POLICE AND FIREMEN'S DISABILITY AND PENSION FUND

Actuarial Evaluation as of January 1, 1998

November 1, 1998

Watson Wyatt
Worldwide

Watson Wyatt
Worldwide

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November 1, 1998

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

Subject: 1998 Actuarial Evaluation

Gentlemen:

We are pleased to submit to you herewith our report presenting the results of the actuarial evaluation as of January 1, 1998. This report has been based upon the employee data which were supplied to us by the Executive Director and upon statements showing the assets and liabilities of the Fund as of December 31, 1997.

The focus of the valuation is the determination of the period necessary to amortize the unfunded actuarial accrued liability using the available statutory contribution rates. Section 742.16 of the Ohio Revised Code as amended by SB 82 specifies that the Board must establish an amortization period of no more than thirty years and must adopt a plan specifying how it intends to meet the thirty-year amortization period by December 31, 2006. In this report we develop the amortization periods separately for police and firemen, and also on a combined basis. **It is our understanding that the 30-year requirement of SB 82 is to be met on a combined basis.**

In Section I of the report we address the question of whether or not the 30-year requirement will be satisfied by December 31, 2006. Based on the results of this valuation and the 1998 Forecast Study, it is our opinion that, under current benefit provisions, the funding objective will be met if the Fund's investment return, before investment expenses, averages 8.5% per year for the next ten years. Accordingly, this report and the Forecast Study can be used to satisfy the 1998 reporting requirement to the Ohio Retirement Study Commission as specified in Section 742.16 of the Ohio Revised Code.

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

(1) The 1998 evaluation has been based upon the Fund benefit provisions as in effect on January 1, 1998 and the benefit changes implemented in 1998 by HB648. Excluded from the valuation 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) Several actuarial assumptions have been changed based on the results of the 1992-1996 Quinquennial Study. A summary of the actuarial assumptions, the actuarial cost method and the asset valuation 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, 1998. In total, 47,576 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 allocation of the statutory contribution rates applicable for the calendar year beginning January 1, 1998, has been developed as follows:

	Police	**Firemen**	**Combined**
Member Normal Cost Rate	10.00%	10.00%	10.00%
Employer Normal Cost Rate	9.13%	9.56%	9.32%
Employer Health Care Rate	6.50%	6.50%	6.50%
Employer Amortization Rate	3.87%	7.94%	5.61%
	29.50%	34.00%	31.43%
Amortization Period (years)	infinite	18.67	56.71

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

Sincerely yours,

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

Peter N. Dorsey
Peter N. Dorsey
Associate - Society of Actuaries

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POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Actuarial Evaluation as of January 1, 1998

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POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Actuarial Evaluation as of January 1, 1998

A. PURPOSE

The Board of Trustees of the Police and Firemen's Disability and Pension Fund of Ohio has retained Watson 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 for the year beginning January 1, 1998.

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 1996 by Amended Substitute Senate Bill No. 82, furthermore, provides as follows:

> "The Board shall annually thereafter have prepared by an Actuary, 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 in a report by the Actuary of the Police and Firemen's Disability and Pension Fund for the forthcoming year.
> The actuarial calculations used by the Actuary shall be based on the Entry Age Normal actuarial cost method, and the adequacy of the contribution rates shall be reported on the basis of that method. The Ohio Retirement Study Commission shall make recommendations to the General Assembly that 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, 1998 membership data and upon the Annual Report and audited financial statements for the fiscal year ending December 31, 1997. 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. Allen J. Proctor, Executive Director of the Fund. This information represented a complete census of members as of the valuation date and showed a total count of 47,576 members. A summary of the data is as follows:

	Police	Firemen	Total
Actives & Rehired Retirants	15,247	11,316	26,563
Retirants & Inactives	8,306	6,639	14,945
Beneficiary-Survivors	3,423	2,645	6,068
Total	26,976	20,600	47,576

The total membership count of 47,576 compares to a membership of 46,717 individuals as of January 1, 1997, an increase of 1.8%.

A compilation of the membership data, as of January 1, 1998, 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 credited service, which are 38.3 and 11.6, respectively, for police, and 39.0 and 12.0 for firemen; these measurements differ marginally 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 $43,561 based on the 1998 data, and $42,049 based on the 1997 data, for an increase of 3.6%; for firemen, the corresponding amounts are $44,077, $42,509 and 3.7%, respectively. The active member payroll, shown in Table 1, Item B.2, is based on the Table 2 salaries increased by the age-graded salary scale for one year.

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, 1998. 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 61.1 years for police and 63.8 years for firemen, compared to 61.5 and 64.0, respectively, in the prior year. 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 1971 House Bill No. 284, is

$23,236 for police and $23,234 for firemen. The corresponding averages last year were, respectively, $22,120 and $22,185. The total annual rate of pension for retired police as of January 1, 1998 of $191,189,353 represents a 6.7% increase over the rate of payout one year ago; similarly, the total annual rate of pension for retired firemen as of January 1, 1998 of $153,503,896 represents a 3.7% 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 are 71.7 for police and 73.7 for firemen, compared to 71.6 and 73.5 one year ago. In addition, there are 423 police beneficiaries and 323 firemen beneficiaries receiving optional benefit payments, compared to 401 police and 301 firemen beneficiaries one year ago. These tables also show that there are 303 dependent children of police and 165 dependent children of firemen receiving benefits as of the evaluation date.

Presented below is a reconciliation of the number of retirees and beneficiaries included in our January 1, 1997 and 1998 evaluations.

	Number at 1/1/97	Additions During Year	Deletions During Year	Number at 1/1/98
Police				
Retirants & Beneficiaries	11,478	570	397	11,651
Deferred Vested (inactive)	59	40	21	78
Total	11,537	610	418	11,729
Firemen				
Retirants & Beneficiaries	9,261	418	427	9,252
Deferred Vested (inactive)	36	13	17	32
Total	9,297	431	444	9,284

The retirees and beneficiaries include children, parents and widows.

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 used in the January 1, 1998 valuation 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). Also, this report recognizes the 1998 changes to Plan provisions under House Bill No. 648.

The key provisions of HB 648 which affect valuation results are:

(1) The surviving spouse benefit no longer ceases if the spouse remarries, regardless of the spouse's age.

(2) Surviving spouses whose benefits were terminated due to remarriage will have the benefits restored on a prospective basis.

(3) The permanent and total disability benefit is now based on highest three-year average earnings, rather than the final year's earnings.

(4) If total pension payments to the member and all survivors/beneficiaries do not exceed the member's contributions, then the remaining contributions will be refunded.

D. VALUATION ASSETS

The valuation assets have been based upon the "Comprehensive Annual Financial Report for the Year Ended December 31, 1997" and additional asset information which was furnished to us by the Fund.

Net assets for pension and health care benefits as of December 31, 1997 were $7.66 billion on a market value basis and $6.26 billion on a book value basis. (Book value figures were provided by the Fund specifically for valuation asset purposes.) A summary of the assets is as follows (in millions):

		Market Value	Book Value
1.	Cash and short-term	$246.8	$ 246.8
2.	Receivables	366.7	366.7
3.	Investments		
	a. Bonds	1,281.3	1,247.3
	b. Mortgages & Asset Backed Securities	1,373.7	1,367.9
	c. Stocks	3,120.2	1,889.4
	d. Real Estate	645.3	572.9
	e. Commercial Mortgage Funds	114.5	110.9
	f. Venture Capital	29.6	23.1
	g. International Securities	626.8	571.4
	h. Mortgage Note Receivables	12.5	12.5
	i. Subtotal	7,203.9	5,795.4
4.	Fixed Assets	1.5	1.5
5.	Prepaid Expenses and Other	1.3	1.3
6.	Liabilities	(156.5)	(156.5)
7.	Net Assets	7,663.7	6,255.2

The net assets presented above include Local Funds Receivable of $204.6 million. This figure represents the value of scheduled future payments on the employer accrued liability, capitalized at the original 4.25% interest rate. For valuation purposes this value is replaced by the present value of future payments using the valuation interest rate of 8.25%. The January 1, 1998 value at 8.25% is $129.7 million.

For valuation purposes the net book (cost) value is used for all assets except stocks and international securities. For stocks (including international), the value is determined under the 4-Year Market Adjustment Method. Valuation assets equal the sum of these two components, less $5.1 million of contributions that have yet to be refunded to employees who terminated with less than 15 years of service.

This is the sixth valuation for which stocks are being valued under the 4-Year Market Adjustment Method. The method was first used in 1993 with an initial value equal to market value. For the 1998 valuation the gains/losses which occurred in 1994 – 1997 are being phased-in.

The combined realized and unrealized gain/(loss) on stocks for 1994 was a loss of $(51,841,975). The corresponding result for 1995 was a gain of $604,613,798; the result for 1996 was a gain of $545,312,452 and the result for 1997 was a gain of $742,190,996. These gains/(losses) are phased-in at 25% per year, which means 75% of the 1997 gain, $556,643,247; 50% of the 1996 gain, $272,656,226; and 25% of the 1995 gain, $151,153,448, are excluded from 1998 valuation assets. The stock portion of valuation assets equals market value of stocks less the excluded gains/(losses). The resulting value is $2,766,610,623. A total of $980,452,921 of gains are reserved for future phase-in.

After determining total valuation assets, the Health Care Stabilization Fund balance is subtracted to obtain the assets used for the pension and disability valuation. The Health Care Stabilization Fund was created effective January 1, 1992, with $150 million allocated for health care expenses - $81,777,000 for police and $68,223,000 for firemen. The fund is credited with retiree and beneficiary premiums, a portion of employer contributions equal to 6.5% of payroll, and 8.25% effective annual interest. All medical expense payments, including Medicare premiums, are debited to the fund. The fund value as of December 31, 1997, is $155,987,900 for police and $93,433,800 for firemen. After excluding this amount, the resulting valuation assets, rounded to the nearest thousand, are $6,101,758,000.

The allocation of the valuation assets between police and firemen is developed in Table 6. This development is based upon an allocation of the actual change in valuation assets due to investment results in proportion to expected growth based upon the valuation interest rate. This results in valuation assets of $3,367,448,000 for police and $2,734,310,000 for firemen.

During 1997, the rate of return on valuation assets was approximately 13.80%. The calculation of this rate of return uses valuation assets under the 4-Year Market Adjustment method at both December 31, 1996 and December 31, 1997. The calculation also involves total assets, prior to the allocation of assets to the Health Care Stabilization Fund. This return compares to the interest rate assumption of 8.25%. Also, as is indicated in Table 6, the expected growth in valuation assets due to investment performance, based on accrual basis contributions, benefit payments, and expenses, was $463.2 million (Item (4)) compared to actual growth of $774.7 million.

E. ACTUARIAL ASSUMPTIONS

A summary of the assumptions and a description of the actuarial cost method are presented in Table 4. Several demographic assumptions have been changed since the prior valuation. These changes were recommended in the 1992-1996 Quinquennial Study and were subsequently adopted by the Board.

1. The rates of mortality have been decreased for healthy retirees, disabled retirees, surviving spouses and active members. The new rates include a margin for future mortality improvement.
2. The rates of disability incidence have been decreased. The new assumption reflects the 1992-96 graduated disability experience plus a 5% load for conservatism.
3. The assumed allocation of disability by type has been changed to 20% P&T, 76% partial and 4% off-duty. This reflects the trend toward fewer P&T disabilities.
4. The rates of termination among active members have been decreased. The new rates equal the graduated 1992-96 experience.

The Quinquennial Study indicated that no changes were needed in the assumed rates of retirement or the assumed rates of salary increase. The valuation interest rate is also unchanged.

The surviving spouse remarriage assumption has been eliminated. This is due to HB 648 which provides for continuation of the benefit in the event of remarriage.

As mandated by Senate Bill 82, the valuation uses the Entry Age Normal actuarial cost method. This is the second valuation under this method. For purposes of developing the amortization period under the EAN method, total payroll is assumed to grow at 4.00% compounded annually. The amortization period is an open (rolling) period which is redetermined at each valuation date.

The normal cost includes a charge for administrative expenses and a credit for state subsidies. This methodology is new for 1998, replacing the 0.75% expense load used in prior years.

For the valuation it is assumed that all future retirees will elect the COLA form of payment. Also, it is assumed that all future COLAs will be 3% per year.

The increase during the past year in the average annual current salary of active members was, as noted above, 3.6% for police and 3.7% for firemen. These increase percentages compare to an average expected increase of 5.4% based upon the age-graded salary scale assumption.

F. EVALUATION RESULTS

Table 1 summarizes the January 1, 1998 evaluation. The results are presented separately for police and firemen, as well as on a combined basis. 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. Certain individuals may be counted under two categories. For example a beneficiary might also be a surviving spouse, and the rehired retirants are also counted as retirants.

Section B of Table 1 presents the development of the normal cost rate. The dollar amount of normal cost for the valuation year includes a charge for administrative expenses and a credit for state subsidies. The normal cost is then expressed as a percentage of active member payroll. This percentage has been adjusted to include the half-year interest factor for deferred receipt of contributions. The resulting normal cost rate represents the percentage of payroll to be contributed throughout the year to fund the normal cost. Subtracting the 10% member contribution yields the employer normal cost rate, which is 9.13% for police, 9.56% for firemen, and 9.32% on a combined basis.

The actuarial accrued liability (AAL) is set forth in Section C. For active members the AAL represents the present value of all benefits accrued to date, based on service and earnings as of the valuation date. The total liabilities are $4,374,771,000 for police and $3,322,906,000 for firemen. Hence, the combined AAL is approximately $7.7 billion.

Section D presents the assets and Section F presents the resulting unfunded accrued liability. The assets consist of the valuation assets, as discussed above, plus the capitalized value of the future payments on the employer accrued liability. These future payments are discounted at the valuation rate of 8.25%, yielding a value of $129,661,000. The schedule of future payments was provided by Fund personnel.

Finally, Section G develops the amortization period for the unfunded liability. The combined statutory rate is calculated by determining the payroll-weighted average of the police and firemen statutory rates. The employer statutory rate is reduced by the 6.50% health care allocation and by the normal cost rate developed in Section B. The remaining rates, 3.87% for police, 7.94% for firemen and 5.61% combined, are the percentages of payroll available for amortization. These percentages are then used to derive the amortization periods. Other factors in this calculation are the valuation interest rate, the assumed rate of total payroll growth, and the unfunded liability expressed as a percentage of payroll.

The resulting amortization period for police and firemen combined is 56.71 years. For firemen separately the period is 18.67 years. For police there is no period sufficient to amortize the unfunded liability with the available percentage of payroll.

G. COMPARISON OF EVALUATION RESULTS WITH PREVIOUS YEAR

Table 5 sets forth a comparison of evaluation results for 1997 and 1998. Section A indicates that the number of active members has increased by 350 for police and by 330 for firemen. Also, the number of participants currently receiving benefits has increased by 192 for police but declined by 13 for firemen. As a percentage of total membership, 43.5% of police members are currently receiving benefits, compared to 43.6% last year; the corresponding percentages for firemen are, respectively 45.1% and 45.8%.

Section B of Table 5 shows the changes in actuarial values, payroll and assets, while Section C indicates the resulting changes in the allocation of the statutory rates. The normal cost has increased by $23.6 million as a dollar amount (Item B.2) and by 0.97% of payroll (Item C.2). Actuarial accrued liability (AAL) has increased by $673.1 million, but this is offset by a $677.4 million increase in valuation assets. Hence, the unfunded liability is essentially unchanged.

Although the dollar amount is unchanged, as a percentage of payroll the unfunded liability has dropped from 131.3% to 123.1%. This percentage and the percentage of payroll available for amortization (the amortization rate) determine the amortization period.

Increases in normal cost, AAL and amortization period were anticipated, due to the changes in actuarial assumptions that were adopted based on the 1992-1996 Quinquennial Study. As part of the Quinquennial Study it was determined that the 1997 amortization period increased from 43.49 to 63.54 years when remeasured under the proposed assumption and method changes. The amortization period for 1998 is 56.71 years, due to a drop in the amortization rate from 6.55% to 5.61%. The 1998 period of 56.71 years represents an improvement of approximately seven years when compared to the remeasured 1997 period.

Also, the 1997 remeasurement used the proposed 15% corridor on market value of stocks, which made the amortization period shorter. Since this corridor method has not been adopted for the 1998 valuation, the improvement in amortization period can be considered to be more than seven years.

The AAL funded status is a measure of the Fund's financial status that is more "stable" than the amortization period: smaller changes from year to year occur due to actuarial gains or losses than is the case with the amortization period. The funded status has improved from 79.1% in 1997 to 81.0% in 1998. Continuing improvement in funded status toward a goal of 88.0% in 2007 is highly indicative of long-term solvency.

H. HEALTH CARE FUNDING

Effective January 1, 1992, the Board of Trustees established the Health Care Stabilization Fund (HCSF) with an initial allocation of $150 million. This HCSF allows the segregation, for accounting purposes, of the assets used to pay health care benefits from those used to pay pension and disability benefits.

In conjunction with the establishment of the HCSF, the Board directed that the employer contribution to be allocated to this fund would be 6.50% of payroll each year. This 6.50% was derived from the results of the Wyatt Company's 35-Year Forecast Study, dated

May 17, 1991, which indicated that the Fund could achieve long-term solvency if health care expense were limited to 6.50% of payroll and all actuarial assumptions were realized.

In addition to the 6.50% employer contribution, the HCSF is also credited with retiree and survivor health care contributions, which were approximately $5.3 million for 1997. Interest is credited at the valuation rate, currently 8.25%. Fund personnel have established an accounting procedure under which retiree and survivor contributions are assumed to be made at the beginning of the month and employer contributions and health care expenditures are assumed to occur at the end of the month.

This 1998 valuation is the sixth to recognize the establishment of the HCSF. The balance in this fund as of December 31, 1997, is $249,421,600, as developed by Fund personnel. As mentioned earlier in this report, HCSF assets are deducted from total valuation assets to determine valuation assets for pension and disability benefits, i.e. the HCSF value is considered to be in terms of valuation assets.

For purposes of determining the total actuarial rate per cent of contribution, the Board-defined 6.50% health care contribution replaces the calculation of the pay-as-you-go rate. However, the actual funding of health care benefits can still be considered to be essentially on a pay-as-you-go basis, but with the Health Care Stabilization Fund providing **temporary smoothness** in the allocated rate per cent. In particular, health care liabilities were **not** considered to be prefunded by the establishment of the $150 million Health Care Fund, nor is there any funding program in place which would accomplish such prefunding.

In a separate report dated October 29, 1998 we present an analysis of the HCSF. This analysis shows that under the most likely scenario with respect to health care inflation and growth in actual membership, the HCSF will at all times during the next 30 years be equal to 2 to 3 times expected annual gross health care payments, provided the 6.5% increases to 9% by 2007 and member premiums increase to 8.00% of total health care costs also by 2007. Please refer to that report for more information.

I. DISPARITY OF STATUTORY RATES FOR POLICE AND FIREMEN

The statutory rates of 19.5% for police and 24.0% for firemen were established in the mid-1980's, when the demographics of the two groups were significantly different than today. Based on the results of the last several valuations, an adjustment should be made to eliminate the disparity between the police and firemen statutory rates, and to ultimately enable both groups to satisfy the 30-year amortization period. As of January 1, 1998 firemen already satisfy the requirement, with a period of 18.67 years. For police there is no period sufficient to amortize the unfunded liability under the current statutory rate. In brief, the police rate is too low and the firemen rate is higher than necessary.

It is our interpretation of SB 82 that the Fund must attain the 30-year amortization period on a combined basis, but not necessarily for police and firemen separately. It would be desirable, however, for both groups to be in similar financial positions, to avoid the appearance that one group is subsidizing the other. Moreover, if the legislature determines that both police and firemen must satisfy the 30-year period, it will be necessary that a change be made to the statutory rates, preferably equalizing the rate for the two groups.

J. ADEQUACY OF STATUTORY RATES ON A COMBINED BASIS

Under SB 82 the length of the amortization period for unfunded pension liability, on a combined basis, has been deemed to be the primary measure of the Fund's financial status. A period of 30 years or less is considered satisfactory. This 30-year target is to be attained by the year 2007, **and maintained thereafter.** On a combined basis the amortization period as of January 1, 1998 is 56.71 years.

However, based on the results of the 30-year forecast study dated April 10, 1998, the requirements of SB82 will be met, provided that the Fund's investments return an annual average of 8.5%, before investment expenses, during the next 30 years and the Board continues to effectively manage net health care costs. Such management may include increasing member premiums and allocations to the Health Care Stabilization Fund. The results of this valuation are consistent with the expected results of the forecast. **Accordingly, we conclude that the statutory rates are adequate for 1998.**

* * * * * * *

In conclusion, we recommend that the Board of Trustees consider this evaluation report in determinations concerning the appropriateness of the actual employer contribution rates.

Respectfully submitted,

WATSON, WYATT & COMPANY

Wayne E. Dydo

Wayne E. Dydo
Fellow - Society of Actuaries
Member - American Academy of Actuaries

Peter N. Dorsey

Peter N. Dorsey
Associate - Society of Actuaries

Table 1

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND OF OHIO

Summary of Valuation Results as of January 1, 1998 1/

	Police	Firemen	Combined
A. Membership Counts			
1. Active Members	15,197	11,298	26,495
2. Inactive Members	78	32	110
3. Rehired Retirants	50	18	68
4. Retirants	8,228	6,607	14,835
5. Beneficiaries & Survivors			
a. Surviving Spouses	2,697	2,157	4,854
b. Beneficiaries	423	323	746
c. Children	303	165	468
d. Subtotal	3,423	2,645	6,068
6. Total Membership	26,976	20,600	47,576
B. Normal Cost			
1. Dollar Normal Cost 2/	$ 124,978,000	$ 96,108,000	$ 221,086,000
2. Active Member Payroll	679,772,000	511,106,000	1,190,878,000
3. Normal Cost Rate 3/	19.13%	19.56%	19.32%
4. Member Rate	10.00%	10.00%	10.00%
5. Employer Normal Cost Rate	9.13%	9.56%	9.32%
C. Actuarial Accrued Liability			
1. Active Members	$ 2,159,850,000	$ 1,639,465,000	$ 3,799,315,000
2. Inactive Members	11,356,000	5,111,000	16,467,000
3. Rehired Retirants	1,331,000	671,000	2,002,000
4. Retirants	2,045,992,000	1,561,546,000	3,607,538,000
5. Beneficiaries & Survivors	156,242,000	116,113,000	272,355,000
6. Total	4,374,771,000	3,322,906,000	7,697,677,000
D. Assets			
1. Valuation Assets 4/	$ 3,367,448,000	$ 2,734,310,000	$ 6,101,758,000
2. Employer Accrued Liability 5/	64,108,000	65,553,000	129,661,000
3. Total	3,431,556,000	2,799,863,000	6,231,419,000
E. Funded Status (D.3 / C.6)	78.44%	84.26%	80.95%

Table 1
(continued)

	Police	Firemen	Combined
F. Unfunded Actuarial Accrued Liability (UAAL) (C.6 - D.3)	$ 943,215,000	$ 523,043,000	$ 1,466,258,000
G. Amortization of Unfunded Actuarial Accrued Liability			
1. Employer Contribution Rate			
a. Statutory Rate 6/	19.50%	24.00%	21.43%
b. Health Care Allocation	6.50%	6.50%	6.50%
c. Normal Cost Rate (B.5)	9.13%	9.56%	9.32%
d. UAAL Amortization Rate (G.1.a-G.1.b-G.1.c)	3.87%	7.94%	5.61%
2. UAAL as Percentage of Active Member Payroll (F÷B2)	138.75%	102.34%	123.12%
3. Amortization Period 3/ 7/	***** 8/	18.67	56.71

1/ Excludes assets and liabilities arising from the increase due to the 1971 House Bill No. 284 and from the Death Benefit Fund Established by House Bill No. 1010. Excludes health care liabilities.

2/ Includes an $8,406,000 charge for administrative expenses and a $3,484,000 credit for State of Ohio subidies.

3/ Includes half-year interest adjustment at the valuation rate of 8.25%, to reflect deferred receipt of contributions.

4/ Valuation assets exclude the Health Care Stabilization Fund balance.

5/ Represents the future payments on the Employer Accrued Liability, capitalized at the 8.25% valuation interest rate.

6/ The combined statutory rate represents the payroll-weighted average of the statututory rates for police and firemen.

7/ UAAL is amortized as a level percentage of payroll. Total payroll is assumed to grow at 4.00% compounded annually.

8/ There is no period sufficient to amortize the UAAL with the available rate.

H:\OHP&F\DB\GENL\VAL\98\[VAL98FS.XLS]Table1

Table 2(a)

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND

Police

Distribution of Members by Attained Age Group and Length of Service as of January 1, 1998

(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, 1998	Average Annual Salary As of January 1, 1997
Under 25	286 (27)	-	-	-	-	-	-	286 (27)	$ 27,842	$ 27,051
25-29	2,193 (224)	327 (31)	2 (1)	-	-	-	-	2,522 (256)	35,611	34,333
30-34	1,274 (151)	1,648 (161)	289 (21)	2	-	-	-	3,213 (333)	41,337	39,667
35-39	384 (52)	858 (95)	960 (80)	293 (40)	2 (1)	-	-	2,497 (268)	43,884	42,635
40-44	168 (19)	334 (70)	573 (54)	1,198 (113)	342 (20)	6	-	2,621 (276)	46,726	45,134
45-49	77 (8)	147 (13)	212 (19)	560 (66)	970 (46)	352 (1)	10	2,328 (153)	48,627	47,215
50-54	34 (1)	47 (2)	72 (12)	104 (14)	299 (22)	540 (5)	144	1,240 (56)	50,425	48,442
55-59	14 (1)	17 (4)	31 (2)	19 (1)	33	111 (3)	148 (1)	373 (12)	48,296	46,757
60-64	4	5	5	8	6	11 (1)	49 (1)	88 (2)	47,819	43,543
65 & Over	3	-	3	2	2	-	19	29 -	48,736	50,121
Total	4,437 (483)	3,383 (376)	2,147 (189)	2,186 (234)	1,654 (89)	1,020 (10)	370 (2)	15,197 (1,383)	$ 43,561	$ 42,049

	January 1, 1998	January 1, 1997
Average Attained Age	38.3	38.3
Average Credited Service	11.6	11.6

1/ Includes 923 members hired in 1997.

H:\OHP&F\DB\GENL\VAL\98\[AGETAB98.XLS]Table 2(a)

Police

Distribution of Retirants by Attained Age Group and Sex as of January 1, 1998

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, 1998 (6)	Annual Rate of Pension 1/ As of January 1, 1997 (7)
Under 40	68	15	83	1.0%	$ 1,287,985	$ 1,772,862
40-44	167	42	209	2.5%	3,899,234	3,955,768
45-49	526	28	554	6.7%	13,141,624	15,915,274
50-54	1,554	33	1,587	19.3%	43,481,513	39,692,184
55-59	1,640	13	1,653	20.1%	45,695,716	39,762,024
60-64	1,146	10	1,156	14.1%	29,246,945	26,389,444
65-69	1,088	14	1,102	13.4%	23,462,882	23,110,572
70-74	1,001	6	1,007	12.2%	18,162,446	16,688,786
75-79	446	7	453	5.5%	7,171,330	6,526,339
80-84	270	8	278	3.4%	3,853,491	3,895,836
85-89	114	1	115	1.4%	1,444,006	1,140,850
90 & Over	31	-	31	0.4%	342,181	369,767
TOTAL	8,051	177	8,228	100.0%	$ 191,189,353	$ 179,219,706

Average Attained Age	Males	Females	Total
January 1, 1998	61.3	52.7	61.1
January 1, 1997	61.7	52.3	61.5

Average Annual Benefit	
January 1, 1998	$23,236
January 1, 1997	$22,120

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

Police

Distribution of Beneficiary-Survivors by Attained Age Group as of January 1, 1998

Attained Age Group (1)	Number Receiving Benefits (2)	Col. (2) as % of TOTAL (3)
A. SURVIVING SPOUSES 1/		
Under 40	37	1.4%
40 - 44	42	1.6%
45 - 49	92	3.4%
50 - 54	123	4.6%
55 - 59	187	6.9%
60 - 64	256	9.5%
65 - 69	377	14.0%
70 - 74	436	16.2%
75 - 79	378	14.0%
80 - 84	376	13.9%
85 - 89	241	8.9%
90 & Over	152	5.6%
TOTAL	2,697	100.0%
Average Attained Age	71.7	
B. BENEFICIARIES RECEIVING OPTIONS		
Under 35	5	1.2%
35 - 39	5	1.2%
40 - 44	11	2.6%
45 - 49	27	6.4%
50 - 54	34	8.0%
55 - 59	59	13.9%
60 - 64	55	13.0%
65 - 69	94	22.2%
70 - 74	65	15.4%
75 - 79	43	10.2%
80 - 84	22	5.2%
85 - 89	1	0.2%
90 & Over	2	0.5%
TOTAL	423	100.0%
C. CHILDREN	303	

1/ Includes dependent parents.

Table 2(b)

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND

Firemen

Distribution of Members by Attained Age Group and Length of Service as of January 1, 1998

(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, 1998	Average Annual Salary As of January 1, 1997
Under 25	206	(2)	2		-		-		-		-		-		208	(2)	$ 29,936	$ 28,511
25-29	1,025	(14)	281	(5)	2		-		-		-		-		1,308	(19)	36,059	34,918
30-34	915	(19)	1,055	(21)	243	(10)	-		-		-		-		2,213	(50)	40,579	39,200
35-39	394	(16)	849	(25)	762	(22)	329		3		-		-		2,337	(63)	44,221	42,568
40-44	160	(12)	318	(13)	556	(14)	877	(5)	248		2		-		2,161	(44)	46,652	45,021
45-49	46	(4)	109	(6)	197	(5)	558	(3)	732	(1)	158		4		1,804	(19)	48,170	46,593
50-54	21	(3)	29	(1)	39		63	(1)	341		359		68		920	(5)	50,209	48,434
55-59	4		7	(1)	9		15		38		110		103		286	(1)	50,692	49,043
60-64	2		4		2		3		8		6		24		49	-	48,744	49,691
65 & Over	-		1		-		1		4		1		5		12	-	53,880	49,853
Total	2,773	(70)	2,655	(72)	1,810	(51)	1,846	(9)	1,374	(1)	636	0	204	0	11,298	(203)	$ 44,077	$ 42,509

	January 1, 1998	January 1, 1997
Average Attained Age	39.0	38.9
Average Credited Service	12.0	12.0

1/ Includes 646 members hired in 1997.

H:\OHP&F\DB\GENL\VAL\98\[AGETAB98.XLS]Table 2(b)

Firemen

Distribution of Retirants by Attained Age Group and Sex as of January 1, 1998

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, 1998 (6)	Annual Rate of Pension 1/ As of January 1, 1997 (7)
Under 40	31	1	32	0.5%	$ 514,694	$ 732,296
40-44	81	5	86	1.3%	1,655,577	1,713,438
45-49	226	4	230	3.5%	5,265,478	7,430,361
50-54	879	-	879	13.3%	24,096,502	23,530,714
55-59	1,221	-	1,221	18.5%	34,480,974	31,910,242
60-64	1,074	-	1,074	16.3%	28,737,359	26,567,488
65-69	1,111	-	1,111	16.8%	24,837,668	26,303,790
70-74	1,095	-	1,095	16.6%	20,878,886	17,776,112
75-79	433	-	433	6.5%	7,020,216	6,150,493
80-84	293	-	293	4.4%	4,102,202	4,428,937
85-89	125	-	125	1.9%	1,632,827	1,185,711
90 & Over	28	-	28	0.4%	281,513	332,961
TOTAL	6,597	10	6,607	100.0%	$ 153,503,896	$ 148,062,543

Average Attained Age	Males	Females	Total
January 1, 1998	63.8	43.7	63.8
January 1, 1997	64.1	42.8	64.0

Average Annual Benefit	
January 1, 1998	$23,234
January 1, 1997	$22,185

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

Firemen

Distribution of Beneficiary-Survivors by Attained Age Group as of January 1, 1998

	Attained Age Group (1)	Number Receiving Benefits (2)	Col. (2) as % of TOTAL (3)
A.	SURVIVING SPOUSES 1/		
	Under 40	14	0.6%
	40 - 44	26	1.2%
	45 - 49	41	1.9%
	50 - 54	84	3.9%
	55 - 59	105	4.9%
	60 - 64	181	8.4%
	65 - 69	269	12.5%
	70 - 74	398	18.4%
	75 - 79	342	15.9%
	80 - 84	352	16.3%
	85 - 89	200	9.3%
	90 & Over	145	6.7%
	TOTAL	2,157	100.0%
	Average Attained Age	73.7	
B.	BENEFICIARIES RECEIVING OPTIONS		
	Under 35	6	1.9%
	35 - 39	5	1.5%
	40 - 44	7	2.2%
	45 - 49	7	2.2%
	50 - 54	28	8.7%
	55 - 59	32	9.9%
	60 - 64	52	16.1%
	65 - 69	53	16.4%
	70 - 74	78	24.1%
	75 - 79	29	9.0%
	80 - 84	20	6.2%
	85 - 89	5	1.5%
	90 & Over	1	0.3%
	TOTAL	323	100.0%
C.	CHILDREN	165	

1/ Includes dependent parents.

Table 3

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND

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 48 and 25 years of service.
(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 for 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 average annual salary. Average annual salary means one-third of the total salary during the three years for which total earnings were greatest.
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 $5,000, whichever is greater.

7. Termination of Service Prior to Retirement

One of the following benefits depending upon the particular circumstances:

<u>Refund</u>

(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.

<u>Vesting After 15 Years</u>

(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, payable during the spouse's lifetime.
	(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 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. The total pension payments to a member and his survivors/beneficiaries may not be less than the member's contributions.
11. Pension Increases for Certain Retirants	Commencing January 1, 1974, the pensions of persons who retired between July 1, 1968 and June 30, 1971 were 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) were increased as follows: If the annual pension was less than $2,700, then the pension was increased to $3,000. If the annual pension was $2,700 or more, the increase was $300 per year. These increases do not apply to benefits being paid under pre-1947 plans with an automatic escalating provision. Effective July 1, 1979, retirees (excluding those with escalating benefits) who retired prior to January 1, 1974, received 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, received 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. Effective July 1, 1996, a prorated portion of the $360 will be granted if there is an increase in the CPI, including unused prior increases, of less than 3%.

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).

Effective July 1, 1992, pensioners and survivors make monthly medical benefit contributions, which are credited to the Health Care Stabilization Fund. Monthly contributions range from $0 to $50 depending on the type and amount of the participant's pension.

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. Effective July 1, 1996, the COLA percentage equals the actual increase in the CPI, plus unused prior increases, to a maximum of 3%.
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 canceled within one year after benefits commence. Effective September 16, 1998 the standard form of benefit is the 50% joint and survivor annuity, unless the member's spouse provides written consent for a lower survivor benefit.
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

Summary of Actuarial Assumptions and Actuarial Cost Method

A. Interest: A rate of 8.25% per annum, compounded annually.

B. Rates and Other Assumptions Among Active Members:

1. Before Retirement

(a) Mortality: Mortality rates equal the 1994 Group Annuity Mortality Reserving Table with a five-year set-back in age. The following rates at selected ages are illustrative:

	Rate of Mortality	
Age	Police	Firemen
25	.000507	.000507
30	.000661	.000661
35	.000801	.000801
40	.000851	.000851
45	.001072	.001072
50	.001578	.001578
55	.002579	.002579

(b) Termination: The rates of termination are based upon the results of the 1992 - 1996 Quinquennial Evaluation. The following rates at selected ages are illustrative:

	Rate of Termination	
Age	Police	Firemen
25	.032100	.010674
30	.022530	.008650
35	.018580	.007568
40	.013325	.005845
45	.009219	.004235
50	.009688	.006715

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.

(c) Disability:

The rates of disability are based upon the results of the 1992 - 1996 Quinquennial Evaluation. A 5% load has been applied to the 1992 - 1996 experience rates due to the volatility in this decrement. The following rates at selected ages are illustrative.

	Rate of Disability	
Age	Police	Firemen
25	.000280	.000017
30	.001709	.000837
35	.005926	.002592
40	.011606	.005899
45	.019363	.014365
50	.027948	.031516
55	.036083	.042174

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:

	Police	Firemen
On duty permanent and total	20%	20%
On duty partial	76	76
Off duty ordinary	4	4

(d) Salary Increase Rate:

The per annum rates of future salary increase can be divided into two component parts: (i) inflationary increase of 4% per year and (ii) age-graded promotional increases as follows:

Age(s)	Promotional Increase	Total Increase
under 30	3.00%	7.00%
30 - 34	1.75	5.75%
over 34	1.00	5.00%

(e) Retirement:

The rates of retirement are based upon the experience during the periods 1990 through 1993 and the results of the 1992-1996 Quinquennial Evaluation. These rates are applicable after the member has satisfied the conditions for retirement. The rates are as follows:

Police		Firemen	
Age(s)	Rate	Age(s)	Rate
48	0.35	48	0.35
49-53	0.25	49-59	0.25
54-60	0.20	60-64	0.35
61-64	0.25	65	1.00
65	1.00		

2. After Retirement

(a) On Service Retirement Pension

For active members expected to go on service retirement, the post-retirement mortality rates equal the 1994 Group Annuity Mortality Reserving Table with a two-year set-forward in age. The following probabilities at selected ages are illustrative:

Age	Probability of Mortality
50	.003213
55	.005581
60	.010147
65	.018034
70	.028481
75	.045171
80	.075532
85	.115671
90	.182281
95	.268815

(b) On Disability Retirement Pension

For active members expected to go on disability retirement, the post-retirement mortality rates are based on the results of the 1992 - 1996 Quinquennial Evaluation. The rates are from the 1994 Group Annuity Mortality Reserving Table with a two-year set forward in age and with loads for disability. The following probabilities at selected ages are illustrative:

Age	Probability of Mortality
35	.008391
40	.008752
45	.009399
50	.010713
55	.013081
60	.020147
65	.028034
70	.048481
75	.070171
80	.100532
85	.140671
90	.207281
95	.268815

C. Probabilities of Mortality Among Pensioners

1. Nondisabled Pensioners:

The mortality among all nondisabled retirants is equal to the 1994 Group Annuity Mortality Reserving Table rates with a two-year set-forward in age. The following probabilities at selected ages are illustrative:

Age	Probability of Mortality
50	.003213
55	.005581
60	.010147
65	.018034
70	.028481

Table 4
(Continued)

75	.045171
80	.075532
85	.115671
90	.182281
95	.268815

2. Disabled Pensioners:

The mortality among all disabled retirants is equal to the 1994 Group Annuity Mortality Reserving Table with a two-year set-forward in age and with loads for disability. The following probabilities at selected ages are illustrative:

Age	Probability of Mortality
35	.008391
40	.008752
45	.009399
50	.010713
55	.013081
60	.020147
65	.028034
70	.048481
75	.070171
80	.100532
85	.140671
90	.207281
95	.268815

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, with a six-year setback in age. The following probabilities at selected ages are illustrative:

Age	Probability of Mortality
35	.000871
40	.001193
45	.001722
50	.002932
55	.005410

60	.008910
65	.013397
70	.020560
75	.033488
80	.054712
85	.091172
90	.144016
95	.207993

2. Probability of Remarriage Among Surviving Spouses

The valuation no longer uses a remarriage assumption. HB 648 removed the remarriage penalty for surviving spouses.

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:

Fund expenses are divided into investment expenses and administrative expenses. The valuation interest rate is considered to be net of all investment expenses and net of administrative expenses up to 0.05% of market value assets. Excess administrative expenses (above 0.05% of market value) are loaded onto the Normal Cost. The Fund provides estimated valuation year expenses.

G. State Subsidy Credit

The subsidy received from the State of Ohio during the valuation year is an offset to the Normal Cost.

H. Actuarial Cost Method:

The Entry Age Normal Actuarial Cost Method has been used. This is a method under which the actuarial present value of the projected benefits of each participant included in the actuarial valuation is allocated on a level basis over the service of the individual between entry age and assumed decrement age. That portion of the actuarial present value allocated to a valuation year is called the normal cost. That portion of the actuarial present value not provided for at a valuation date by the future normal costs is called the actuarial liability.

The amortization period is determined as an open (rolling) period. For this calculation, total payroll is assumed to grow at 4.00% pre annum.

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.

I. Valuation Assets:

Valuation assets equal the net cost (book) value of all Fund assets, except common and preferred stocks are included in valuation assets with a value equal to that developed under the 4-Year Market Adjustment Method, with an initial value equal to market value. Under this method realized and unrealized gains on stocks are recognized in the assets over a 4-year period: valuation assets equal market value less 75% of the previous year's realized and unrealized gains, 50% of the second previous year's realized and unrealized gains, and 25% of the third previous year's realized and unrealized gains.

The balance in the Health Care Stabilization Fund is excluded from total assets to arrive at valuation assets for pension and disability benefits. Contributions due to be refunded to terminated members are also excluded from valuation assets.

Future payments on the employer accrued liability (local funds receivable) are discounted at the valuation rate to determine the present value as of the valuation date. This value is added to valuation assets.

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Table 5

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND

Comparison of Evaluation Results for 1997 and 1998

	1998			1997			Variance		
	Police	Firemen	Total	Police	Firemen	Total	Police	Firemen	Total
A. MEMBERSHIP									
1. Number of Active Members 1/	15,247	11,316	26,563	14,897	10,986	25,883	350	330	680
2. Number of Retirants, Inactives and Beneficiary-Survivors	11,729	9,284	21,013	11,537	9,297	20,834	192	(13)	179
3. Total Membership	26,976	20,600	47,576	26,434	20,283	46,717	542	317	859
B. ACTUARIAL VALUES, PAYROLL AND ASSETS (millions)									
1. Active Member Payroll	$ 679.8	$ 511.1	$ 1,190.9	$ 641.2	$ 478.7	$ 1,119.9	$ 38.6	$ 32.4	$ 71.0
2. Normal Cost	125.0	96.1	221.1	112.2	85.3	197.5	12.8	10.8	23.6
3. Actuarial Accrued Liability	4,374.8	3,322.9	7,697.7	3,983.7	3,040.9	7,024.6	391.1	282.0	673.1
4. Valuation Assets 2/	3,431.6	2,799.9	6,231.5	3,065.4	2,488.7	5,554.1	366.2	311.2	677.4
5. Unfunded Accrued Liability	943.2	523.0	1,466.2	918.3	552.2	1,470.5	24.9	(29.2)	(4.3)
6. UAL as percentage of Payroll	138.75%	102.33%	123.12%	143.22%	115.35%	131.31%	-4.47%	-13.02%	-8.19%
7. AAL Funded Status	78.44%	84.26%	80.95%	76.95%	81.84%	79.07%	1.49%	2.42%	1.88%
C. ALLOCATION OF STATUTORY CONTRIBUTION RATES									
1. Member Normal Cost Rate	10.00 %	10.00 %	10.00 %	10.00 %	10.00 %	10.00 %	0.00 %	0.00 %	0.00 %
2. Employer Normal Cost Rate	9.13	9.56	9.32	8.20	8.54	8.35	0.93	1.02	0.97
3. Employer Health Care Rate	6.50	6.50	6.50	6.50	6.50	6.50	0.00	0.00	0.00
4. Employer Amortization Rate	3.87	7,94	5.61	4.80	8.96	6.55	-0.93	-1.02	-0.94
5. Amortization Period	***** 3/	18.67	56.71	***** 3/	18.83	43.49	*****	-0.16	13.22

1/ Active count includes rehired retirants.
2/ Valuation assets include the Employer Accrued Liability.
3/ There is no period sufficient to amortize the UAAL with the available rate.

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Table 6

POLICE AND FIREMEN'S DISABILITY AND PENSION FUND

Development of Asset Allocation Between Police and Firemen as of January 1, 1998

	Police	Firemen	Total
(1) 1/1/97 Valuation Assets			
a. Pension Valuation Assets	$ 3,001,393,191	$2,423,299,054	$5,424,692,245
b. Health Care Stabilization Fund	139,252,129	87,521,411	226,773,540
c. Total Valuation Assets	3,140,645,320	2,510,820,465	5,651,465,785
(2) Transactions during 1997			
a. Employer contributions	129,146,254	118,999,129	248,145,383
b. Net employee contributions	65,365,053	50,083,632	115,448,685
c. Retiree medical contributions	2,784,046	2,467,852	5,251,898
d. Local Funds receipts	5,528,003	5,567,451	11,095,454
e. Benefit payments and expenses	(250,135,463)	(204,748,351)	(454,883,814)
f. Total transactions	(47,312,107)	(27,630,287)	(74,942,394)
(3) Item 1(c) plus Item 2(f)	3,093,333,213	2,483,190,178	5,576,523,391
(4) Expected Investment Growth	257,151,614	206,002,939	463,154,553
(5) Valuation Assets, Total			
a. Book Value Excluding Stocks			3,589,708,510
b. Market Adjusted Stock Value 1/			2,766,610,623
c. Contribution Refunds Due			(5,139,234)
d. Total			6,351,179,899
(6) Actual Investment Growth (Item 5 less Item 3)			774,656,508
(7) Allocation of Item 6 in Proportion to Item 4	430,103,019	344,553,489	774,656,508
(8) Health Care Stabilization Fund	155,987,874	93,433,769	249,421,643
(9) 1/1/98 Valuation Assets (Item 3 plus Item 7 less Item 8)	$ 3,367,448,358	$2,734,309,898	$6,101,758,256

See footnote on next page.

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Table 6
(Continued)

1/ The Market Adjusted Stock Value is developed as follows:

	12/31/1994	12/31/1995	12/31/1996	12/31/1997	Total at 12/31/1997
1. Unrealized Gain/(Loss)					
a. Market Value of Stocks	$ 1,831,246,036	$ 2,688,991,450	$ 3,250,895,915	$ 3,747,063,544	$ 3,747,063,544
b. Book Value of Stocks	1,611,504,222	2,035,502,034	2,244,646,226	2,460,807,477	
c. Cumulative Unrealized Gain/(Loss) (1.a-1.b)	219,741,814	653,489,416	1,006,249,689	1,286,256,067	
d. Annual Unrealized Gain/(Loss)	(116,454,243)	433,747,602	352,760,273	280,006,378	
2. Annual Realized Gain/(Loss) Reported by Fund	64,612,268	170,866,196	192,552,179	462,184,618	
3. Total Gain/(Loss) (1.d + 2)	(51,841,975)	604,613,798	545,312,452	742,190,996	1,840,275,271
4. Gain/(Loss) Phased-in					
a. Phased-in 12/31/1994	(12,960,494)	-	-	-	N/A
b. Phased-in 12/31/1995	(12,960,494)	151,153,450	-	-	N/A
c. Phased-in 12/31/1996	(12,960,494)	151,153,450	136,328,113	-	N/A
d. Phased-in 12/31/1997	(12,960,493)	151,153,450	136,328,113	185,547,749	460,068,819
e. Phased-in 12/31/1998	-	151,153,448	136,328,113	185,547,749	N/A
f. Phased-in 12/31/1999	-	-	136,328,113	185,547,749	N/A
g. Phased-in 12/31/2000	-	-	-	185,547,749	N/A
h. Total	(51,841,975)	604,613,798	545,312,452	742,190,996	N/A
5. Gain/(Loss) Reserved for Future Phase-in (4.e+4.f+4.g)	-	151,153,448	272,656,226	556,643,247	980,452,921
6. Market Adjusted Stock Value (1.a - 5)					$ 2,766,610,623