OHIO POLICE AND FIRE PENSION FUND

Actuarial Evaluation as of January 1, 2001

November 1, 2001

Watson Wyatt Worldwide

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November 1, 2001

Board of Trustees
Ohio Police and Fire Pension Fund
140 East Town Street
Columbus, Ohio 43215

Subject: 2001 Actuarial Evaluation

Gentlemen:

We are pleased to submit to you herewith our report presenting the results of the actuarial evaluation as of January 1, 2001. 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, 2000.

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 firefighters, 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 J 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 can be met, but this may require a decrease in the ultimate 8% employer-allocation to the Health Care Stabilization Fund. Investment performance, membership growth, and retirement patterns over the next five years will all be key factors in determining if the decrease is needed and how much it should be. This report and the Forecast Study can be used to satisfy the 2001 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 2001 evaluation has been based upon the Fund benefit provisions as in effect on January 1, 2001. 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 6.

(2) All actuarial assumptions are unchanged from the 2000 valuation. The method of amortizing the unfunded liability has been modified by assuming a continuously increasing payroll along with continuous payments throughout the year. A summary of the actuarial assumptions, the actuarial cost method and the asset valuation method is set forth in Table 7.

(3) The basic data used in the evaluation represent all active members, retirants and beneficiary-survivors covered by the Fund as of January 1, 2001. In total, 50,949 members were considered in the evaluation. A distribution of the coverage, by category, membership status and age, is set forth in various Table 5'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, 2001, has been developed as follows:

	Police	**Firefighters**	**Combined**
Member Normal Cost Rate	10.00%	10.00%	10.00%
Employer Normal Cost Rate	9.63%	10.09%	9.83%
Employer Health Care Rate	7.50%	7.50%	7.50%
Employer Amortization Rate	2.37%	6.41%	4.14%
	29.50%	34.00%	31.47%
Amortization Period (years)	infinite	7.07	29.49

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
Member – American Academy of Actuaries

Peter N Dorsey

Peter N. Dorsey
Associate - Society of Actuaries
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OHIO POLICE AND FIRE PENSION FUND

Actuarial Evaluation as of January 1, 2001

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OHIO POLICE AND FIRE PENSION FUND

Actuarial Evaluation as of January 1, 2001

A. PURPOSE

The Board of Trustees of the Ohio Police and Fire Pension Fund 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, 2001.

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's 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, 2001 membership data and upon the Annual Report and audited financial statements for the fiscal year ending December 31, 2000. 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. William J. Estabrook, Executive Director of the Fund. This information represented a complete census of members as of the valuation date and showed a total count of 50,949 members. A summary of the data is as follows:

	Police	Firefighters	Total
Actives & Rehired Retirants	15,778	12,158	27,936
Retirants & Inactives	9,213	7,153	16,366
Beneficiary-Survivors	3,719	2,928	6,647
Total	28,710	22,239	50,949

The total membership count of 50,949 compares to a membership of 50,031 individuals as of January 1, 2000, an increase of 1.8%.

The above counts, for both the current and prior year, represent counts of distinct benefits, which cause some individuals to be counted twice. In particular, spouses of deceased members may be counted as both beneficiaries of an optional annuity form and surviving spouses. Also, members counted as rehired retirants are also counted as retirants.

A compilation of the membership data, as of January 1, 2001, is contained in Tables 5(a) and 5(b) for police and firefighters, 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 38.4 and 11.5, respectively, for police, and 39.1 and 11.9 for firefighters; these measurements are unchanged from last year, except for a 0.1 increase in Police average age and a 0.1 reduction in firefighter average service. Also shown are the average annual salaries paid during the two prior years for each age group, and in total. For police, the total averages are $49,113 based on the 2001 data, and $47,241 based on the 2000 data, for an increase of 4.0%; for firefighters, the corresponding amounts are $49,459, $47,416 and 4.3%, respectively. The active member payroll as of January 1, 2001, shown in Table 1, Item B.2, is based on the Table 5 salaries paid during 2000, increased by the age-graded salary scale for one-half year.

The second pages of Tables 5(a) and 5(b) set forth the distribution of retirants by attained age group and sex as of January 1, 2001. 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 61.6 years for police and 64.2 years for firefighters, compared to 61.6 and 64.1, 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 $26,152 for police and $25,933 for firefighters. The corresponding averages last year were, respectively, $25,117 and $24,981. The total annual rate of pension for retired police as of January 1, 2001 of $238,352,384 represents an 7.4% increase over the rate of payout one year ago; similarly, the total annual rate of pension for retired firefighters as of January 1, 2001 of $184,355,777 represents a 6.1% increase over the rate of payout one year earlier.

The third pages of Tables 5(a) and 5(b) show the distribution of beneficiary-survivors by attained age group, as of the evaluation date. There are 2,911 surviving spouses of police and 2,336 surviving spouses of firefighters, compared to prior year amounts of 2,849 and 2,308, respectively. The average attained ages for surviving spouses are 71.5 for police and 74.0 for firefighters, compared to 71.5 and 73.9 one year ago. In addition, there are 509 police beneficiaries and 418 firefighter beneficiaries receiving optional benefit payments, compared to 473 police and 381 firefighter beneficiaries one year ago. These tables also show that there are 299 dependent children of police and 174 dependent children of firefighters receiving benefits as of the evaluation date.

Presented below is a reconciliation of the number of retirees and beneficiaries included in our January 1, 2000 and 2001 evaluations.

	Number at 1/1/2000	**Additions During Year**	**Deletions During Year**	**Number at 1/1/2001**
Police				
Retirants & Beneficiaries	12,467	798	432	12,853
Deferred Vested (inactive)	78	44	23	99
Total	12,545	842	455	12,932
Firefighters				
Retirants & Beneficiaries	9,807	591	361	10,037
Deferred Vested (inactive)	37	23	16	44
Total	9,844	614	377	10,081

The retirees and beneficiaries include children, parents and widows.

C. PLAN PROVISIONS

The basic provisions of the Ohio Police and Fire Pension Fund with respect to disability and pension benefits that are used in the January 1, 2001 valuation are summarized in Table 6. 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 changes to Plan provisions under HB 194 and HB 275 were first recognized in the 1999 valuation.

D. VALUATION ASSETS

The valuation assets have been based upon the "Comprehensive Annual Financial Report for the Year Ended December 31, 2000" and additional asset information which was furnished to us by the Fund.

Net assets for pension and health care benefits as of December 31, 2000 were $9.12 billion on a market value basis and $8.67 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		$355.1	$ 355.1
2.	Receivables		231.0	231.0
3.	Investments			
	a.	Bonds	1,227.7	1,220.2
	b.	Mortgages & Asset Backed Securities	889.1	888.2
	c.	Stocks	3,891.3	3,596.2
	d.	Real Estate	806.3	728.7
	e.	Commercial Mortgage Funds	127.5	130.0
	f.	Venture Capital	78.3	61.7
	g.	International Securities	1,675.6	1,620.4
	h.	Mortgage Note Receivables	12.7	12.7
	i.	Subtotal	8,708.5	8,258.1
4.	Fixed Assets		20.1	20.1
5.	Prepaid Expenses and Other		1.1	1.1
6.	Liabilities		(199.9)	(199.9)
7.	Net Assets		9,115.9	8,665.5

The net assets presented above include Local Funds Receivable of $53.0 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, 2001 value at 8.25% is $34.4 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 $8.5 million of contributions that have yet to be refunded to employees who terminated with less than 15 years of service.

This is the ninth 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 2001 valuation the gains/losses which occurred in 1997 – 2000 are being phased in.

The combined realized and unrealized gain/(loss) on stocks for 1997 was a gain of $742,190,996. The corresponding result for 1998 was a gain of $538,572,449; the result for 1999 was a gain of $1,010,896,513 and the result for 2000 was a loss of $(568,358,624). These gains/(losses) are phased-in at 25% per year, which means 75% of the 2000 loss, $(426,268,968), 50% of the 1999 gain, $505,448,257, and 25% of the 1998 gain, $134,643,113, are excluded from 2001 valuation assets. The resulting market-adjusted value is $5,353,107,271. A total of $213,822,402 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 firefighters. The fund is credited with retiree and beneficiary premiums, a portion of employer contributions and a pro rata portion of total fund investment performance. All medical expense payments, including Medicare premiums, are debited to the fund. The fund value as of December 31, 2000, is $184,335,360 for police and $92,397,446 for firefighters. After excluding this amount, the resulting valuation assets, rounded to the nearest thousand, are $8,463,666,000.

The allocation of the valuation assets between police and firefighters is developed in Table 4. 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 $4,613,640,000 for police and $3,850,026,000 for firefighters.

During 2000, the rate of return on valuation assets was approximately 7.48% (approximately (1.96)% on a market value basis). The calculation of this rate of return uses valuation assets under the 4-Year Market Adjustment method at both December 31, 1999 and December 31, 2000. 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 4, the expected growth in valuation assets due to investment performance, based on accrual basis contributions, benefit payments, and expenses, was $673.3 million (Item (4)) compared to actual growth of $610.7 million (item 6).

E. ACTUARIAL ASSUMPTIONS

A summary of the assumptions and a description of the actuarial cost method are presented in Table 7. All demographic and economic assumptions are the same as those used in the prior valuation.

As mandated by Senate Bill 82, the valuation uses the Entry Age Normal actuarial cost method. For purposes of developing the amortization period under the EAN method, payments are assumed to be made continuously throughout each year based on a payroll that continuously grows at an effective annual rate of 4%.

The normal cost includes a charge for administrative expenses and a credit for state subsidies. The estimated expenses and the actual subsidies are provided by Fund personnel. For 2001 the expense charge is $9,985,000 and the subsidy credit is $2,931,000. The net charge of $7,054,000 compares to a $2,538,000 net charge for 2000. The primary factor causing the net charge to increase was the large increase in the estimated non-investment expenses.

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

The increase during the past year in the average annual current salary of active members was, as noted above, 4.0% for police and 4.3% for firefighters. For comparison, the average salary is expected to increase by approximately 4.00%, the inflation component of the salary growth assumption.

F. EVALUATION RESULTS

Table 1 summarizes the January 1, 2001 evaluation. The results are presented separately for police and firefighters, as well as on a combined basis. In Section A of Table 1, we indicate the extent of the membership, by police and firefighters, for various categories. This section represents a summary compilation of the data breakdown shown in the various Table 5'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 in effect as of the valuation date. 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 9.63% for police, 10.09% for firefighters, and 9.83% 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 $5,397,690,000 for police and $4,108,593,000 for firefighters. Hence, the combined AAL is approximately $9.5 billion.

Section D presents the assets and Section E 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 $34,403,000. The schedule of future payments was provided by Fund personnel.

Finally, Section F develops the amortization period for the unfunded liability. The combined statutory rate is calculated by determining the payroll-weighted average of the police and firefighters statutory rates. The employer statutory rate is reduced by the 7.50% health care allocation and by the normal cost rate developed in Section B. The remaining rates, 2.37% for police, 6.41% for firefighters and 4.14% 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 firefighters combined is 29.49 years. For firefighters separately the period is 7.07 years. For police there is no period sufficient to amortize the unfunded liability with the available percentage of payroll.

Table 2 presents a summary of the funded status of pension liabilities as of January 1, 2001. The assets used for this purpose are identical to the valuation assets presented in Table 1, including the value of employer accrued liability payments. Funded status is measured for both actuarial liability and for present value of future benefits (PVFB).

The actuarial accrued liability is measured under the Entry Age Normal cost method and is the same liability measure as used for the determination of the amortization period. The present value of future benefits is independent of the cost method. The two liability measures differ only for active members. AAL reflects benefits earned to date, based on the allocation methodology of the cost method. Present value of future benefits considers the value of benefits expected to be paid, including those associated with future service. For an individual, PVFB equals AAL plus the present value of all future years' normal costs.

Section C of Table 2 presents the funded status of actuarial accrued liability. The valuation assets are sufficient to fund 89.39% of the AAL. Also presented is a funded status of 77.83% for active members. This is derived by first allocating assets to fully fund the AAL for retirants, beneficiaries, survivors and inactives, then comparing the remaining assets to active AAL.

The present value of future benefits is $11.8 billion, as shown in Section D. This is approximately $2.3 billion greater than the actuarial accrued liability. Section E indicates that the funded status for PVFB is 71.99%. Active member PFVB is considered to be 51.69% funded.

G. COMPARISON OF EVALUATION RESULTS WITH PREVIOUS YEAR

Table 3 sets forth a comparison of evaluation results for 2001 and 2000. Section A indicates that the number of active members has increased by only 3 for police and by 291 for firefighters. Also, the number of participants currently receiving benefits has increased by 387 for police and 237 for firefighters. As a percentage of total membership, 45.0% of police members are currently receiving benefits, compared to 44.3% last year; the corresponding percentages for firefighters are, respectively 45.3% and 45.3%.

Section B of Table 3 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 $17.3 million as a dollar amount (Item B.2), and increased by (0.31%) of payroll (Item C.2). Actuarial accrued liability (AAL) has increased by $510.7 million, which exceeds a $509.4 million increase in valuation assets. Hence, the unfunded liability has increased by $1.3 million.

As a percentage of payroll the unfunded liability has dropped from 75.23% to 71.63%. This percentage and the percentage of payroll available for amortization (the amortization rate) determine the amortization period.

The amortization rate has dropped from 4.67% of payroll to 4.14% of payroll. This is caused by the increase in the health care rate from 7.25% to 7.50%, and the increase in the normal cost rate. The amortization period has increased from 26.78 years to 29.49 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 88.81% in 2000 to 89.39% in 2001. Continuing improvement in funded status 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 valuation and recordkeeping purposes, of the assets used to pay health care benefits from those used to pay pension and disability benefits. The primary purpose of the HCSF is to allow for a pre-set health care cost, as a percentage of payroll, to be used in the valuation, as opposed to an expected actual cost ("pay-as-you-go" cost).

So, 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.

Based on the 1998 Forecast Study the HCSF allocation has been increased to 7.50% of payroll for 2001, and will gradually increase to 8.00% by 2003.

In addition to the employer contribution, the HCSF is also credited with retiree and survivor health care contributions, which were approximately $5.7 million for 2000, and with a proportional share of total Fund investment earnings. Credits for 1999 and prior years are based on an earnings assumption of 8.25% per annum. 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. In addition, the HCSF is debited with appropriate administrative expenses.

This 2001 valuation is the ninth to recognize the establishment of the HCSF. The balance in this fund as of December 31, 2000 is $276,732,806, 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 7.50% health care allocation 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 we present an analysis of the longevity of the HCSF.

I. DISPARITY OF STATUTORY RATES FOR POLICE AND FIREFIGHTERS

The statutory rates of 19.5% for police and 24.0% for firefighters 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 ten valuations, an adjustment should be made to eliminate the disparity between the police and firefighters statutory rates, and to ultimately enable both groups to satisfy the 30-year amortization period. As of January 1, 2001 firefighters already satisfy the requirement, with a period of 7.07 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 firefighter 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 firefighters 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 firefighters 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, 2001 is 29.49 years.

Based on the results of the 30-year forecast study dated April 10, 1998, the requirements of SB 82 will be met, provided that the Fund's investments return an annual average of 8.5%, before investment expenses, during the 30-year period and the Board continues to effectively manage net health care costs. Such management may include increasing member premiums or revising the health care benefits. The results of this valuation are, overall, somewhat less favorable than the expected results of the forecast. Specifically, unfunded actuarial accrued liability as a percentage of payroll is 71.63%, compared to 64.11% in the forecast, and the funded status of 89.39% compares to 91.01% from the forecast. In addition, asset performance during 2001 may result in valuation results for 2002 and later years which are more unfavorable when compared to the forecast. However, other factors such as growth in active membership, changes in retirement patterns and a possible capital market rebound could mitigate this effect. If this does not happen, it will be necessary to either allocate less to the Health Care Stabilization Fund in order to achieve the pension funding restrictions of SB 82 or determine new statutory rates.

* * * * * * *

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

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Member- American Academy of Actuaries

Table 1

OHIO POLICE AND FIRE PENSION FUND

Summary of Valuation Results as of January 1, 2001 1/

	Police	Firefighters	Combined
A. Membership Counts			
1. Active Members	15,702	12,131	27,833
2. Inactive Members	99	44	143
3. Rehired Retirants	76	27	103
4. Retirants	9,114	7,109	16,223
5. Beneficiaries & Survivors			
a. Surviving Spouses	2,911	2,336	5,247
b. Beneficiaries	509	418	927
c. Children	299	174	473
d. Subtotal	3,719	2,928	6,647
6. Total Membership	28,710	22,239	50,949
B. Normal Cost			
1. Dollar Normal Cost 2/	$ 149,366,000	$ 118,880,000	$ 268,246,000
2. Active Member Payroll	791,784,000	615,758,000	1,407,542,000
3. Normal Cost Rate 3/	19.63%	20.09%	19.83%
4. Member Rate	10.00%	10.00%	10.00%
5. Employer Normal Cost Rate	9.63%	10.09%	9.83%
C. Actuarial Accrued Liability			
1. Active Members	$ 2,537,485,000	$ 2,009,348,000	$ 4,546,833,000
2. Inactive Members	18,106,000	9,128,000	27,234,000
3. Rehired Retirants	2,805,000	1,045,000	3,850,000
4. Retirants	2,601,501,000	1,911,627,000	4,513,128,000
5. Beneficiaries & Survivors	237,793,000	177,445,000	415,238,000
6. Total	5,397,690,000	4,108,593,000	9,506,283,000
D. Assets			
1. Valuation Assets 4/	$ 4,613,640,000	$ 3,850,026,000	$ 8,463,666,000
2. Employer Accrued Liability 5/	18,697,000	15,706,000	34,403,000
3. Total	4,632,337,000	3,865,732,000	8,498,069,000
E. Unfunded Actuarial Accrued Liability (UAAL) (C.6 - D.3)	$ 765,353,000	$ 242,861,000	$ 1,008,214,000

Table 1
(continued)

	Police	Firefighters	Combined
F. Amortization of Unfunded Actuarial Accrued Liability			
1. Employer Contribution Rate			
a. Statutory Rate 6/	19.50%	24.00%	21.47%
b. Health Care Allocation	7.50%	7.50%	7.50%
c. Normal Cost Rate (B.5)	9.63%	10.09%	9.83%
d. UAAL Amortization Rate (F.1.a-F.1.b-F.1.c)	2.37%	6.41%	4.14%
2. UAAL as Percentage of Active Member Payroll (E÷B2)	96.66%	39.44%	71.63%
3. Amortization Period 3/ 7/	***** 8/	7.07	29.49

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 a charge of $9,985,000 for administrative expenses and a credit of $2,931,000 for State of Ohio subsidies.

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 statutory rates for police and firefighters.

7/ UAAL is amortized as a level percentage of payroll. Total payroll is assumed to grow continuously at a 4.00% effective annual rate. Contributions are assumed to be received throughout the year, based on payroll which grows throughout the year.

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

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Table 2

OHIO POLICE AND FIRE PENSION FUND

Summary of Funded Status as of January 1, 2001 1/

	Police	Firefighters	Combined
A. Assets			
1. Valuation Assets 4/	$ 4,613,640,000	$ 3,850,026,000	$ 8,463,666,000
2. Employer Accrued Liability 5/	18,697,000	15,706,000	34,403,000
3. Total	4,632,337,000	3,865,732,000	8,498,069,000
B. Actuarial Accrued Liability			
1. Active Members	$ 2,537,485,000	$ 2,009,348,000	$ 4,546,833,000
2. Inactive Members	18,106,000	9,128,000	27,234,000
3. Rehired Retirants	2,805,000	1,045,000	3,850,000
4. Retirants	2,601,501,000	1,911,627,000	4,513,128,000
5. Beneficiaries & Survivors	237,793,000	177,445,000	415,238,000
6. Total	5,397,690,000	4,108,593,000	9,506,283,000
C. Actuarial Accrued Liability Funded Status			
1. Active Members	69.84%	87.91%	77.83%
2. All Other Members	100.00%	100.00%	100.00%
3. Total	85.82%	94.09%	89.39%
D. Present Value of Future Benefits			
1. Active Members	$ 3,763,417,000	$ 3,082,356,000	$ 6,845,773,000
2. Inactive Members	18,106,000	9,128,000	27,234,000
3. Rehired Retirants	2,805,000	1,045,000	3,850,000
4. Retirants	2,601,501,000	1,911,627,000	4,513,128,000
5. Beneficiaries & Survivors	237,793,000	177,445,000	415,238,000
6. Total	6,623,622,000	5,181,601,000	11,805,223,000
E. Present Value of Future Benefits Funded Status			
1. Active Members	47.09%	57.31%	51.69%
2. All Other Members	100.00%	100.00%	100.00%
3. Total	69.94%	74.60%	71.99%

Table 3

OHIO POLICE AND FIRE PENSION FUND

Comparison of Evaluation Results for 2001 and 2000

	2001			2000			Variance		
	Police	**Firefighters**	**Total**	**Police**	**Firefighters**	**Total**	**Police**	**Firefighters**	**Total**
A. MEMBERSHIP									
1. Number of Active Members 1/	15,778	12,158	27,936	15,775	11,867	27,642	3	291	294
2. Number of Retirants, Inactives and Beneficiary-Survivors	12,932	10,081	23,013	12,545	9,844	22,389	387	237	624
3. Total Membership	28,710	22,239	50,949	28,320	21,711	50,031	390	528	918
B. ACTUARIAL VALUES, PAYROLL AND ASSETS (millions)									
1. Active Member Payroll	$ 791.8	$ 615.8	$ 1,407.6	$ 762.1	$ 576.4	$ 1,338.5	$ 29.7	$ 39.4	$ 69.1
2. Normal Cost	149.4	118.9	268.3	141.5	109.5	251.0	7.9	9.4	17.3
3. Actuarial Accrued Liability	5,397.7	4,108.6	9,506.3	5,119.7	3,875.9	8,995.6	278.0	232.7	510.7
4. Valuation Assets 2/	4,632.3	3,865.7	8,498.0	4,373.3	3,615.3	7,988.6	259.0	250.4	509.4
5. Unfunded Accrued Liability	765.4	242.9	1,008.3	746.4	260.6	1,007.0	19.0	(17.7)	1.3
6. UAL as percentage of Payroll	96.66%	39.44%	71.63%	97.94%	45.21%	75.23%	-1.27%	-5.77%	-3.60%
7. AAL Funded Status	85.82%	94.09%	89.39%	85.42%	93.28%	88.81%	0.40%	0.81%	0.58%
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	9.63	10.09	9.83	9.32	9.77	9.52	0.31	0.32	0.31
3. Employer Health Care Rate	7.50	7.50	7.50	7.25	7.25	7.25	0.25	0.25	0.25
4. Employer Amortization Rate	2.37	6.41	4.14	2.93	6.98	4.67	-0.56	-0.57	-0.53
5. Amortization Period	***** 3/	7.07	29.49	***** 3/	7.67	26.78	*****	-0.60	2.71

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.

Table 4

OHIO POLICE AND FIRE PENSION FUND

Development of Asset Allocation Between Police and Firefighters as of January 1, 2001

	Police	Firefighters	Total
(1) 1/1/2000 Valuation Assets			
a. Pension Valuation Assets	$ 4,330,425,314	$ 3,574,761,015	$ 7,905,186,329
b. Health Care Stabilization Fund	187,711,737	100,299,056	288,010,793
c. Total Valuation Assets	4,518,137,051	3,675,060,071	8,193,197,122
(2) Transactions during 2000			
a. Employer contributions	155,690,779	149,198,596	304,889,375
b. Net employee contributions	72,888,944	61,008,675	133,897,619
c. Retiree medical contributions	3,041,094	2,616,337	5,657,431
d. Local Funds receipts	37,817,763	38,884,266	76,702,029
e. Benefit payments and expenses	(325,560,947)	(259,048,034)	(584,608,981)
f. Total transactions	(56,122,367)	(7,340,160)	(63,462,527)
(3) Item 1(c) plus Item 2(f)	4,462,014,684	3,667,719,911	8,129,734,595
(4) Expected Investment Growth	370,431,259	302,889,674	673,320,933
(5) Valuation Assets, Total			
a. Book Value Excluding Stocks			3,395,821,159
b. Market Adjusted Stock Value 1/			5,353,107,271
c. Contribution Refunds Due			(8,529,840)
d. Total			8,740,398,590
(6) Actual Investment Growth (Item 5 less Item 3)			610,663,995
(7) Allocation of Item 6 in Proportion to Item 4	335,960,196	274,703,799	610,663,995
(8) Health Care Stabilization Fund	184,335,360	92,397,446	276,732,806
(9) 1/1/2001 Valuation Assets (Item 3 plus Item 7 less Item 8)	$ 4,613,639,520	$ 3,850,026,264	$ 8,463,665,784

See footnote on next page.

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Table 4
(Continued)

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

		12/31/1997	12/31/1998	12/31/1999	12/31/2000	Total at 12/31/2000
1.	Unrealized Gain/(Loss)					
	a. Market Value of Stocks	$ 3,747,063,544	$ 4,368,082,056	$ 5,392,697,642	$ 5,566,929,673	$ 5,566,929,673
	b. Book Value of Stocks	$ 2,460,807,477	3,870,179,111	4,228,688,670	5,216,570,384	
	c. Cumulative Unrealized Gain/(Loss) (1.a-1.b)	1,286,256,067	497,902,945	1,164,008,972	350,359,289	
	d. Annual Unrealized Gain/(Loss)	280,006,378	(788,353,122)	666,106,027	(813,649,683)	
2.	Annual Realized Gain/(Loss) Reported by Fund	462,184,618	1,326,925,571	344,790,486	245,291,059	
3.	Total Gain/(Loss) (1.d + 2)	742,190,996	538,572,449	1,010,896,513	(568,358,624)	1,723,301,334
4.	Gain/(Loss) Phased-in					
	a. Phased-in 12/31/1997	185,547,749	-	-	-	N/A
	b. Phased-in 12/31/1998	185,547,749	134,643,112	-	-	N/A
	c. Phased-in 12/31/1999	185,547,749	134,643,112	252,724,128	-	N/A
	d. Phased-in 12/31/2000	185,547,749	134,643,112	252,724,128	(142,089,656)	430,825,333
	e. Phased-in 12/31/2001	-	134,643,113	252,724,128	(142,089,656)	N/A
	f. Phased-in 12/31/2002	-	-	252,724,129	(142,089,656)	N/A
	g. Phased-in 12/31/2003	-	-	-	(142,089,656)	N/A
	h. Total	742,190,996	538,572,449	1,010,896,513	(568,358,624)	N/A
5.	Gain/(Loss) Reserved for Future Phase-in (4.e+4.f+4.g)	-	134,643,113	505,448,257	(426,268,968)	213,822,402
6.	Market Adjusted Stock Value (1.a - 5)					$ 5,353,107,271

Table 5(a)

OHIO POLICE AND FIRE PENSION FUND

Police

Distribution of Active Members by Attained Age Group and Length of Service as of January 1, 2001

(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 Paid During 2000	Average Annual Salary Paid During 1999
Under 25	342	(28)	-		-		-		-		-		-		342	(28)	$ 31,635	$ 30,581
25-29	1,784	(196)	301	(27)	1	(1)	-		-		-		-		2,086	(224)	$ 39,907	$ 38,065
30-34	1,498	(149)	1,813	(179)	370	(33)	1		-		-		-		3,682	(361)	$ 46,060	$ 44,445
35-39	460	(69)	953	(115)	1,370	(118)	244	(25)	1	(1)	-		-		3,028	(328)	$ 49,630	$ 47,776
40-44	135	(19)	305	(45)	655	(65)	898	(89)	360	(40)	4		-		2,357	(258)	$ 52,256	$ 50,655
45-49	74	(8)	133	(16)	247	(42)	510	(56)	1,050	(70)	306	(12)	2		2,322	(204)	$ 55,473	$ 53,290
50-54	37	(2)	59	(6)	95	(7)	157	(20)	385	(46)	479	(13)	139	(3)	1,351	(97)	$ 56,243	$ 54,222
55-59	10	-	14	(1)	24	(6)	37	(7)	50	(5)	99	(3)	171	(2)	405	(24)	$ 55,349	$ 53,920
60-64	5		6		11		11	(1)	4		6		53	(1)	96	(2)	$ 52,449	$ 50,370
65 & Over	4		3		-		2		-		2		22		33	-	$ 55,394	$ 53,103
Total	4,349	(471)	3,587	(389)	2,773	(272)	1,860	(198)	1,850	(162)	896	(28)	387	(6)	15,702	(1,526)	$ 49,113	$ 47,241

	January 1, 2001	January 1, 2000
Average Attained Age	38.4	38.3
Average Credited Service	11.5	11.5

1/ Includes 890 members hired in 2000.

M:\OHP&F\DB\GENL\VAL\01\[ValTbl01.xls]Table 5(a)

Table 5(a)
(Continued)

Police

Distribution of Retirants by Attained Age Group and Sex as of January 1, 2001

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, 2001 (6)	Annual Rate of Pension 1/ As of January 1, 2000 (7)
Under 40	67	23	90	1.0%	$ 1,726,128	$ 1,329,759
40-44	133	31	164	1.8%	3,540,011	3,645,965
45-49	457	47	504	5.5%	12,540,166	12,142,733
50-54	1,694	54	1,748	19.2%	53,013,543	49,453,455
55-59	1,880	26	1,906	20.9%	57,836,607	54,564,284
60-64	1,459	14	1,473	16.2%	42,634,779	37,759,121
65-69	1,003	13	1,016	11.1%	25,080,031	24,035,067
70-74	1,059	8	1,067	11.7%	22,520,374	21,508,419
75-79	677	7	684	7.5%	12,238,247	10,824,060
80-84	271	7	278	3.1%	4,448,508	4,224,329
85-89	140	3	143	1.6%	2,174,817	1,882,875
90 & Over	41	-	41	0.4%	599,173	485,544
TOTAL	8,881	233	9,114	100.0%	$ 238,352,384	$ 221,855,611

Average Attained Age	Males	Females	Total
January 1, 2001	61.8	52.9	61.6
January 1, 2000	61.7	53.6	61.6

Average Annual Benefit	
January 1, 2001	$26,152
January 1, 2000	$25,117

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

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Table 5(a)
(Continued)

Police

Distribution of Beneficiary-Survivors by Attained Age Group as of January 1, 2001

Attained Age Group (1)	Number Receiving Benefits (2)	Col. (2) as % of TOTAL (3)
A. SURVIVING SPOUSES 1/		
Under 40	42	1.4%
40 - 44	51	1.7%
45 - 49	98	3.4%
50 - 54	157	5.4%
55 - 59	214	7.3%
60 - 64	255	8.8%
65 - 69	349	12.0%
70 - 74	500	17.2%
75 - 79	463	15.9%
80 - 84	357	12.3%
85 - 89	255	8.8%
90 & Over	170	5.8%
TOTAL	2,911	100.0%
Average Attained Age	71.5	
B. BENEFICIARIES RECEIVING OPTIONS		
Under 35	7	1.4%
35 - 39	6	1.2%
40 - 44	9	1.8%
45 - 49	22	4.3%
50 - 54	41	8.0%
55 - 59	52	10.2%
60 - 64	77	15.1%
65 - 69	77	15.1%
70 - 74	112	22.0%
75 - 79	67	13.2%
80 - 84	34	6.7%
85 - 89	4	0.8%
90 & Over	1	0.2%
TOTAL	509	100.0%
C. CHILDREN	299	

1/ Includes dependent parents.

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Table 5(b)

OHIO POLICE AND FIRE PENSION FUND

Firefighters

Distribution of Active Members by Attained Age Group and Length of Service as of January 1, 2001

(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 Paid During 2000	Average Annual Salary Paid During 1999
Under 25	318	(10)	-		-		-		-		-		-		318	(10)	$ 32,936	$ 32,886
25-29	1,156	(40)	189	(2)	1		-		-		-		-		1,346	(42)	$ 39,457	$ 38,335
30-34	1,026	(36)	936	(14)	297	(5)	3		-		-		-		2,262	(55)	$ 44,957	$ 43,550
35-39	447	(26)	845	(18)	950	(23)	258	(6)	12		-		-		2,512	(73)	$ 49,278	$ 46,973
40-44	189	(25)	329	(8)	696	(23)	768	(13)	351	(2)	4	(1)	-		2,337	(72)	$ 52,794	$ 50,518
45-49	52	(3)	119	(4)	224	(6)	568	(11)	759		211		2		1,935	(24)	$ 55,239	$ 52,365
50-54	21	(3)	29		82	(3)	125	(3)	373	(1)	385		77		1,092	(10)	$ 56,442	$ 53,597
55-59	7	(1)	10		13	(1)	20		37	(1)	79		96		262	(3)	$ 58,097	$ 55,025
60-64	1		-		3	(1)	6		8		7		36		61	(1)	$ 58,366	$ 55,967
65 & Over	1		1		3		-		-		1		-		6	-	$ 39,288	$ 49,140
Total	3,218	(144)	2,458	(46)	2,269	(62)	1,748	(33)	1,540	(4)	687	(1)	211	(0)	12,131	(290)	$ 49,459	$ 47,416

	January 1, 2001	January 1, 2000
Average Attained Age	39.1	39.1
Average Credited Service	11.9	12.0

1/ Includes 647 members hired in 2000.

Table 5(b)
(Continued)

Firefighters

Distribution of Retirants by Attained Age Group and Sex as of January 1, 2001

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, 2001 (6)	Annual Rate of Pension 1/ As of January 1, 2000 (7)
Under 40	29	2	31	0.4%	$ 598,236	$ 572,427
40-44	77	6	83	1.2%	1,801,468	1,719,146
45-49	225	6	231	3.3%	5,779,117	5,261,510
50-54	953	3	956	13.5%	28,272,923	25,606,883
55-59	1,296	-	1,296	18.2%	40,007,062	40,182,872
60-64	1,212	-	1,212	17.0%	36,362,112	32,809,832
65-69	1,005	-	1,005	14.1%	26,198,665	25,708,803
70-74	1,170	-	1,170	16.5%	25,582,475	25,068,790
75-79	677	-	677	9.5%	12,728,318	10,001,719
80-84	258	-	258	3.6%	4,232,031	4,304,958
85-89	157	-	157	2.2%	2,308,860	2,037,919
90 & Over	33	-	33	0.5%	484,510	442,590
TOTAL	7,092	17	7,109	100.0%	$ 184,355,777	$ 173,717,449

Average Attained Age	Males	Females	Total
January 1, 2001	64.2	44.2	64.2
January 1, 2000	64.1	43.7	64.1

Average Annual Benefit	
January 1, 2001	$25,933
January 1, 2000	$24,981

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

Table 5(b)
(Continued)

Firefighters

Distribution of Beneficiary-Survivors by Attained Age Group as of January 1, 2001

Attained Age Group (1)	Number Receiving Benefits (2)	Col. (2) as % of TOTAL (3)
A. SURVIVING SPOUSES 1/		
Under 40	16	0.7%
40 - 44	30	1.3%
45 - 49	47	2.0%
50 - 54	77	3.3%
55 - 59	127	5.4%
60 - 64	161	6.9%
65 - 69	281	12.0%
70 - 74	422	18.1%
75 - 79	405	17.3%
80 - 84	368	15.8%
85 - 89	278	11.9%
90 & Over	124	5.3%
TOTAL	2,336	100.0%
Average Attained Age	74.0	
B. BENEFICIARIES RECEIVING OPTIONS		
Under 35	6	1.4%
35 - 39	3	0.7%
40 - 44	13	3.1%
45 - 49	9	2.2%
50 - 54	22	5.3%
55 - 59	38	9.1%
60 - 64	48	11.4%
65 - 69	71	17.0%
70 - 74	90	21.5%
75 - 79	71	17.0%
80 - 84	35	8.4%
85 - 89	10	2.4%
90 & Over	2	0.5%
TOTAL	418	99.9%
C. CHILDREN	174	

1/ Includes dependent parents.

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Table 6

OHIO POLICE AND FIRE PENSION FUND
Description of Benefits Under Statewide Plan in Effect on January 1, 2001
(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.

Table 6
(Continued)

(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. Average annual salary means one-third of the total salary during the three years for which the total earnings were greatest.

5. Presumptive 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 60% 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.

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.

Table 6
(Continued)

(b) Benefit:	Commencing at age 48 plus 25 years from full-time hire date, whichever is later; an annual pension equal to 1.5% of the average annual salary multiplied by the number of full years of service. Average annual salary means one-third of the total salary during the three years for which the total earnings were greatest.

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 $6,600, payable during the spouse's lifetime. The benefit will be subject to an increase each July 1, beginning at July 1, 2000. The increase will be a percentage of the original benefit amount, equaling the percentage increase in the CPI plus unused prior increases, to a maximum of 3%. Effective July 1, 2000: $6,745.20
	(ii) Surviving Children - An annual amount equal to $1,800, 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 $1,800 will continue beyond age 18 up to age 22 while child is a full-time student.
	(iii) Dependent Parents - An annual amount of $2,400 to one dependent parent or $1,200 each to two dependent parents, during their lifetime or until dependency ceases or until remarriage, provided that the deceased member leaves no surviving spouse or surviving children.

Table 6
(Continued)

9. Pre-retirement Surviving Spouse Benefit

(a) Eligibility: Upon death before retirement but after having satisfied the requirements for normal service or age service commuted 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.

Table 6
(Continued)

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, 1999, the minimum annual pension for current retirees with 25 or more years of service is $6,600, excluding those with escalating benefits.

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%. Effective July 1, 2000 the $18,000 (indexed) limit is removed.

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. Effective July 1, 2001 these contributions are revised, with total contributions designed to equal 6% of gross health care costs.

Table 6
(Continued)

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.

Table 7

OHIO POLICE AND FIRE 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	Firefighter
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	Firefighter
25	.032100	.010674
30	.022530	.008650
35	.018580	.007568
40	.013325	.005845
45	.009219	.004235
50	.009688	.006715

Table 7
(Continued)

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

The benefit percentage for on duty partial disabilities is assumed to be 60%, or the accrued percentage if higher.

Table 7
(Continued)

(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		Firefighter	
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

Table 7
(Continued)

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

Table 7
(Continued)

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

Table 7

(Continued)

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 (same rates as for surviving spouse), but no specific allowance for change in dependency status.
E. Marital Status:	Retiree married percentage is assumed to be 85% at the valuation date, declining via spouse mortality rates thereafter. Active member married percentage is assumed to be 85% at decrement, declining via spouse mortality rates thereafter. Female spouses are assumed to be three years younger than male members. Male spouses are assumed to be three years older than female members.
F. Number of Dependent Children:	Each member is assumed to have two children, born when the member was age 26. Dependency is assumed to cease when the child is 22.
G. 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%.

Table 7
(Continued)

H. 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.
I. State Subsidy Credit:	The subsidy received from the State of Ohio during the valuation year is an offset to the Normal Cost.
J. Actuarial Cost Method:	The version of the Entry Age Normal Actuarial Cost Method referred to as "Fund-to-Decrement" has been used. This is a method under which the actuarial present value of each projected benefit of each participant included in the actuarial valuation is allocated on a level percentage of pay basis over the time period 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 by assuming continuous amortization payments during a year based on continuously increasing payroll at an effective rate of 4%. The employer accrued liability was determined for each separate police and firefighter'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 7
(Continued)

K. 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 market adjusted stock value may be held to within a 15% corridor about the market value, depending on the Fund's assessment of the need to reserve for potential future market declines.

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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