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Valuation, 1985
1985

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, 1986 Prior
to Consideration of 1986 Benefit Changes

June 26, 1986

THE *Wyatt* COMPANY

ACTUARIES AND CONSULTANTS

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June 26, 1986

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, 1986 prior to consideration of changes in the Fund benefit provisions during 1986. 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, 1985.

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

- (1) The 1986 evaluation has been based upon the Fund benefit provisions as in effect on January 1, 1986. 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. The benefit changes during 1986 included in Amended Substitute Senate Bill No. 112 and Amended Substitute House Bill No. 721 have not been considered in this evaluation. A brief summary of the main benefit specifications of the Fund considered in this evaluation is contained in Table 3.
- (2) The actuarial assumptions used in the instant evaluation are the same as those used in the last evaluation except that the interest rate has been increased from 7-1/2% to 7-3/4% per directive of the Board of Trustees. A summary of the actuarial assumptions is set forth in Table 4.

June 26, 1986

- (3) The basic data used in the evaluation represent all active members, retirants and beneficiary-survivors covered by the Fund as of January 1, 1986. In total, 37,011 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, 1986, has been developed as follows:

	<u>Police</u>	<u>Fire</u>
Current Rate Per Cent for Disability and Pension Benefits	22.17%	25.62%
Current Rate Per Cent for Health Care Plan and Medicare	5.63	5.63
Total Current Rate Per Cent	27.80%	31.25%

We look forward to discussing this report with the Board of Trustees at its July meeting.

Sincerely yours,

Leroy B. Parks Jr.

Leroy B. Parks Jr.
Vice President

LBP:jm

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO
Actuarial Evaluation to Determine the Actuarial Rate Per Cent
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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, 1986 Prior
to Consideration of 1986 Benefit Changes

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, 1986.

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, 1986 membership data and upon the Annual

Report for the fiscal year ending December 31, 1985. 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. L. Paul Ross, Executive Secretary of the Board of Trustees. This information represented a complete census of members as of the valuation date and showed a total count of 37,011 members. The data with respect to police members contained 12,614 active members, 5,076 retirants and 2,960 beneficiary-survivors; the corresponding figures for firemen were 9,226 active members, 4,814 retirants and 2,321 beneficiary-survivors. The total membership count of 37,011 compares to a membership of 36,237 individuals as of January 1, 1985, an increase of about 2%.

A compilation of the membership data, as of January 1, 1986, 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 38 and 26, respectively, for police and 39 and 26, respectively, for 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 \$26,987 based on the 1986 data, and \$25,290, based on the 1985 data, for an increase of 6.7%; for firemen, the corresponding amounts are \$26,973, \$25,421 and 6.1%, respectively.

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, 1986. 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 63 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 \$11,990 for police and \$12,648 for firemen. The corresponding averages last year were \$11,168 and \$11,770, respectively. The total annual rate of pension for retired police as of January 1, 1986 of \$60,859,035 represents a 13% increase over the rate of payout one year ago; similarly, the total annual rate of pension for retired firemen as of January 1, 1986 of \$60,887,292 represents a 13% 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 99 police beneficiaries and 78 firemen beneficiaries receiving optional benefit payments, compared to 50 police and 42 firemen beneficiaries one year ago. These tables also show that there are 452 dependent children of police and 268 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 changes during 1986 included in Amended Substitute Senate Bill No. 112 and Amended Substitute House Bill No. 721 have not been considered in this valuation.

D. VALUATION ASSETS AND ACTUARIAL ASSUMPTIONS

The valuation assets have been based upon the "Annual Report: Financial Statement, Fund Balances and Investment Portfolio, for Fiscal Year Ending December 31, 1985", which was furnished to us by the Fund. That Report indicates that the cost value of assets as of December 31, 1985 was \$1,862,627,132, inclusive of: cash of \$3,033,220, investment in equipment and furniture amounting to \$260,221, funds on deposit with OPEDC of \$148,061 and receivables totaling \$5,749,856. The book value of the investment portfolio was \$1,853,931,222 which consisted of \$1,004,725,384 of bonds, \$445,776,232 of stocks (worth \$542,241,190 on a market value basis), \$361,076,633 of short-term investments, \$7,650,000 of venture capital and \$34,702,973 in productive real estate. Assets for valuation purposes were taken to be the cost value, less \$475,035 reserved to the Death Benefit Fund, plus \$38,737,656 of employer and member contributions with respect to 1985 that were not deposited until 1986, less \$945,630 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 \$1,061,400,000 for police and \$838,600,000 for firemen. The total for both groups was \$1,900,000,000.

The actuarial assumptions used in the instant evaluation are the same as those employed in the prior evaluation, excluding the assumed interest rate. The interest rate has been increased from 7-1/2% to 7-3/4%. The assumptions are summarized in Table 4.

The actual earnings of the Fund, excluding realized gains and losses, continue to exceed the actuarially assumed rate. The aforementioned Annual Report indicated that the anticipated average yield on the investment portfolio as of December 31, 1985 was 8.79% or 1.04% higher than the interest rate assumption of 7-3/4%.

On the other hand, the average annual current salary of active members of the Fund has again increased during the past year. As noted above, for police the average salary is 6.7% higher than last year's average salary, and for firemen, 6.1%. These increase percentages are to be compared to the assumed annual increase in salary of 5.5%.

E. EVALUATION RESULTS

Table 1 summarizes the January 1, 1986 evaluation results and sets forth the actuarially determined current rate per cent of contribution applicable to the calendar year commencing January 1, 1986. 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 \$2,073,500,000 for police and \$1,763,300,000 for firemen (Item B.4.). Thus, the combined actuarial present value of future benefits (for both police and firemen) exceeds \$3.8 billion.

In Section C, we show the development of the current rate per cent for disability and pension benefits, based upon this January 1, 1986 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.

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 22.17% for police and 25.62% for firemen. The current rate per cents include: (1) the 8-1/2% 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 Executive Secretary that the projected total premium payment is \$33,400,000 with respect to 1986, inclusive of \$1,400,000 for Medicare B premiums; this figure was increased by \$2,078,800 representing the excess of the 1985 cost of the health care plan and Medicare benefits over the estimated cost. The resulting figure of \$35,478,800 compares to an estimated aggregate annual payroll of \$630 million. Thus, the appropriate rate per cent to provide for the expected 1986 health care plan and Medicare benefits is 5.63%.

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 1986 is 27.80% for police and 31.25% for firemen.

F. COMPARISON OF EVALUATION RESULTS WITH PREVIOUS YEAR

Table 5 sets forth a comparison of evaluation results for 1985 and 1986. Section A indicates that the number of active members has decreased by 42 for police but increased by 218 for firemen. Also, the number of participants currently receiving benefits has increased by 337 for police and 261 for firemen. As a percentage of total membership, 38.9% of police members are currently receiving benefits, compared to 37.8% last year; the corresponding percentages for firemen are, respectively, 43.6% and 43.3%.

The actuarial present values of future benefits have increased by \$73.4 million for police and \$82.8 million for firemen as is indicated in Section B. The change in the interest rate assumption precipitated a \$83.6 million decrease in present value for police and \$58.6 million for firemen. Valuation assets, in turn, increased by \$145.7 million for police and \$113.1 million for firemen. The Annual Report indicates that approximately \$116.8 million of the police fund increase and \$97.2 million of the firemen fund increase was due to fund earnings. These amounts represent excess earnings of about \$48.0 million for police and \$43.0 million for firemen over and above the expected amounts based on the 7-1/2% interest assumption for 1985.

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 decreased from 25.23% to 22.17%, or by 3.06%, for police, while for firemen the corresponding rate has decreased from 28.59% to 25.62%,

for a decrease of 2.97%. The change in the assumed interest rate from 7-1/2% to 7-3/4% resulted in a decrease in the police rate of 1.90% and a decrease in the firemen rate of 1.93%. The balance of the decrease in the police rate, 1.16%, and the balance of the decrease in the firemen rate, 1.04%, are due primarily to the excess investment earnings during 1985 on the valuation assets.


The decreases in the rates for disability and pension benefits, however, were partially offset by the 2.26% increase in the health care cost component. The total rate percents for both police and firemen thus show modest decreases of .80% and .71%, respectively.

* * * * *


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



Leroy B. Parks Jr.
Fellow - Society of Actuaries



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, 1986 1/

A. <u>MEMBERSHIP</u>	<u>Police</u>	<u>Firemen</u>
1. Number of Active Members	12,614	9,226
2. Number of Retirants	5,076	4,814
3. Number of Beneficiary-Survivors		
a. Surviving Spouses and Beneficiaries	2,508	2,053
b. Children	452	268
c. Total Beneficiary-Survivors	2,960	2,321
4. Total Membership 2/	20,650	16,361
B. <u>SUMMARY OF ACTUARIAL PRESENT VALUES OF FUTURE BENEFITS</u>		
1. Active Members 3/	\$1,450,100,000	\$1,165,100,000
2. Retirants	558,700,000	547,600,000
3. Beneficiary-Survivors	64,700,000	50,600,000
4. Actuarial Present Value for All Members	2,073,500,000	1,763,300,000
C. <u>DEVELOPMENT OF CURRENT RATE PER CENT FOR DISABILITY AND PENSION BENEFITS</u>		
1. Actuarial Present Value of Future Benefits	\$2,073,500,000	\$1,763,300,000
2. Valuation Assets	1,061,400,000	838,600,000
3. Actuarial Present Value of Employer Accrued Liability	212,100,000	195,000,000
4. Actuarial Present Value of Active Member Future Compensation	3,636,200,000	2,869,000,000

Table 1
(continued)

	<u>Police</u>	<u>Firemen</u>
5. Net Rate Per Cent, Prior to Expense Loading ((Item C1 - C2 - C3) ÷ C4)	22.00%	25.43%
6. Current Rate Per Cent for Disability and Pension Benefits	22.17	25.62

Police and Firemen
Combined

D. DEVELOPMENT OF CURRENT RATE PER CENT FOR HEALTH CARE PLAN AND MEDICARE BENEFITS

1. Estimated Annual Claims and Expenses <u>4/</u>	\$ 35,478,800
2. Estimated Aggregate Annual Payroll	630,000,000
3. Current Rate Per Cent for Health Care Plan and Medicare (Item D1 ÷ D2)	5.63%

E. TOTAL CURRENT RATE PER CENT

	<u>Police</u>	<u>Firemen</u>
1. Current Rate Per Cent for Disability and Pension Benefits (Item C6)	22.17%	25.62%
2. Current Rate Per Cent for Health Care Plan and Medicare (Item D3)	5.63	5.63
3. Total Current Rate Per Cent (Item E1 + E2)	27.80	31.25

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 64 inactive policemen and 23 inactive firemen.

3/ Includes present values of \$3,000,000 for 64 policemen and \$1,100,000 for 23 firemen who have terminated with more than 15 years of service.

4/ Includes an estimated \$1,400,000 for Medicare B premiums and includes \$2,078,800 representing the excess of 1985 actual cost over estimated cost.

Table 2(a)
(continued)

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Police

Distribution of Retirants by Attained Age Group
and Sex as of January 1, 1986

<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, 1985</u> (6)	<u>As of January 1, 1986</u> (7)
Under 40	92	4	96	2%	\$ 911,336	\$ 999,812
40 - 44	140	3	143	3	1,140,224	1,741,026
45 - 49	179	4	183	4	1,812,499	2,478,747
50 - 54	463	6	469	9	6,457,331	7,474,680
55 - 59	1,219	8	1,227	24	17,535,776	18,982,764
60 - 64	1,141	8	1,149	23	12,025,317	14,065,685
65 - 69	657	7	664	13	6,076,136	6,740,861
70 - 74	580	6	586	11	4,733,817	5,001,091
75 - 79	281	1	282	5	1,713,278	1,911,088
80 - 84	164	3	167	3	838,695	921,191
85 - 89	76	4	80	2	385,453	407,520
90 & Over	30	-	30	1	145,899	134,570
TOTAL	5,022	54	5,076	100%	\$53,775,761	\$60,859,035

Average
Attained Age
January 1, 1985 62 63 62
January 1, 1986 62 61 62

Average Annual
Benefit

January 1, 1985 \$11,168
January 1, 1986 11,990

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

Table 2(a)
(continued)

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Police

Distribution of Beneficiary-Survivors by Attained Age Group
as of January 1, 1986

<u>Attained Age Group</u> (1)	<u>Number Receiving Benefits</u> (2)	<u>Col. (2) as % of TOTAL</u> (3)
A. <u>SURVIVING SPOUSES</u> <u>1/</u>		
Under 40	59	2%
40 - 44	43	2
45 - 49	68	3
50 - 54	114	5
55 - 59	185	8
60 - 64	266	11
65 - 69	286	12
70 - 74	338	14
75 - 79	384	16
80 - 84	303	12
85 - 89	228	9
90 & Over	135	6
TOTAL	2,409	100%
Average Attained Age	71	
B. <u>BENEFICIARIES RECEIVING OPTIONS</u>		
Under 35	5	5%
35 - 39	5	5
40 - 44	4	4
45 - 49	8	8
50 - 54	15	15
55 - 59	26	27
60 - 64	12	12
65 - 69	12	12
70 - 74	10	10
75 - 79	1	1
80 - 84	-	-
85 - 89	1	1
TOTAL	99	100%
C. <u>CHILDREN</u>	452	

1/ Includes dependent parents.

Table 2(b)
(continued)

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Firemen

Distribution of Retirants by Attained Age Group
and Sex as of January 1, 1986

Attained Age Group (1)	Males (2)	Females (3)	Total (4)	Col. (4) as % of TOTAL (5)	<u>Annual Rate of Pension 1/</u>	
					As of January 1, 1985 (6)	As of January 1, 1986 (7)
Under 40	38	3	41	1%	\$ 312,910	\$ 423,841
40 - 44	59	-	59	1	525,439	682,815
45 - 49	109	-	109	2	1,226,585	1,464,865
50 - 54	356	-	356	7	6,202,009	6,083,377
55 - 59	1,241	4	1,245	26	18,896,050	20,275,841
60 - 64	1,163	1	1,164	24	12,275,067	16,209,874
65 - 69	617	2	619	13	6,359,200	6,534,754
70 - 74	649	-	649	14	4,954,853	5,552,580
75 - 79	299	-	299	6	1,942,992	2,185,081
80 - 84	138	-	138	3	764,807	784,251
85 - 89	106	-	106	2	516,617	579,037
90 & Over	29	-	29	1	118,371	110,976
TOTAL	4,804	10	4,814	100%	\$54,094,900	\$60,887,292

Average
Attained Age
January 1, 1985 63 55 63
January 1, 1986 63 52 63

Average Annual
Benefit
January 1, 1985 \$11,770
January 1, 1986 12,648

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

Table 2(b)
(continued)

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Firemen

Distribution of Beneficiary-Survivors by Attained Age Group
as of January 1, 1986

<u>Attained Age Group</u> (1)	<u>Number Receiving Benefits</u> (2)	<u>Col. (2) as % of TOTAL</u> (3)
A. <u>SURVIVING SPOUSES</u> 1/		
Under 40	20	1%
40 - 44	29	1
45 - 49	32	2
50 - 54	78	4
55 - 59	139	7
60 - 64	201	10
65 - 69	232	12
70 - 74	296	15
75 - 79	283	14
80 - 84	309	16
85 - 89	224	11
90 & Over	132	7
TOTAL	1,975	100%
Average Attained Age	73	
B. <u>BENEFICIARIES RECEIVING OPTIONS</u>		
Under 35	2	3%
35 - 39	1	1
40 - 44	3	4
45 - 49	5	6
50 - 54	16	21
55 - 59	23	30
60 - 64	14	18
65 - 69	6	8
70 - 74	5	6
75 - 79	1	1
80 - 84	1	1
85 - 89	1	1
TOTAL	78	100%
C. <u>CHILDREN</u>	268	

1/ Includes dependent parents.

Table 3

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Description of Benefits Under Statewide Plan
(Per Ohio Revised Code Chapter 742, Excluding
Consideration of 1971 House Bill No. 284
and 1976 House Bill No. 1010)

1. Service Retirement

- (a) Eligibility: Age 52 and 25 years of service (age 48 and 25 years of service on an actuarially reduced basis).
- (b) Benefit: An annual pension equal to a percentage of the average annual salary, where the percentage equals 2.5% for each of the first 20 years of service, 2% for each of the next five years of service, and 1.5% for service in excess of 25 years, to a maximum of 72% of the average annual salary. Average annual salary means one-third of the total salary during the three years during which the total earnings were greatest.

2. Special Service Retirement
for Late Hires

- (a) Eligibility: Age 62 and 15 years of service.
- (b) Benefit: The same as the Service Retirement Benefit.

3. Permanent and Total
Disability (On duty)

- (a) Eligibility: No age or service requirement.
- (b) Benefit: An annual pension equal to 72% of the annual salary during the last year of active service.

4. Partial Disability
(On duty)

- (a) Eligibility: No age or service requirement.
- (b) Benefit: An annual pension to be fixed by the Board of Trustees, but not to exceed 60% of the average annual salary; provided that if the member has 25 or more years of service the annual disability pension is equal to the accrued Service Retirement Benefit.

5. Heart Disease Disability

- (a) Eligibility: No age or service requirement.
- (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 60% of the average annual salary, whichever is smaller.

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 52 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 52, 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 \$3,072.
 - (ii) Surviving Children - An annual amount equal to \$816, 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 \$816 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: 8-1/2% 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:

(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.

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. 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.

Table 4

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Summary of Actuarial Assumptions

A. Interest: A rate of 7-3/4% per annum, compounded annually.

B. Probabilities and Other Assumptions Among Active Members:

1. Before Retirement -

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

<u>Age</u>	<u>Probability of Mortality</u>	
	<u>Police</u>	<u>Firemen</u>
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 probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Termination</u>	
	<u>Police</u>	<u>Firemen</u>
25	.066881	.037490
30	.048500	.022900
35	.030859	.011237
40	.017303	.005832
45	.008284	.002333
50	.004133	.000451

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 probabilities of disability are based upon the results of the 1972-1976 Quinquennial Evaluation. The following probabilities at selected ages are illustrative:

Age	<u>Probability of Disability</u>	
	<u>Police</u>	<u>Firemen</u>
25	.000000	.000000
30	.000608	.000857
35	.002864	.001923
40	.005504	.004041
45	.012391	.009848
50	.018198	.020747
55	.018836	.029039

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

On duty permanent and total	60%
On duty partial	35
Off duty ordinary	5

(d) Salary Increase Rate: A rate of future salary increase of 5-1/2% 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 4-3/4% per year.

(e) Retirement Age: The earlier of (a) and (b):

- (a) age 55 or hire age plus 25, if later
 - (b) age 62 or hire age plus 15, if later;
- but, if later, attained age plus 1.

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:

Table 4
(continued)

<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 the 1956 Railroad Retirement Board Disability Annuitants Ultimate Mortality Table. The following probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Mortality</u>
35	.02446
45	.03037
55	.03857
65	.06013
75	.09638
85	.18909
95	.39621

C. Probabilities of Mortality Among Pensioners:

The mortality among all present retirants is based on the Projected Annuity Mortality Table rates, increased by 50% prior to age 65, grading down to a decrease of 20% after age 85. The following probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Mortality</u>
35	.001920
40	.002795
45	.005004
50	.009048
55	.014586
60	.021738
65	.034125
70	.048520
75	.069298
80	.098332
85	.124574
90	.178306
95	.238245

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:

<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 1972-1976 Quinquennial Evaluation. The following probabilities at selected ages are illustrative:

<u>Age</u>	<u>Probability of Remarriage</u>
35	.084807
40	.051163
45	.035514
50	.026570
55	.017195
60	.008961
65	.003380
70	.002063
75	.000632

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. Final Salary Adjustment for Terminal-Pay Allowance: Projected final salary has been increased by 13% to allow for all allowances normally included in determining final salary.
- F. Expense Loading: The net costs were loaded by 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 1985 and 1986

	<i>Rates for 1986</i>		<i>Rates for 1987</i>	
	<u>1985</u>		<u>1986</u>	
	<u>Police</u>	<u>Firemen</u>	<u>Police</u>	<u>Firemen</u>
A. <u>MEMBERSHIP</u>				
1. Number of Active Members	12,656	9,008	12,614	9,226
2. Number of Retirants and Beneficiary-Survivors	7,699	6,874	8,036	7,135
3. Total Membership	20,355	15,882	20,650	16,361
B. <u>ACTUARIAL PRESENT VALUE</u> <u>AND ASSETS (000,000 omitted)</u>				
1. Present Value of Future Benefits	\$2,000.1	\$1,680.5	\$2,073.5	\$1,763.3
2. Valuation Assets	915.7	725.5	1,061.4	838.6
3. Present Value of Employer Accrued Liability	212.1	195.4	212.1	195.0
C. <u>CURRENT RATE PER CENT</u>				
1. Disability and Pension Benefits	25.23%	28.59%	22.17%	25.62%
			- 3.06	- 2.97
2. Health Care Plan and Medicare	3.37	3.37	5.63	5.63
			+ 2.26	+ 2.26
3. Total	28.60	31.96	27.80	31.25
			- .80	- .71