January 1, 1972 provided by the 1971 House Bill No. 284, is \$15,548 for police and \$15,974 for firemen. The corresponding averages last year were, respectively, \$14,333 and \$14,933. The total annual rate of pension for retired police as of January 1, 1990 of \$92,715,512 represents a 16% increase over the rate of payout one year ago; similarly, the total annual rate of pension for retired firemen as of January 1, 1990 of \$87,458,800 represents a 12% increase over the rate of payout one year earlier.

The third pages of Tables 2(a) and 2(b) show the distribution of beneficiary-survivors by attained age group, as of the evaluation date. The average attained ages for surviving spouses were 71 for police and 73 for firemen, the same as of one year ago. In addition, there were 210 police beneficiaries and 152 firemen beneficiaries receiving optional benefit payments, compared to 188 police and 137 firemen beneficiaries one year ago. These tables also show that there are 384 dependent children of police and 186 dependent children of firemen receiving benefits as of the evaluation date.

### C. PLAN PROVISIONS

The basic provisions of the Police and Firemen's Disability and Pension Fund of Ohio with respect to disability and pension benefits that are funded through the current rate per cent are summarized in Table 3. That table and the evaluation presented in this report are based upon the provisions of the Statewide Plan, as set forth in Section 742 of the Revised Code, including all amendments in effect as of the valuation date, except for changes that are funded entirely by contributions from the State of Ohio (the 1972 pension increases of 1971 House Bill No. 284, and the Death Benefit Fund established by

1976 House Bill No. 1010). The benefit change during 1989 provided for in Amended Substitute House Bill No. 377 has been fully recognized in this evaluation. No. 377 provided for a \$1,000 lump sum death benefit to be paid in the event of death of a retired member, including disability retirees. This benefit change became effective November 2, 1989.

**D. VALUATION ASSETS AND ACTUARIAL ASSUMPTIONS**

The valuation assets have been based upon the "Comprehensive Annual Financial Report for the Year Ended December 31, 1989" which was furnished to us by the Fund.

The Comprehensive Annual Financial Report indicates that the cost value of assets as of December 31, 1989 was \$2,995,269,977, inclusive of:

1. Cash	\$11,763,112
2. Office Property	2,115,530
3. Receivables	115,404,049
4. Other Assets	4,893,947

The book value of the investment portfolio was \$2,861,093,339 which consisted of:

1. Bonds	\$1,699,759,948
2. Stocks - Book Value *	821,890,455
3. Short-Term	130,761,649
4. Venture Capital	11,138,029
5. Real Estate	<u>197,543,258</u>
	\$2,861,093,339

\* Market Value of Stocks \$1,044,082,820

The cost value was offset by payables totaling \$30,379,088 and other liabilities of \$1,750,719. Hence, the net assets available for benefits as of December 31, 1989 was \$2,963,140,170.

Assets for valuation purposes were taken to be this net cost value, less \$1,656,200 of contributions that have yet to be refunded to employees who terminated with less than 15 years of service. The resulting valuation assets, rounded to the nearest \$100,000, were \$1,648,500,000 for police and \$1,313,000,000 for firemen. The total for both groups was \$2,961,500,000.

The actuarial assumptions and the actuarial cost method used in the instant evaluation are unchanged from those used in the last valuation. A summary of the assumptions and a description of the actuarial cost method are presented in Table 4.

During 1989, based upon the Fund's Comprehensive Annual Financial Report, the book value return on the assets of the Fund was approximately 11.34%. This return compares to the interest rate assumption of 8.25%.

The increase during the past year in the average annual current salary of active members was, as noted above, 4.9% for police and 2.6% for firemen. These increase percentages compare to the assumed annual increase in salary of 5.75%.

#### E. EVALUATION RESULTS

Table 1 summarizes the January 1, 1990 evaluation results and sets forth the actuarially determined current rate per cent of contribution applicable to the calendar year commencing January 1, 1990. In Section A of Table 1, we indicate the extent of the membership, by police and firemen, for various categories. This section represents a summary compilation of the data breakdown shown in the various Table 2's.

Section B of Table 1 sets forth a summary of the actuarial present values of future benefits, by police and firemen, with respect to active members, retirants, and beneficiary survivors. The total present values are \$3,038,600,000 for police and \$2,535,000,000 for firemen (Item B.4.). Thus, the combined actuarial present value of future benefits (for both police and firemen) approximates \$5.6 billion.

In Section C, we show the development of the current rate per cent for disability and pension benefits, based upon this January 1, 1990 evaluation. This rate includes a loading for administrative expenses, as indicated in the

assumptions set forth in Table 4. The rate is determined by subtracting the valuation assets and the employer accrued liability from the actuarial present value of future benefits, and dividing the resultant amount by the actuarial present value of active member future compensation.

The employer accrued liability used in this valuation is \$411,190,543 and represents the outstanding principal as of December 31, 1989 of the original accrued liability under the funding scheme prescribed by the Ohio Revised Code. This amount is set forth in the Comprehensive Annual Financial Report. The allocation of this accrued liability between police and firemen, as developed by Fund office personnel, is \$214,100,000 for police and \$197,100,000 for firemen, rounded to the nearest \$100,000.

Item C.6. of Table 1 shows the current rate per cent for the disability and pension benefits (i.e., excluding consideration of health care plan benefits). As indicated in the table, these figures are 28.02% for police and 29.34% for firemen. The current rate per cents include: (1) the 10% contribution for active members; (2) the original State of Ohio appropriation of \$1.2 million per annum; (3) a State of Ohio appropriation of \$1.5 million per annum for Senate Bill No. 48; (4) a State of Ohio appropriation of an additional \$1.2 million per annum to fund for part of the additional cost arising from the "purchase": of military service credit; (5) an appropriation to fund House Bill No 204; and (6) an appropriation to partially fund House Bill No. 694 and House Bill No. 215. As indicated earlier, these figures do not include the cost of the 1972 pension increases precipitated by House Bill No. 284 or the Death Benefit Fund established by Amended House Bill No. 1010, since these additional costs will be met entirely by additional appropriations from the State of Ohio.

In Section D of Table 1, we show a development of the current rate per cent for health care plan and Medicare benefits. We have been advised by the Controller that the projected total premium payment is \$52,773,200 with respect

to 1990; this figure was decreased by \$2,482,800, which represents the excess of the 1989 estimated cost of the health care plan and Medicare benefits (\$47,655,100) over the actual cost (\$45,172,300). The resulting figure of \$50,290,400 compares to an estimated aggregate annual payroll as provided by Fund officials of \$803.7 million. Thus, the appropriate rate per cent to provide for the expected 1990 health care plan and Medicare benefits is 6.26%.

Section E of Table 1 shows the total current rate per cent, and represents a combination of the figures for disability and pension benefits and for health care plan and Medicare benefits. As can be seen in Item E.3., the total current rate per cent with respect to 1990 is 34.28% for police and 35.60% for firemen.

#### F. COMPARISON OF EVALUATION RESULTS WITH PREVIOUS YEAR

Table 5 sets forth a comparison of evaluation results for 1989 and 1990. Section A indicates that the number of active members has increased by 95 for police and by 324 for firemen. Also, the number of participants currently receiving benefits has increased by 421 for police and 249 for firemen. As a percentage of total membership, 40.8% of police members are currently receiving benefits, compared to 39.9% last year; the corresponding percentages for firemen are, respectively, 44.6% and 44.6%.

The actuarial present values of future benefits have increased by \$228.5 million for police and \$169.6 million for firemen as is indicated in Section B. Valuation assets, in turn, increased by \$148.7 million for police and \$153.7 million for firemen.

In Section C we set forth a comparison of contribution rate per cents. Item C.1. indicates that the current rate per cent for disability and pension benefits has increased from 27.59% to 28.02%, or by .43%, for police, while for firemen the corresponding rate has decreased from 30.92% to 29.34%, for a decrease of 1.58%.



A reconciliation of last year's contribution rates for disability and pension benefits to this year's is as follows:

	<u>Police</u>	<u>Firemen</u>
1. Rate per cent as of January 1, 1989	27.59%	30.92%
2. Change due to benefit change: (\$1,000 lump sum death benefit)	.08	.09
3. Actuarial gains or losses and changes in membership	.35	(1.67)
4. Rate per cent as of January 1, 1990	28.02%	29.34%

In addition, the health care plan and Medicare component of the rate per cent decreased from 6.90% to 6.26%, for a net increase of .64%. This decrease reflects a \$5,118,100 increase in estimated costs for 1990 over the estimated 1989 costs (from \$47,655,100 to \$52,773,200) along with a \$87,700,000 increase in estimated annual payroll (from \$716 million to \$803.7 million).

\* \* \* \* \*

In conclusion, we recommend that the Board of Trustees and the Ohio Retirement Study Commission consider the current rate percents as developed in this evaluation in determinations concerning the appropriateness of the actual employer contribution rates.

Respectfully submitted,

THE WYATT COMPANY

Wayne E. Dydo  
Wayne E. Dydo  
Fellow - Society of Actuaries



Table 1

## POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Summary of Evaluation Results as of January 1, 1990 1/

	<u>Police</u>	<u>Firemen</u>
<b>A. <u>MEMBERSHIP</u></b>		
1. Number of Active Members	13,088	9,698
2. Number of Retirants	5,963	5,475
3. Number of Beneficiary-Survivors		
a. Surviving Spouses and Beneficiaries	2,688	2,145
b. Children	384	186
c. Total Beneficiary-Survivors	3,072	2,331
4. Total Membership 2/	22,123	17,504
<b>B. <u>SUMMARY OF ACTUARIAL PRESENT VALUES OF FUTURE BENEFITS</u></b>		
1. Active Members 3/	\$2,000,300,000	\$1,601,900,000
2. Retirants	929,900,000	853,700,000
3. Beneficiary-Survivors	108,400,000	79,400,000
4. Actuarial Present Value for All Members	3,038,600,000	2,535,000,000
<b>C. <u>DEVELOPMENT OF CURRENT RATE PER CENT FOR DISABILITY AND PENSION BENEFITS</u></b>		
1. Actuarial Present Value of Future Benefits	\$3,038,600,000	\$2,535,000,000
2. Valuation Assets	1,648,500,000	1,313,000,000
3. Actuarial Present Value of Employer Accrued Liability	214,100,000	197,100,000
4. Actuarial Present Value of Active Member Future Compensation	4,228,500,000	3,519,000,000
5. Net Rate Per Cent, Prior to Expense Loading ((Item C1 - C2 - C3) ÷ C4)	27.81%	29.12%
6. Current Rate Per Cent for Disability and Pension Benefits	28.02%	29.34%

Table 1  
(continued)

	<u>Police and Firemen Combined</u>	
<b>D. <u>DEVELOPMENT OF CURRENT RATE PER CENT FOR HEALTH CARE PLAN AND MEDICARE BENEFITS</u></b>		
1. Estimated Annual Claims and Expenses <u>4/</u>	\$ 50,290,400	
2. Estimated Aggregate Annual Payroll	803,700,000	
3. Current Rate Per Cent for Health Care Plan and Medicare (Item D1 ÷ D2)		6.26%
<b>E. <u>TOTAL CURRENT RATE PER CENT</u></b>		
	<u>Police</u>	<u>Firemen</u>
1. Current Rate Per Cent for Disability and Pension Benefits (Item C6)	28.02%	29.34%
2. Current Rate Per Cent for Health Care Plan and Medicare (Item D3)	6.26	6.26
3. Total Current Rate Per Cent (Item E1 + E2)	34.28	35.60

1/ Excludes assets and liabilities arising from the increases due to the 1971 House Bill No. 284 and from the Death Benefit Fund established by House Bill No. 1010.

2/ Excluding 55 inactive policemen and 32 inactive firemen.

3/ Includes present values of \$4,100,000 for 55 policemen and \$2,500,000 for 32 firemen who have terminated with more than 15 years of service.

4/ Includes \$(2,482,800) representing the difference between 1989 actual cost (\$45,172,300) and estimated cost (\$47,655,100).

Table 2(a)

## POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

PoliceDistribution of Members by Attained Age Group and Length of Service as of January 1, 1990

(Females are indicated in parentheses and are included in adjacent totals)

Attained Age Group	0-4 <sup>1/</sup>	5-9	10-14	15-19	20-24	25-29	30- Over	Totals	Average Annual Salary	
									As of January 1, 1990	As of January 1, 1989
Under 25	356( 34)	1	-	-	-	-	-	357( 34)	\$21,918	\$19,846
25 - 29	1,453(126)	202( 27)	-	-	-	-	-	1,655(153)	26,501	25,495
30 - 34	813( 93)	1,138(133)	366(23)	1	-	-	-	2,318(249)	30,980	29,495
35 - 39	386( 41)	749( 85)	1,180(63)	378( 5)	-	-	-	2,693(194)	32,652	31,124
40 - 44	145( 13)	257( 40)	597(48)	1,292(13)	500( 3)	5	-	2,796(117)	34,410	32,640
45 - 49	67( 7)	50( 5)	100( 6)	409(12)	1,112( 6)	251(4)	4	1,993( 40)	35,187	33,442
50 - 54	31( 1)	17	21	45( 1)	391( 3)	346(2)	77	928( 8)	35,910	34,127
55 - 59	13	6	11( 1)	17	27( 1)	68	102(2)	244( 4)	35,348	34,041
60 - 64	-	2	1	8	5	5	62	83	35,214	33,312
65 & Over	3	-	2	-	1	-	15	21	36,653	36,876
Total	3,267(316)	2,422(290)	2,278(141)	2,150(31)	2,036(13)	675(6)	260(2)	13,088(799)	\$32,351	\$30,853

January 1, 1990January 1, 1989

Average Attained Age

39

39

Average Hire Age

26

26

<sup>1/</sup> Includes 853 members hired in 1989.

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Police

Distribution of Retirants by Attained Age Group  
and Sex as of January 1, 1990

<u>Attained Age Group</u> (1)	<u>Males</u> (2)	<u>Females</u> (3)	<u>Total</u> (4)	<u>Col. (4) as % of TOTAL</u> (5)	<u>Annual Rate of Pension 1/</u>	
					<u>As of January 1, 1990</u> (6)	<u>As of January 1, 1988</u> (7)
Under 40	121	21	142	2%	\$ 1,896,254	\$ 1,509,815
40 - 44	213	15	228	4	3,469,072	2,744,035
45 - 49	382	6	388	7	6,788,914	4,540,028
50 - 54	718	5	723	12	14,648,526	10,130,239
55 - 59	1,003	10	1,013	17	19,784,418	19,143,373
60 - 64	1,355	9	1,364	23	22,209,928	20,928,145
65 - 69	907	10	917	15	12,229,138	10,041,778
70 - 74	522	8	530	9	5,936,865	5,550,827
75 - 79	394	2	396	7	3,807,470	3,401,796
80 - 84	147	2	149	2	1,171,165	1,148,353
85 - 89	80	2	82	1	601,590	447,696
90 & Over	29	2	31	1	172,167	164,688
<b>TOTAL</b>	<b>5,871</b>	<b>92</b>	<b>5,963</b>	<b>100%</b>	<b>\$92,715,512</b>	<b>\$79,750,773</b>

Average  
Attained Age  
January 1, 1989      62      56      62  
January 1, 1990      62      55      62

Average Annual  
Benefit

January 1, 1989      \$14,333  
January 1, 1990      15,548

1/ Excludes increases due to House Bill No. 284.

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Police

Distribution of Beneficiary-Survivors by Attained Age Group  
as of January 1, 1990

<u>Attained Age Group</u> (1)	<u>Number Receiving Benefits</u> (2)	<u>Col. (2) as % of TOTAL</u> (3)
<b>A. <u>SURVIVING SPOUSES</u> <u>1/</u></b>		
Under 40	49	2%
40 - 44	62	3
45 - 49	76	3
50 - 54	137	6
55 - 59	173	7
60 - 64	278	11
65 - 69	337	14
70 - 74	378	15
75 - 79	356	14
80 - 84	304	12
85 - 89	213	9
90 & Over	115	4
<b>TOTAL</b>	<b>2,478</b>	<b>100%</b>
Average Attained Age	71	
<b>B. <u>BENEFICIARIES RECEIVING OPTIONS</u></b>		
Under 35	4	2%
35 - 39	5	2
40 - 44	14	7
45 - 49	16	8
50 - 54	32	15
55 - 59	34	16
60 - 64	43	20
65 - 69	31	15
70 - 74	22	10
75 - 79	8	4
80 - 84	-	-
85 - 89	-	-
90 & Over	1	1
<b>TOTAL</b>	<b>210</b>	<b>100%</b>
<b>C. <u>CHILDREN</u></b>	<b>384</b>	

1/ Includes dependent parents.

Table 2(b)

## POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Firemen

Distribution of Members by Attained Age Group and Length of Service as of January 1, 1990  
 (Females are indicated in parentheses and are included in adjacent totals)

Attained Age Group	0-4 1/	5-9	10-14	15-19	20-24	25-29	30- Over	Totals	Average Annual Salary	
									As of January 1, 1990	As of January 1, 1989
Under 25	298( 9)	2	-	-	-	-	-	300( 9)	\$20,900	\$21,364
25 - 29	972(31)	262(7)	5	-	-	-	-	1,239(38)	25,975	26,160
30 - 34	729(24)	860(8)	298(2)	3	-	-	-	1,890(34)	30,163	29,339
35 - 39	300(10)	655(9)	818(2)	199	-	-	-	1,972(21)	32,014	30,851
40 - 44	94( 5)	126(6)	495	924(1)	164	1	-	1,804(12)	33,335	32,243
45 - 49	19( 1)	18	64	453(1)	691	150	2	1,397( 2)	35,512	33,854
50 - 54	6	7	9	67	316(1)	331	65	801( 1)	36,609	35,263
55 - 59	2	2	4	12	19	103	96	238	38,386	37,086
60 - 64	-	1	5	1	5	5	34	51	38,550	37,124
65 & Over	-	-	-	2	-	1	3	6	40,663	30,726
<b>Total</b>	<b>2,420(80)</b>	<b>1,933(30)</b>	<b>1,698(4)</b>	<b>1,661(2)</b>	<b>1,195(1)</b>	<b>591</b>	<b>200</b>	<b>9,698(117)</b>	<b>\$31,863</b>	<b>\$31,060</b>

January 1, 1990January 1, 1989

Average Attained Age

39

39

Average Hire Age

26

26

1/ Includes 707 members hired in 1989.

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Firemen

Distribution of Retirants by Attained Age Group  
and Sex as of January 1, 1990

Attained Age Group (1)	Males (2)	Females (3)	Total (4)	Col. (4) as % of TOTAL (5)	Annual Rate of Pension 1/	
					As of January 1, 1990 (6)	As of January 1, 1989 (7)
Under 40	55	3	58	1%	\$ 796,327	\$ 714,477
40 - 44	84	-	84	1	1,348,750	1,176,697
45 - 49	201	-	201	4	3,474,347	2,562,033
50 - 54	549	-	549	10	11,119,019	8,382,188
55 - 59	1,017	1	1,018	19	20,664,080	19,888,679
60 - 64	1,450	-	1,450	26	25,352,072	23,579,326
65 - 69	850	-	850	16	12,032,982	10,118,354
70 - 74	550	1	551	10	6,249,652	6,185,706
75 - 79	442	-	442	8	4,284,106	3,607,466
80 - 84	171	-	171	3	1,445,026	1,161,101
85 - 89	65	1	66	1	474,093	457,354
90 & Over	35	-	35	1	218,343	190,492
<b>TOTAL</b>	<b>5,469</b>	<b>6</b>	<b>5,475</b>	<b>100%</b>	<b>\$87,458,800</b>	<b>\$78,023,873</b>

Average  
Attained Age  
January 1, 1989    64    49    64  
January 1, 1990    64    55    64

Average Annual  
Benefit

January 1, 1989    \$14,933  
January 1, 1990    15,974

1/ Excludes increases due to House Bill No. 284.

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Firemen

Distribution of Beneficiary-Survivors by Attained Age Group  
as of January 1, 1990

<u>Attained Age Group</u> (1)	<u>Number Receiving Benefits</u> (2)	<u>Col. (2) as % of TOTAL</u> (3)
<b>A. <u>SURVIVING SPOUSES</u> 1/</b>		
Under 40	23	1%
40 - 44	25	1
45 - 49	44	2
50 - 54	64	3
55 - 59	122	6
60 - 64	236	12
65 - 69	253	13
70 - 74	304	15
75 - 79	314	16
80 - 84	263	13
85 - 89	210	11
90 & Over	135	7
<b>TOTAL</b>	<b>1,993</b>	<b>100%</b>
<b>Average Attained Age</b>	<b>73</b>	
<b>B. <u>BENEFICIARIES RECEIVING OPTIONS</u></b>		
Under 35	4	3%
35 - 39	3	2
40 - 44	3	2
45 - 49	8	5
50 - 54	17	11
55 - 59	29	19
60 - 64	43	29
65 - 69	21	14
70 - 74	14	9
75 - 79	8	5
80 - 84	2	1
<b>TOTAL</b>	<b>152</b>	<b>100%</b>
<b>C. <u>CHILDREN</u></b>	<b>186</b>	

1/ Includes dependent parents.



- (b) Benefit: An annual pension in an amount determined in accordance with the benefit provisions of Item 3. or Item 4. above, as the case may be.
6. Ordinary Disability  
(Off duty)
- (a) Eligibility: Any age and five years of service.
- (b) Benefit: An annual pension to be fixed by the Board, but not to exceed the accrued Service Retirement Benefit, or \$5,000, whichever is greater.
7. Termination of Service  
Prior to Retirement
- One of the following benefits depending upon the particular circumstances:
- Refund
- (a) Eligibility: No age or service requirement.
- (b) Benefit: A lump-sum amount equal to the sum of the contributions made by the member to the Fund.
- Vesting After 15 Years
- (a) Eligibility: 15 years of service.
- (b) Benefit: Commencing at age 48 or hire age plus 25 years, whichever is later; an annual pension equal to 1-1/2% of the average annual salary multiplied by the number of years of service.
- Vesting After 25 Years
- (a) Eligibility: 25 years of service.
- (b) Benefit: Commencing at age 48, the accrued Service Retirement Benefit.
8. Flat Death Benefits
- (a) Eligibility: Upon death to any member of the Fund, active or retired.
- (b) Benefit: (i) Surviving Spouse's Benefit - An annual amount equal to \$4,920.

(ii) Surviving Children - An annual amount equal to \$1,416, payable until such child attains age 18 or marries, whichever occurs first. (Similar payments made, regardless of age, to disabled children.) An annual amount equal to \$1,416 will continue beyond age 18 up to age 22 while the child is a student.

(iii) Dependent Parents - An annual amount of \$1,896 to one dependent parent or \$948 each to two dependent parents, during their lifetime or until dependency ceases or until remarriage, provided that deceased member leaves no surviving spouse or surviving children.

Note: Payment of the above benefits will be suspended during any period payments are being made pursuant to Sec. 742.63 RC (Death Benefit Fund established by Sec. 742.61 RC).

9. Pre-retirement Surviving Spouse Benefit

(a) Eligibility:

Upon death before retirement but after having satisfied the requirements for retirement.

(b) Benefit:

The surviving spouse or contingent dependent beneficiary will receive 50% of the benefit that the deceased member would have been entitled to had he retired on the day of his death under the 50% Joint & Survivor annuity form.

10. Member Contributions:

10% of salary.

11. Pension Increases for Certain Retirants:

Commencing January 1, 1974, the pensions of persons who retired between July 1, 1968 and June 30, 1971 will be increased by \$2.00 per month times the number of years on retirement as of June 30, 1973.

Effective January 1, 1977, annual pensions (except those arising from volunteer or part-time service, or early vested service) shall be increased as follows:

Table 3  
(continued)

(i) if the annual pension was less than \$2,700, then the pension shall be increased to \$3,000; (ii) if the annual pension was \$2,700 or more, the increase shall be \$300 per year. These increases do not apply to benefits being paid under pre-1947 plans with an automatic escalating provisions.

Effective July 1, 1979, retirees (excluding those with escalating benefits) who retired prior to January 1, 1974 have pension increases of 5% of the first \$5,000 of annual pension.

Effective January 1, 1982, retirees (excluding those with escalating benefits) who retired prior to February 28, 1980, have pension increases of \$46 per month.

Effective August 1, 1988, members who retired prior to February 28, 1984 and who were receiving an annual benefit of less than \$13,000 have pension increases of \$50 per month, or if larger, the amount needed to increase the current annual pension to \$4,200.

Effective July 1, 1989, the minimum annual pension for current retirees with 25 or more years of service is \$5,000, the annual pension of a surviving spouse is increased to \$4,920, and the annual benefit of a dependent surviving child is increased to \$1,416.

Retirees prior to July 24, 1986 whose annual straight life pension is less than \$18,000 will receive an increase in their annual pension of \$360, actuarially adjusted to reflect optional annuity forms of benefits. The increase is paid only if the annual increase in the Consumer Price Index, plus unused prior increases, equals or exceeds 3%. The first increase is paid July 1, 1988. Beginning in 1989, the \$18,000 limit is increased by \$500 each year.

12. Group Health Insurance  
and Medicare:

Commencing January 1, 1974, the Board may contract for group health insurance on the basis of part or all of the cost of the premium for the coverage to be paid by the Fund.

Effective January 1, 1977, the Fund will pay the premium for supplemental Medicare (Part B).

13. COLA or Terminal Pay: Members retiring after July 24, 1986 and who have 15 or more years of service as of January 1, 1989, are allowed to select between (1) a pension calculated on the basis of average salary which is increased to reflect terminal pay adjustments, or (2) a pension based on average salary excluding the terminal pay adjustment, but increasing by 3% of the initial pension each retirement anniversary after July 1, 1989. The 3% addition is paid only if the annual increase in the Consumer Price Index, plus unused prior increases, equals or exceeds 3%. This additive 3% COLA annuity without terminal pay adjustment is the automatic form for active members with less than 15 years of service as of January 1, 1989.
14. Optional Forms of Payment: Effective February 28, 1980, retiring members may elect to have actuarially reduced benefits payable under certain and continuous and joint and survivor annuity forms. The maximum certain period is 20 years, and the continuation percentage under the joint and survivor form is limited to 100%.
- Effective September 26, 1984, members who retired before February 28, 1980 may make a one-time election to have their benefits reduced and paid under the joint and survivor annuity form with the surviving spouse as survivor annuitant.
- Effective September 9, 1989, elected options may be cancelled within one year after benefits commence.
15. Lump Sum Death Benefit: Effective November 2, 1989, a \$1,000 lump sum payment will be made on account of death of a retired member.

Table 4

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Summary of Actuarial Assumptions and Actuarial Cost Method

A. Interest: A rate of 8-1/4% per annum, compounded annually.

B. Rates and Other Assumptions Among Active Members:

1. Before Retirement -

(a) Mortality: The Projected Annuity Mortality Table, decreased by 33% for Firemen. The following rates at selected ages are illustrative:

Age	Rate of Mortality	
	Police	Firemen
25	.000706	.000473
30	.000923	.000618
35	.001280	.000858
40	.001863	.001248
45	.003336	.002235
50	.006032	.004041
55	.009724	.006515

(b) Termination: The following rates at selected ages are illustrative:

Age	Rate of Termination	
	Police	Firemen
25	.062525	.023466
30	.044587	.016902
35	.030568	.011926
40	.020499	.007473
45	.015876	.005010
50	.018613	.004047

Note: The present values of future benefits for active members resulting from the use of these withdrawal rates are actuarially adjusted to include provision for prospective terminated employees eligible for vested termination benefits arising from the vesting provisions of the 1971 Amended Substitute Senate Bill No. 137.

Table 4  
(continued)

(c) Disability:

The rates of disability are based upon the results of the 1982-1986 Quinquennial Evaluation. The following rates at selected ages are illustrative:

Age	Rate of Disability	
	Police	Firemen
25	.000904	.000000
30	.001823	.001090
35	.004097	.002551
40	.008880	.006205
45	.016900	.013147
50	.026091	.024800
55	.039748	.040236

Note: The present values of future benefits for active members resulting from the use of these disability rates reflect the fact that the occurrence of disability by type approximates the following:

On duty permanent and total	40%
On duty partial	57
Off duty ordinary	3

(d) Salary  
Increase Rate:

A rate of future salary increase of 5-3/4% per annum, compounded annually, has been employed. This rate can be divided into two component parts: (i) promotional increase of 3/4 of 1% per year, and (ii) inflationary increase of 5% per year.

(e) Retirement:

The rates of retirement for ages 53 through 65 are based upon the experience during the periods 1982 through 1986. The rates of retirement for ages 48 through 52 are based upon the experience for 1989. These rates are applicable after the member has satisfied the conditions for retirement. The rates are as follows:

Age(s)	Police	Firemen
48 - 52	.25	.25
53 - 59	.25	.30
60 - 64	.30	.40
65	1.00	1.00

2. After Retirement -

(a) On Service Retirement Pension:

The mortality, after retirement of active members expected to go on service retirement, is based on the Projected Annuity Mortality Table. The following probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Mortality</u>
55	.009724
60	.014492
65	.022750
70	.036619
75	.060259
80	.100853
85	.155717
90	.222882
95	.297806

(b) On Disability Retirement Pension:

The mortality, after retirement of active members expected to go on disability retirement, is based on 70% of the 1956 Railroad Retirement Board Disability Annuitants Ultimate Mortality Table for ages 20 through 69, 80% for ages 70 through 85, 90% for ages 86 through 89 and 100% for ages 90 and above. The following probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Mortality</u>
35	.01712
45	.02126
55	.02700
65	.04209
75	.07710
85	.17018
95	.39621

C. Probabilities of Mortality Among Pensioners

1. Nondisabled Pensioners:

The mortality among all nondisabled retirants is equal to the Projected Annuity Mortality Table probabilities. The following probabilities at selected ages are illustrative:

Table 4  
(continued)

<u>Age</u>	<u>Probability of Mortality</u>
35	.001280
40	.001863
45	.003336
50	.006032
55	.009724
60	.014492
65	.022750
70	.036619
75	.060259
80	.100853
85	.155717
90	.222882
95	.297806

2.. Disabled Pensioners:

The mortality among all disabled retirants is based on 70% of the 1956 Railroad Retirement Board Disability Annuitants Ultimate Mortality Table for ages 20 through 69, 80% for ages 70 through 85, 90% for ages 86 through 89 and 100% for ages 90 and above. The following probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Mortality</u>
35	.017122
40	.019040
45	.021259
50	.023912
55	.026999
60	.032704
65	.042091
70	.061088
75	.077104
80	.101904
85	.170181
90	.280990
95	.396210

D. Probabilities Among Survivors:

1. Probabilities of  
Mortality Among  
Surviving Spouses -

The mortality among all present surviving spouses is based on the Projected Annuity Mortality Table rates, decreased by 15% at all ages. The following probabilities at selected ages are illustrative:



Table 4  
(continued)

<u>Age</u>	<u>Probability of Mortality</u>
35	.001326
40	.001938
45	.002950
50	.004471
55	.006775
60	.010464
65	.016448
70	.026121
75	.042560
80	.067465
85	.102527
90	.151530
95	.219657

2. Probability of Remarriage Among Surviving Spouses -

The probabilities of remarriage of surviving spouses are based upon the results of the 1982-1986 Quinquennial Evaluation. The following probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Remarriage</u>
35	.066173
40	.033604
45	.018466
50	.014738
55	.009249
60	.005891
65	.005065
70	.002751
75	.001206

3. Dependent Children -

No specific allowance has been made, in the evaluation of this benefit, for the probability of mortality prior to age 18, or the probability of disability at age 18 and thereafter. In valuing the benefit beyond age 18, it is assumed that 1/3 of the dependent children will be students and eligible for payments to age 22.

4. Dependent Parents -

Costs based upon allowance for mortality (the Projected Annuity Mortality Table rates), but no specific allowance for change in dependency status.

E. COLA Annuities:

It has been assumed that, where an election is possible, all members will elect the COLA annuity. It has also been assumed that the Consumer Price Index will increase each year at a rate equal to or greater than 3%.

F. Expense Loading:

The net costs were loaded by  $\frac{3}{4}$  of 1% to allow for future administrative expenses of the Fund.

G. Actuarial Cost Method:

The "frozen initial liability" method has been used in developing the required contributions to the Fund. Under this approach, the present value of future benefits is reduced by valuation assets and the present value of the employer accrued liability. This net amount is then expressed as a percentage of the present value of active member future compensation and that percentage is applied to current payroll to determine the actual contribution.

The employer accrued liability was determined for each separate police and firemen's fund as of April 1, 1966. Each employer with an existing liability is presently making payments at the rate of 5% of the original liability (adjusted for any excess payments) pursuant to the schedule set forth in Section 742.30 of the Ohio Revised Code.

Table 5

## POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Comparison of Evaluation Results for 1989 and 1990

	<u>1990</u>		<u>1989</u>	
	<u>Police</u>	<u>Firemen</u>	<u>Police</u>	<u>Firemen</u>
<b>A. <u>MEMBERSHIP</u></b>				
1. Number of Active Members	13,088	9,698	12,993	9,374
2. Number of Retirants and Beneficiary-Survivors	9,035	7,806	8,614	7,557
3. Total Membership	22,123	17,504	21,607	16,931
<b>B. <u>ACTUARIAL PRESENT VALUE AND ASSETS (000,000 omitted)</u></b>				
1. Present Value of Future Benefits	\$3,038.6	\$2,535.0	\$2,810.1	\$2,365.4
2. Valuation Assets	1,648.5	1,313.0	1,499.8	1,159.3
3. Present Value of Employer Accrued Liability	214.1	197.1	215.8	198.6
<b>C. <u>CURRENT RATE PER CENT</u></b>				
1. Disability and Pension Benefits	28.02%	29.34%	27.59%	30.92%
2. Health Care Plan and Medicare	6.26	6.26	6.90	6.90
3. Total	34.28	35.60	34.49	37.82