THE REPORT OF THE ANNUAL ACTUARIAL VALUATION OF THE OHIO STATE HIGHWAY PATROL RETIREMENT SYSTEM

December 31, 200[illegible]

Gabriel Roeder Smith & Company

TABLE OF CONTENTS

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GABRIEL, ROEDER, SMITH & COMPANY

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August 13, 2002

The Retirement Board
Ohio State Highway Patrol Retirement System
Columbus, Ohio

Ladies and Gentlemen:

The results of the regular annual **actuarial valuation as of December 31, 2001** of the Ohio State Highway Patrol Retirement System, as established by Chapter 5505 of the Revised Code, are presented in this report.

Your Executive Director furnished the member statistical data required for the valuation, together with pertinent data on financial operations. Data was reviewed for reasonableness, but was not audited by the actuary. The actuarial assumptions used in making the valuation are shown in Section F of this report.

Your attention is directed particularly to the summary of results on pages 2, 3 and 4.

The actuarial calculations were performed in accordance with accepted actuarial procedures. The calculations were based upon provisions of the Retirement System described in Section A and upon actuarial assumptions that are internally consistent and reasonably based upon the actual experience of the System.

The cooperation of the Executive Director in furnishing materials requested for this valuation, and the complete and excellent condition of the records, is acknowledged with appreciation.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

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528

SUMMARY

Valuations performed as of odd-numbered years (1999, 2001, 2003...) form the basis for employer contribution rates, which are effective over two-year periods. Valuations performed as of even-numbered years are intended to provide interim measures of the funding status of the Retirement System.

The employer contribution rate for the two-year period beginning July 1, 2001 was determined in accordance with the December 31, 1999 valuation. The employer contribution rate for the two-year period beginning July 1, 2003 is to be determined in accordance with this December 31, 2001 valuation.

The **total employer contribution rate** for the two-year period beginning July 1, 2001 was 23.50%, and the employee rate was 9.5%. Continuation of those rates, combined with a continuation of the previous asset valuation method would result in an amortization period of 25 years in this valuation. This action would, however, involve recognizing assets that exceed market value by $90 Million. At that difference, together with likely investment losses in 2002 phasing into the recognized assets, HPRS' stated financial position would be likely to erode rapidly. Consequently, we have recommended and incorporated in this report a restatement of the asset valuation method to prevent market value and funding value of assets differing from each other by more than 12% in either direction. This leads to an amortization period of 37 years based upon the present contribution rates. In order to restore financial balance, we further recommend an increase in the employer rate to 24.50% from the current 23.50% and an increase in the employee rate to 10% of pay from the current 9.5%. The breakdown between employer, employee, pension and health is shown below. This breakdown produces an amortization period of 31 years.

	Employer Contribution Rates Expressed As % of Active Payroll		
	Retirement, Survivor & Disability Allowances	**Post Retirement Health Care**	**Total**
Employer	18.75%	5.75%	24.50%
Employee	10.00%	0.00 %	10.00%
Total	28.75%	5.75%	34.50%

DECEMBER 31, 2001
SUMMARY

Experience during the year ended December 31 was unfavorable. Investment return was once again disappointing. Retiree health costs continued to escalate. Details are shown in Section C.

The funding value of assets is higher than the market value of assets as of December 31, 2001. This is a result of unfavorable experience in the investment market in 1998, 1999, 2000, and 2001. An adjustment was made to the asset valuation method to prevent the difference between funding value and market value of assets from exceeding 12%. Please see page D-3.

Non-investment net cash flow is declining (please see page D-3) and has been negative since 1998. This means that the Retirement System has reached the point wherein a portion of investment return is needed to pay benefits. Eventually, about 3.3% of assets are expected to be needed to pay benefits each year. This is a normal and expected condition.

This valuation indicates that an employer contribution rate of 24.50% with an employee rate of 10.0% is reasonable and provides a margin for potential adverse experience. It is, however, important for HPRS, as well as for most other retirement systems in the country, that the investment markets return to more normal levels, and that health care costs begin to moderate. Unless these things happen in the near future, the amortization period could be at the 40 or 50-year level within a short time, leading to increasing pressure for contribution rate increases or other action.

Conclusion: Based upon the results of the December 31, 2001 regular annual actuarial valuation, it is our opinion that the Ohio State Highway Patrol Retirement System is in sound condition in accordance with actuarial principles of level-cost financing.

Comment on Post Retirement Health Care:

Liabilities are now greater than assets in the Post Retirement Health Care Program. The System experienced a short period of time where the opposite had been true – assets exceeded liabilities. However, for the last few years benefit costs have increased faster than assumed under valuation assumptions. This has caused liabilities to grow faster than assets and resulted in the unfunded status we see now. In viewing experience in the health and Medicare program, it is important to bear in mind a key underlying assumption:

> *It is assumed that benefits will be periodically adjusted so that per capita costs increase no faster than average salaries (4.5% a year).*

In recent years, per capita costs increased much more than 4.5% and this assumption has not been met. GRS recommends an increase in the contribution rate for Post Retirement Health and Medicare for July 1, 2003 and later to 5.75% of payroll. However, even this increase will not be sufficient to fund the health plan in the long run, unless unit cost increases moderate soon.

Recommendation: The following reserve transfers are recommended as of December 31, 2001:

Transfer To (From)	Total Amount
Pension Reserve Fund:	$43,204,492
Survivor Benefit Fund:	3,493,298
Total	$46,697,790

The reserve funds from which the transfers are made are determined as follows: First, the accumulated contributions of members who retired or died with survivor benefits payable prior to January 1, 2002 should be transferred from the Employee's Savings Fund if this has not already been done. The remainder of the transfer should then be taken from the Income Fund or the Employer's Accumulation Fund, as the Board deems appropriate. The purpose of these transfers is to ensure that all pension benefits that have come into pay status since January 1, 1966 are fully funded by the appropriate reserve funds. Benefits effective prior to January 1, 1966 represent a closed group and are paid from the Employer's Accumulation fund.

Section A

Retirement, Survivor, and Disability Allowances

Retirement, Survivor, and Disability Allowances
Benefits and Conditions Valued
December 31, 2001

Age & Service Pension: A member may retire at age 52 to age 55, provided he has 20 or more years of service, or at age 48 with 25 or more years of contributing service. The member's pension equals the sum of 2-1/2% of final average salary (average of salaries during highest 3 years) times years of service not in excess of 20, 2-1/4% of final average salary times years of service in excess of 20 but not in excess of 25 and 2% of final average salary times years of service in excess of 25. The maximum pension payable is 79.25% of the member's final average salary. A member must retire upon attainment of age 55 or completion of 20 years of service, whichever occurs later.

Reduced Retirement: A member who has acquired at least 20 but less than 25 years of service and is between the ages of 48 and 52 is eligible to receive a Pension computed in the same manner as an Age & Service pension but reduced as follows:

Age	Percent of Age & Service Pension
48	75%
49	80
50	86
51	93
52	100

Deferred Pension: A member who has acquired 20 years of service and retires is eligible to receive a pension computed in the same manner as an Age & Service Pension at the attainment of age 52. A reduced benefit is payable if the retirant elects to receive a benefit after age 48 and prior to age 52. The reduction is waived for members with 25 or more years of service. A member, who has acquired 15 years of service and who voluntarily resigns or is discharged, is eligible to receive a pension equal to 1-1/2% of final average salary multiplied by total service. The pension shall begin the first month after attainment of age 55, provided the member does not withdraw his accumulated contributions from the employees' savings fund.

(Continued on Next Page)

Disability Pension:

A. **On-Duty:** A member who is permanently disabled with a duty-related injury is eligible to receive a pension that is the largest of (I) 61.25% of average final salary, or (ii) the Age & Service Pension.

B. **Off-Duty:** A member who is permanently disabled with a non-duty related injury or illness is eligible to receive a pension that is the larger of (I) 50% of average annual salary, or (ii) the Age & Service Pension.

Survivor's Benefits: The spouse of a deceased retirant (other than a deferred retirant) is eligible to receive a pension of $900 a month, or 50% of the computed monthly pension the retirant was receiving, whichever is greater. The surviving spouse of an active member or of a deferred retirant who *was not* yet eligible for an immediate pension benefit is eligible to receive a pension of $900 per month. The surviving spouse of an active member or of a deferred retirant who *was* eligible for an immediate pension benefit is eligible to receive $900 per month or 50% of the immediate benefit for which the retiree was eligible, whichever is greater. The benefit terminates upon death. Each surviving child of a deceased member or retirant is eligible for a pension of $150 a month until attainment of age 18, marriage, or death. The benefit may be continued to age 23 if the child is a full-time student. Each surviving child regardless of age, who was totally dependent upon the deceased member or retirant at his death because of physical or mental disability is eligible to receive a pension of $150 per month until his death or recovery from the disability. If there is no spouse or surviving children, each dependent parent is eligible to receive a pension of $154 a month. Additionally, a $5,000 lump sum benefit is payable upon the death of the retirant.

(Concluded on Next Page)

RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES
BENEFITS AND CONDITIONS VALUED
DECEMBER 31, 2001
(CONCLUDED)

Minimum Benefit: All members who retired with an Age & Service Pension or Disability Benefit are eligible to receive a minimum benefit of $1,050 per month.

Members' Contributions to the Fund: Members contribute 9.5% of salary to the employees' savings fund. It is being recommended that the member contribution rate increase to 10% for the 2 year period beginning July 1, 2003. A member who leaves the employ of the State Highway Patrol before a benefit is payable may withdraw the accumulated contributions, without interest, in lieu of any other system provided benefit.

State Contributions: The state contributes the remaining amount necessary to finance the Retirement System on an actuarial basis. By statute, the state's contribution rate can be neither less than the member contribution rate, nor more than three times the member rate.

Post-Retirement Increases: The basic benefit for all retirants is increased by 3 percent each year after age 53. The retirant must have also been receiving monthly benefits for at least twelve months. Benefit recipients receiving survivor benefits are eligible for the increase after receiving benefits for twelve months. Benefit recipients receiving disability benefits are eligible for the increase after receiving benefits for sixty months or age 53 whichever occurs first.

SAMPLE BENEFIT COMPUTATION FOR MEMBERS

Assumed data in connection with this sample retirement is shown below:

	Data	Description
A.	$40,000	Final Average Compensation
B.	27	Years of Credited Service
C.	50	Age of Retirant
D.	50%	Percentage to continue to spouse after retirant's death (this is automatic)

Sample Computation Steps

E. Benefit Formula:

0.0250 x 20 x $40,000 =	$20,000
0.0225 x 5 x $40,000 =	$4,500
0.0200 x 2 x $40,000 =	$1,600
	$26,100

Benefit payable to:

F. Retirant while spouse is alive (E)	$26,100
G. Spouse after retirant's death (D x E)	$13,050
H. Retirant after spouse's death (E)	$26,100

Projected Benefits to Member

Year Ended December 31	Amount Payable
2002	$ 26,100
2003	26,100
2004	26,100
2005	26,883
2006	27,666
2007	28,449
2008	29,232
2009	30,015
2010	30,798

Benefits for years 2011 and later increase by $783 over the previous year's amount.

RETIREMENT SURVIVOR & DISABILITY ALLOWANCES
COMPUTED EMPLOYER CONTRIBUTIONS TO SUPPORT BENEFITS

Contributions for	Contributions Expressed as Percents of Payroll	
	2001	**2000**
Normal Cost:		
Age & service benefits	18.48%	18.44%
Disability benefits	2.98%	2.97%
Survivor benefits	0.27%	0.28%
Separation benefits	0.81%	0.81%
Purchase of Military Service	0.60%	0.60%
Total Normal Cost	23.14%	23.10%
Less Member Contributions	10.0%	9.50%
Employer Current Cost	13.14%	13.60%
Unfunded Actuarial Accrued Liabilities	5.61%	5.15%
	31 years #	8 years #
EMPLOYER CONTRIBUTION RATE IN EFFECT	18.75%	18.75%

\# *This is the period of years over which the 18.75% employer contribution rate and the 10.0% employee contribution rate will finance the unfunded liabilities.*

RETIREMENT, SURVIVOR, & DISABILITY ALLOWANCES
METHOD OF FINANCING FUTURE BENEFITS FOR PRESENT ACTIVE MEMBERS
DECEMBER 31, 2001

Normal cost and the allocation of present values between service rendered before and after the valuation date were determined using an individual entry-age actuarial cost method having the following characteristics:

(i) The annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;

(ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Actuarial Accrued Liabilities, $636,715,458, less pension assets of $551,279,438 resulted in unfunded actuarial accrued liabilities of $85,436,020, which were amortized as a level percent of payroll over a period of 31 years. The characteristics of this method are illustrated on the following page. Actuarial accrued liabilities represent the portion of present values not covered by future normal cost contributions.

RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES FINANCING UNFUNDED ACTUARIAL ACCRUED LIABILITIES WHICH WERE CALCULATED USING AN INFLATION ASSUMPTION OF 4.50% AND AN INVESTMENT RETURN ASSUMPTION OF 8.00% COMPOUNDED ANNUALLY

Level % of Payroll Amortization: Closed Amortization Completed in 31 Years ($ Thousands)

Year	Active Employee Payroll	Unfunded Actuarial Accrued Liability	Annual Contributions Dollars	Annual Contributions % of Payroll	UAAL as % of Payroll
1	$ 79,779	$ 85,436	$ 4,476	5.61%	107.1%
2	83,369	87,620	4,677	5.61%	105.1%
3	87,121	89,769	4,887	5.61%	103.0%
4	91,041	91,871	5,107	5.61%	100.9%
5	95,138	93,913	5,337	5.61%	98.7%
6	99,419	95,879	5,577	5.61%	96.4%
7	103,893	97,753	5,828	5.61%	94.1%
8	108,568	99,516	6,091	5.61%	91.7%
9	113,454	101,148	6,365	5.61%	89.2%
10	118,559	102,625	6,651	5.61%	86.6%
11	123,894	103,923	6,950	5.61%	83.9%
12	129,469	105,014	7,263	5.61%	81.1%
13	135,295	105,867	7,590	5.61%	78.2%
14	141,383	106,449	7,932	5.61%	75.3%
15	147,745	106,722	8,288	5.61%	72.2%
16	154,394	106,646	8,662	5.61%	69.1%
17	161,342	106,176	9,051	5.61%	65.8%
18	168,602	105,264	9,459	5.61%	62.4%
19	176,189	103,855	9,884	5.61%	58.9%
20	184,118	101,891	10,329	5.61%	55.3%
21	192,403	99,308	10,794	5.61%	51.6%
22	201,061	96,035	11,280	5.61%	47.8%
23	210,109	91,996	11,787	5.61%	43.8%
24	219,564	87,106	12,318	5.61%	39.7%
25	229,444	81,274	12,872	5.61%	35.4%
26	239,769	74,399	13,451	5.61%	31.0%
27	250,559	66,372	14,056	5.61%	26.5%
28	261,834	57,074	14,689	5.61%	21.8%
29	273,617	46,375	15,350	5.61%	16.9%
30	285,930	34,133	16,041	5.61%	11.9%
31	298,797	20,194	16,763	5.61%	6.8%

Retirement, Survivor, and Disability Allowances
Actuarial Present Value of Future Benefits
Present Retired Lives and Vested Deferred Cases
December 31, 2001

Benefits Payable	Number	Monthly Amount	Actuarial Value
From Employer Accumulation Fund:			
Regular Retirements Effective Before 1/1/66	7	$ 8,875	$ 456,802
Disability Retirements Effective Before 1/1/66	0	0	0
Total Benefits Payable from Employer Accumulation Fund	7	8,875	456,802
From Pension Reserve Fund:			
Regular Retirements Effective After 1/1/66	872	2,082,128	322,267,108
Disability Retirements Effective After 1/1/66	73	144,855	23,342,486
Total Benefits Payable from Pension Reserve Fund	945	2,226,983	345,609,594
From Survivor Benefit Fund:			
Surviving Spouses, Dependent Children & Dependent Parents	255	224,450	26,497,308
Total Benefits Payable from Survivor Benefit Fund	255	224,450	26,497,308
Total Retirement Benefits Payable	1,207	2,460,308	372,563,704
Total Vested Deferred Benefits Payable	7	12,514	1,664,657
Grand Total	**1,214**	**$2,472,822**	**$374,228,361**

Retirement, Survivor, and Disability Allowances
Development of Actuarial Accrued Liabilities
December 31, 2001

Actuarial Present Value, December 31, of	(1) Total Actuarial Present Value	(2) Portion Covered By Future Normal Cost Contributions	(3) Actuarial Accrued Liabilities (1) - (2)
Age & service allowances based on service rendered before and likely to be rendered after valuation date	$ 415,896,775	$ 161,383,204	$ 254,513,571
Disability allowances likely to be paid to present active members who become totally and permanently disabled	31,578,133	25,261,579	6,316,554
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	2,891,158	2,047,890	843,268
Separation benefits (refunds of contributions and deferred allowances likely to be paid on behalf of present active members)	7,520,951	6,707,247	813,704
Retirement benefits likely to be paid to current retirants and beneficiaries and to present inactive members	374,228,361	0	374,228,361
Total	$ 832,115,378	$ 195,399,920	$ 636,715,458
Member portion	155,209,593	84,217,254	70,992,339
Employer portion	$ 676,905,785	$ 111,182,666	$ 565,723,119

RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES
SUMMARY STATEMENT OF SYSTEM RESOURCES AND OBLIGATIONS
DECEMBER 31, 2001

PRESENT RESOURCES AND EXPECTED FUTURE RESOURCES

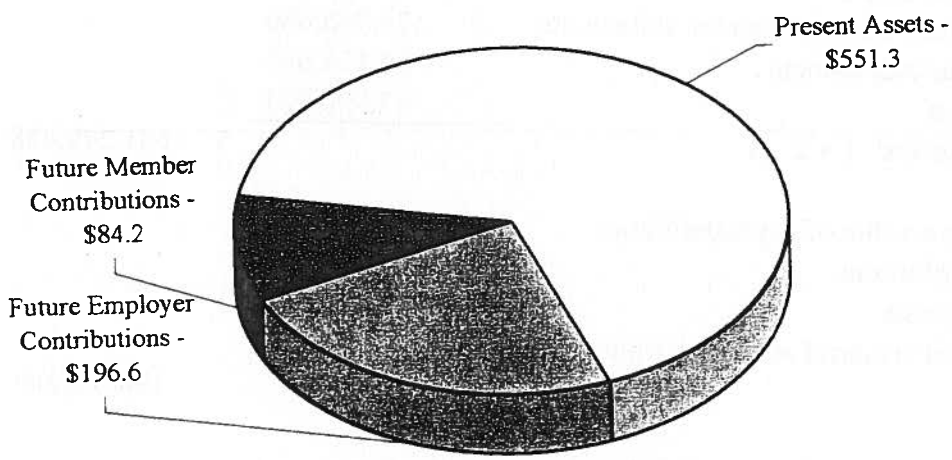
A. Present valuation assets		
1. Net assets from system financial statements	$ 575,955,680	
2. Market Value Adjustment	69,114,682	
3. Health Assets	93,790,924	
4. Valuation Assets: 1 + 2 - 3		$ 551,279,438
B. Actuarial present value of expected future Employer contributions		
1. For normal costs	111,182,666	
2. For unfunded actuarial accrued liability	85,436,020	
3. Total		196,618,686
C. Actuarial present value of expected future member contributions		84,217,254
D. Total Present and Expected Future Resources		$ 832,115,378

ACTUARIAL PRESENT VALUE OF EXPECTED FUTURE BENEFIT PAYMENTS

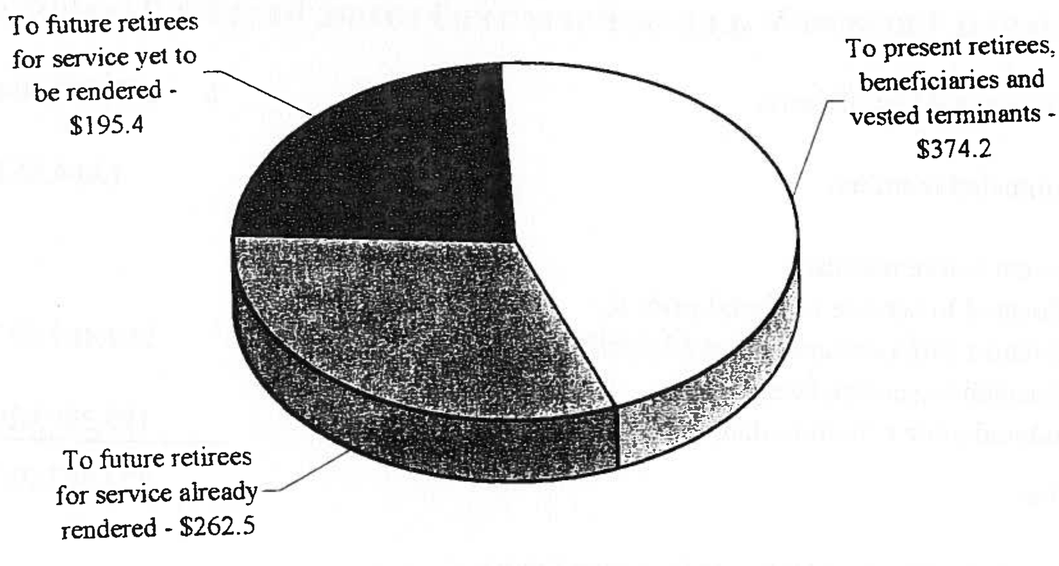
To retirants and beneficiaries	$ 372,563,704
To terminated members	1,664,657
To present active members	
1. Allocated to service rendered prior to valuation date (actuarial accrued liability)	262,487,097
2. Allocated to service likely to be rendered after valuation date	195,399,920
3. Total	457,887,017
Total Actuarial Present Value of Expected Future Benefit Payments	$ 832,115,378

RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES
FINANCING $832.1 MILLION OF BENEFIT PROMISES
DECEMBER 31, 2001

Sources of Funds



Uses of Funds



RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES
COMPARATIVE STATEMENT

Valuation Date December 31	No.	Annual Payroll	Actuarial Accrued Liabilities			Unfunded/ Payroll	% Funded	Funding Years
			Total	Funded	Unfunded			
1981*	1,233	$ 23,539,234	$ 100,958,424	$ 48,882,571	$ 52,075,853	2.2	48.4%	38
1983	1,268	30,234,935	126,574,898	68,611,335	57,963,563	1.9	54.2%	36
1984	1,260	32,020,914	138,345,430	82,245,573	56,099,857	1.8	59.4%	35
1985#	1,239	32,500,428	156,744,406	95,256,847	61,487,559	1.9	60.8%	32
1986	1,252	34,757,277	170,004,551	117,782,868	52,221,683	1.5	69.3%	33
1987*#	1,255	39,938,921	200,011,697	137,241,942	62,769,755	1.6	68.6%	32
1988	1,260	40,674,634	214,162,666	158,657,067	55,505,599	1.4	74.1%	30
1989	1,265	43,053,057	239,028,444	166,190,394	72,838,050	1.7	69.5%	30
1990*#	1,301	45,679,355	261,623,337	188,239,168	73,384,169	1.6	72.0%	30
1991	1,326	48,488,406	289,223,978	222,109,351	67,114,627	1.4	76.8%	23
1992	1,371	50,235,996	309,272,482	258,609,387	50,663,095	1.0	83.6%	18
1993*	1,467	55,781,585	351,456,425	297,050,305	54,406,120	1.0	84.5%	22
1994	1,465	58,116,787	378,058,385	330,787,044	47,271,341	0.8	87.5%	16
1994#	1,465	58,116,787	374,006,767	330,787,044	43,219,723	0.7	88.4%	12
1995	1,455	59,825,356	402,450,332	370,425,462	32,024,870	0.5	92.0%	8
1995*#	1,455	59,825,356	424,351,694	370,425,462	53,926,232	0.9	87.3%	21
1996	1,375	59,239,349	454,514,187	411,316,254	43,197,933	0.7	90.5%	16
1997	1,445	62,233,299	487,392,406	460,667,112	26,725,294	0.4	94.5%	9
1997*	1,445	62,233,299	496,917,335	460,667,112	36,250,223	0.6	92.7%	17
1998	1,446	65,153,864	532,956,745	509,859,924	23,096,821	0.4	95.7%	10
1999	1,445	66,017,381	564,672,560	546,510,779	18,161,781	0.3	96.8%	7
1999*	1,445	66,017,381	577,010,085	546,510,779	30,499,306	0.5	94.7%	20
2000	1,489	69,028,285	607,411,320	551,279,438	56,131,882	0.8	90.8%	26
2000#	1,489	69,028,285	594,222,603	570,039,631	24,182,972	0.4	95.9%	8
2001	1,520	76,344,002	636,715,458	551,279,438	85,436,020	1.1	86.6%	31

* *Plan amended* # *Revised actuarial assumptions or methods.*

While no one or two numeric indices can fully describe the financial condition of a retirement plan, ***the ratio of unfunded actuarial accrued liabilities to active member payroll ("Unfunded/Payroll" above) is significant***. Unfunded actuarial accrued liabilities represent a kind of debt, while active member payroll represents the Plan's capacity to collect contributions to pay toward debt --- thus ***the ratio is a relative index of condition***. ***The lower the ratio, the greater the financial strength***. And vice-versa.

CHANGES IN AVERAGE PAY

Year	Number of Members	Total Payroll	Average Pay	% Change from Prior Year in Average Pay	N.A.E.+	CPI
1988	1,260	$40,674,634	$32,281	1.4%	4.9%	4.4%
1989	1,265	43,053,057	34,034	5.4%	4.0%	4.6%
1990	1,301	45,679,355	35,111	3.2%	4.6%	6.2%
1991	1,326	48,488,406	36,567	4.1%	3.7%	3.0%
1992	1,371	50,235,996	36,642	0.2%	5.2%	3.0%
1993	1,467	55,781,585	38,024	3.8%	0.9%	2.7%
1994	1,465	58,116,787	39,670	4.3%	2.7%	2.7%
1995	1,455	59,825,356	41,117	3.6%	4.0%	2.6%
1996	1,375	59,239,349	43,083	4.8%	4.9%	3.3%
1997	1,445	62,233,299	43,068	(0.0)%	5.8%	1.7%
1998	1,446	65,153,864	45,058	4.6%	5.2%	3.4%
1999	1,445	66,017,381	45,687	1.4%	5.6%	2.7%
2000	1,489	69,028,285	46,359	1.5%	5.5%	3.4%
2001	1,520	76,344,002	50,226	8.3%	4.7% *	1.6%
		10 Year Average		3.2%	4.4%	2.7%

\+ *National Average Earnings published by the Social Security Administration.*
* *Estimated National Average Earnings published by the Social Security Administration.*

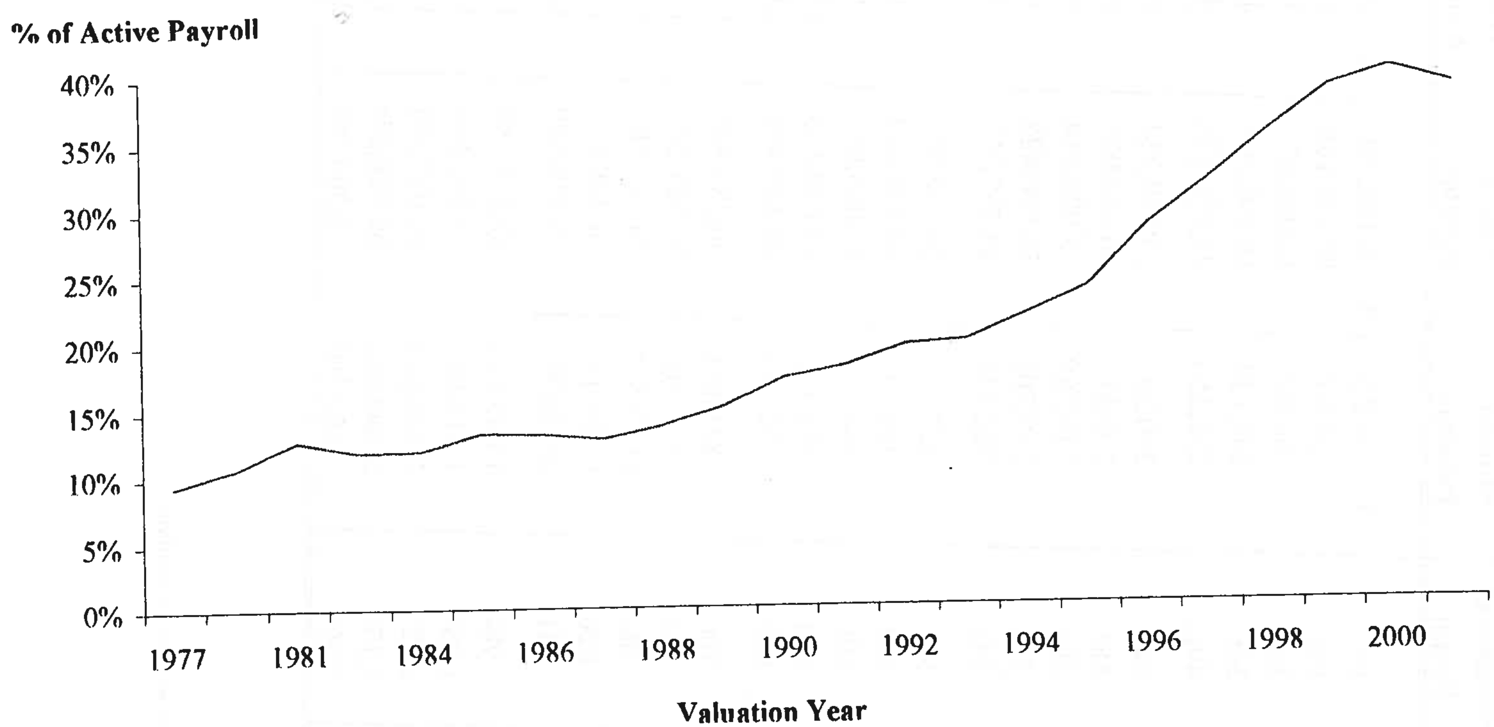
Over long periods of time, the change in average pay is an approximate measure of the impact of inflation and "Across the Board" pay increases on member pays. In years when the number of members decreases, the change in average pay may tend to be greater than actual pay increases experienced by members. In years when the number of members increases (1997 and 2000 were examples) the change in average pay may tend to be less than actual pay increases experienced by members.

Retirement, Survivor, and Disability Benefits in Pay Status
Comparative Statement

Valuation Date December 31	Number of People	Monthly Pensions	Active Payroll	Average Amount	% of Active Member Pays
1965	141	$ 34,824	$ 6,103,740	$ 247	6.8%
1970(6/30)#	193	54,607	10,223,188	283	6.4%
1974#*	288	96,045	16,942,378	333	6.8%
1977*	346	148,133	18,995,363	428	9.4%
1979#	402	191,356	21,558,774	476	10.7%
1981*	445	250,287	23,539,234	562	12.8%
1983	488	299,519	30,234,935	614	11.9%
1984	504	319,789	32,020,914	634	12.0%
1985#	530	359,208	32,500,428	678	13.3%
1986	544	382,419	34,757,277	702	13.2%
1987*#	558	427,132	39,938,921	765	12.8%
1988	575	466,519	40,674,634	811	13.8%
1989	599	544,631	43,053,057	909	15.2%
1990*#	654	660,112	45,679,355	1,009	17.3%
1991	675	732,576	48,488,406	1,085	18.1%
1992	706	819,869	50,235,996	1,161	19.6%
1993*	723	927,168	55,781,585	1,282	19.9%
1994#	764	1,057,577	58,116,787	1,384	21.8%
1995*#	826	1,184,405	59,825,356	1,434	23.8%
1996	911	1,402,909	59,239,349	1,540	28.4%
1997*	984	1,645,613	62,233,299	1,672	31.7%
1998	1,060	1,914,091	65,153,864	1,806	35.3%
1999*	1,123	2,123,471	66,017,381	1,891	38.6%
2000#	1,174	2,300,464	69,028,285	1,960	40.0%
2001	1,207	2,460,308	76,344,002	2,038	38.7%

* *Plan amended.*
\# *Revised actuarial assumptions or methods.*

Retirement, Survivor, and Disability Allowances Being Paid Expressed as a % of Active Member Payroll December 31, 2001



SHORT-TERM SOLVENCY TEST

The HPRS financing objective is to pay for the benefits through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the system are level in concept and soundly executed, the system will *pay all promised benefits when due – the ultimate test of financial soundness.*

Short-term solvency test is one means of checking a system's progress under its funding program. In a short-term solvency test, the plan's present assets (cash and investments) are compared with: 1) Active member contributions on deposit; 2) The liabilities for future benefits to present retired lives; 3) The liabilities for service already rendered by active members. In a system that has been following the discipline of level percent financing, the liabilities for active member contributions on deposit (1) and the liabilities for future benefits to present retired lives (2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (3) will be partially covered by the remainder of present assets. Generally, if the system has been using level cost financing, the funded portion of column 3 will increase over time.

Accrued Liabilities and Assets Allocated to Retirement, Survivor, and Disability Allowances

Val'n Year	(1) Active Member Contributions	(2) Retirants, Beneficiaries & Vested Deferreds	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Covered By Reported Assets (1)	(2)	(3)
1990*#	$33,450,086	$99,323,100	$128,850,151	$188,239,168	100%	100%	43%
1991	37,105,492	108,596,896	143,521,590	222,109,351	100%	100%	53%
1992	40,347,533	120,178,654	148,746,295	258,609,387	100%	100%	66%
1993*	44,494,424	137,111,461	169,850,540	297,050,305	100%	100%	68%
1994#	47,947,979	156,363,745	169,695,043	330,787,044	100%	100%	75%
1995	50,547,938	176,541,660	175,360,734	370,425,462	100%	100%	82%
1995*	50,547,938	187,922,028	189,287,398	370,425,462	100%	100%	70%
1995*#	50,547,938	189,010,261	184,793,495	370,425,462	100%	100%	71%
1996	52,297,873	218,164,080	184,052,234	411,316,254	100%	100%	77%
1997	53,264,614	256,268,302	177,859,490	460,667,112	100%	100%	85%
1997*	53,264,614	260,095,357	183,557,364	460,667,112	100%	100%	80%
1998	53,797,385	291,066,407	188,092,953	509,859,924	100%	100%	88%
1999	55,558,145	325,395,987	183,718,428	546,510,779	100%	100%	90%
1999*	55,558,145	333,340,728	188,111,212	546,510,779	100%	100%	84%
2000	59,455,707	360,125,257	187,830,356	551,279,438	100%	100%	70%
2000#	59,455,707	358,422,165	176,344,731	570,039,631	100%	100%	86%
2001	63,969,216	374,228,361	198,517,881	551,279,438	100%	100%	57%

* *Plan amendment.*
\# *Assumption or method change.*

SUMMARY OF UNFUNDED ACCRUED LIABILITIES

Each time a new benefit is added which applies to service already rendered, an "unfunded accrued liability" is created. Also, if actual financial experiences are less favorable than assumed financial experiences, the difference is added to unfunded accrued liabilities.

In an inflationary economy, the value of the dollar is decreasing. This environment results in employee pays increasing in dollar amounts resulting in unfunded accrued liabilities increasing in dollar amounts, all at a time when the actual substance of these items may be decreasing. Looking at just dollar amounts of unfunded accrued liabilities can be misleading. Unfunded accrued liabilities divided by active employee payroll provides an index, which aids understanding. The smaller ratio of unfunded liabilities to active member payroll, the stronger the system. Observation of this relative index over a period of years will give an indication of whether the system is becoming financially stronger or weaker.

Summary of Assets and Actuarial Accrued Liabilities for Retirement, Survivor, and Disability Allowances

Valuation Year	Actuarial Accrued Liability (AAL)	Valuation Assets	Unfunded Actuarial Accrued Liability (UAAL)	Ratio of Assets to AAL	Active Member Payroll	UAAL as a % of Active Member Payroll
1990*#	$261,623,337	$188,239,168	$73,384,169	72.0%	45,679,355	160.7%
1991	289,223,978	222,109,351	67,114,627	76.8%	48,488,406	138.4%
1992	309,272,482	258,609,387	50,663,095	83.6%	50,235,996	100.9%
1993*	351,456,425	297,050,535	54,405,890	84.5%	55,781,585	97.5%
1994#	374,006,767	330,787,044	43,219,723	88.4%	58,116,787	74.4%
1995	402,450,332	370,425,462	32,024,870	92.0%	59,825,356	53.5%
1995*	427,757,364	370,425,462	57,331,902	86.6%	59,825,356	95.8%
1995*#	424,351,694	370,425,462	53,926,232	87.3%	59,825,356	90.1%
1996	454,514,187	411,316,254	43,197,933	90.5%	59,239,349	72.9%
1997	487,392,406	460,667,112	26,725,294	94.5%	62,233,299	42.9%
1997*	496,917,335	460,667,112	36,250,223	92.7%	62,233,299	58.2%
1998	532,956,745	509,859,924	23,096,821	95.7%	65,153,864	35.4%
1999	564,672,560	546,510,779	18,161,781	96.8%	66,017,381	27.5%
1999*	577,010,085	546,510,779	30,499,306	94.7%	66,017,381	46.2%
2000	607,411,320	570,039,631	37,371,689	93.8%	69,028,285	54.1%
2000#	594,222,603	570,039,631	24,182,972	95.9%	69,028,285	35.0%
2001	636,715,458	551,279,438	85,436,020	86.6%	76,344,002	111.9%

* *Plan amendment.*
\# *Assumption or method change.*

The figures on this page do not include liabilities and assets related to post-retirement Health Care and Medicare reimbursement.

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Year Ended December 31	Actual Contribution	Percent of Required Contributed
1992	$12,312,378	100%
1993	13,405,126	100%
1994	14,329,203	100%
1995	13,889,107	100%
1996	14,706,925	100%
1997	14,779,887	100%
1998	15,788,189	100%
1999	16,353,264	100%
2000	16,556,770	100%
2001	17,422,978	100%

The Board adopted all contribution rates as recommended by the Actuary.

The amounts reported in this schedule include contributions for post-employment Health Care benefits.

Section B

Post-Retirement Health Care and Medicare Reimbursement

Post-Retirement Health Care and Medicare Reimbursement Provisions Evaluated and/or Considered

Benefits Provided

Since July 1, 1974, the Retirement System has made Health Care available for every benefit recipient and eligible dependents under a hospitalization and health care policy administered by Aetna Life & Casualty Company and Medical Mutual of Ohio. This Plan is secondary to Medicare or any other Health Care coverage. Each year the Board establishes participant premium rates, any necessary co-payments for the retirant, spouse, or dependent children, and any other changes in plan design for the following calendar year. The premium for 2002 applicable to spouses under age 65 is $40 per month. The dependent child premium is $25 per family.

Basic Plan coverage provides for payment of 100% of all reasonable and customary hospital expenses. All hospital admissions must be pre-certified 14 days prior to an elective admission. Emergency confinements require notification within 48 hours following admission. If a covered person is in a network area, he or she must use a preferred provider for the maximum benefit.

All other medical expenses are covered at the rate of 80% of reasonable and customary charges.

Designated surgical procedures require a second opinion. Also designated outpatient procedures must be pre-certified. For in-network activity, the annual out-of-pocket maximum is $750 per individual or $1,500 per family (out of network amounts are $3,000 and $6,000, respectively). Each covered person under the age of 65 must meet a $100 annual deductible. Each covered person over 65 must meet a $25 annual deductible. The maximum lifetime benefit is $1,000,000 per person. If the covered person is in a network area and uses non-network providers, the annual deductible for the individual is $400.

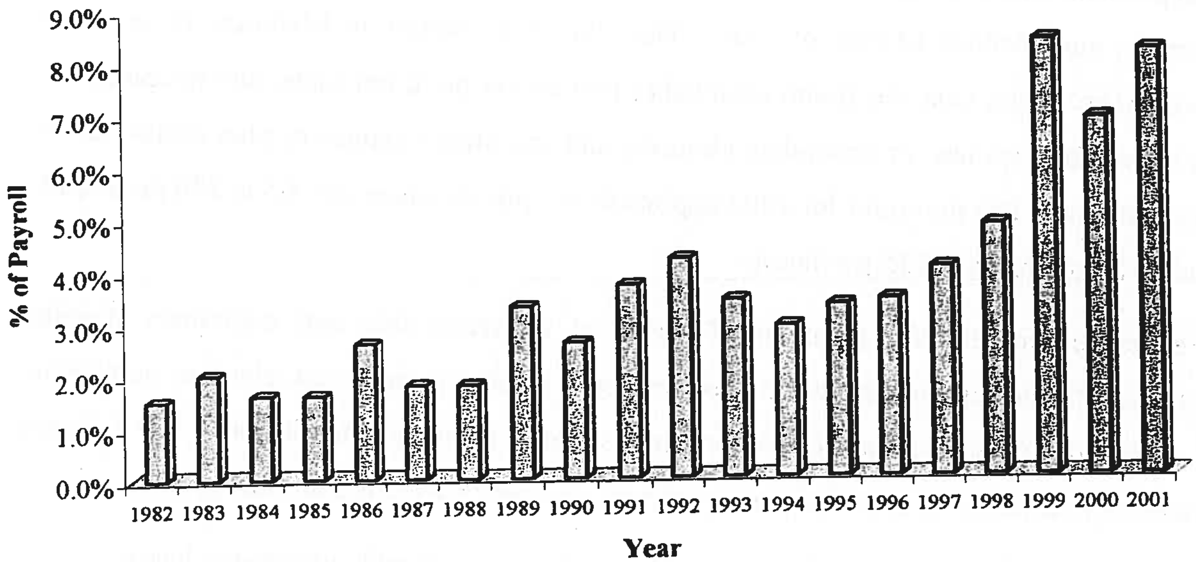
A mail-order prescription drug plan is also available. Each prescription submitted via mail order requires a co-payment of $5.00 for generic, $10.00 for brand and $25.00 for non formulary for up to a 90-day supply. Drugs purchased retail/over-the-counter have a co-payment of $5.00 for generic, $10.00 for brand and $25.00 for non formulary for up to a 34 day supply.

Administration: The medical program is administered by the AETNA and Medical Mutual of Ohio for hospital-medical-surgical coverage and by Medco for mail order prescription drug coverage.

Stop Loss Coverage: The program is fully self-insured and stop loss coverage is maintained.

Medicare Premiums: The Medicare Part B (no cap) basic premium amount is reimbursed to eligible benefit recipients upon proof of coverage.

Historical Trend of Employer Paid Amounts



Year	Covered Lives	Employer Paid Amount for: Med. B. Reimb.	Hosp. Med. Surg.	Presc. Drugs	Adjustment	Total	Per Covered Life	Payroll	% of Payroll
1985	697	$ 28,272	$ 427,361	$ 60,015		$ 515,648	$ 740	$ 32,500,428	1.6%
1986	715	30,457	787,245	80,911		898,613	1,257	34,757,277	2.6%
1987	731	38,037	559,832	115,544		713,413	976	39,938,912	1.8%
1988	761	57,461	522,747	145,847		726,055	954	40,674,634	1.8%
1989	810	77,869	1,043,650	186,795	$ 97,864	1,406,178	1,736	43,053,057	3.3%
1990	925	77,363	1,009,153	213,716	(94,251)	1,205,981	1,304	45,679,355	2.6%
1991	976	86,740	1,267,327	251,004	180,583	1,785,654	1,830	48,488,406	3.7%
1992	1,045	97,117	1,643,276	298,493	76,046	2,114,932	2,024	50,235,996	4.2%
1993	1,081	118,109	1,553,628	299,410	(90,525)	1,880,622	1,740	55,781,585	3.4%
1994	1,133	141,384	1,239,008	320,360	3,314	1,704,066	1,504	58,116,787	2.9%
1995	1,225	149,440	1,512,523	364,096	(66,834)	1,959,225	1,599	59,825,356	3.3%
1996	1,379	155,769	1,353,932	491,525	21,382	2,022,608	1,467	59,239,349	3.4%
1997	1,499	166,743	1,623,640	849,321	(140,526)	2,499,178	1,667	62,233,299	4.0%
1998	1,602	171,223	2,147,334	1,122,248	(311,917)	3,128,888	1,953	65,153,864	4.8%
1999	1,772	197,606	3,315,914	1,364,990	619,894	5,498,404	3,103	66,017,381	8.3%
2000	1,848	203,157	3,190,885	1,684,300	(358,082)	4,720,260	2,554	69,028,285	6.8%
2001	1,900	231,045	3,730,167	1,960,825	257,059	6,179,096	3,252	76,344,002	8.1%

ASSUMPTIONS FOR HEALTH CARE COVERAGES
DECEMBER 31, 2001

Development of Health Care Rates: Based on the 2001 retired life data, the HPRS portion of the total health care rates was developed as follows:

	HPRS Monthly Rates			
	This Year			Prior Year
	Gross Rate	Member Paid	Net Rate	Net Rate
A. One person without Medicare	$316.86	$0.00	$316.86	$277.43
B. One person with Medicare*	188.19	0.00	188.19	164.77
C. Two persons without Medicare	633.72	40.00	593.72	514.86
D. Two persons with Medicare*	376.38	0.00	376.38	329.54
E. Child	188.19	25.00	163.19	139.77
F. Medicare Part B Reimbursement	54.00	0.00	54.00	50.00

The above rates are estimates that are suitable for the purpose of this valuation. Use of the above rates for any other purpose would require review.

* *Does not include Medicare Part B monthly premium of $54.00.*

Ohio HPRS First Year Projection of Health Care Claims Cost Based on 5 Year Averages

	Claims				Population	Medical	Price		
Year	Gross	Member	Net	Enrollees	Adjusted	CPI	Adjusted	Weight	Recognized
1997	$ 2,721,603	$ 222,425	$ 2,499,178	1,499	$ 3,167,737	234.6	$ 3,683,541	0.00	$ -
1998	3,364,513	235,625	3,128,888	1,602	3,710,916	242.1	4,181,486	0.10	418,149
1999	5,715,039	216,635	5,498,404	1,772	5,895,580	250.6	6,417,854	0.20	1,283,571
2000	4,958,835	238,575	4,720,260	1,848	4,853,081	260.8	5,076,382	0.30	1,522,915
2001	6,428,951	249,855	6,179,096	1,900	6,179,096	272.8	6,179,096	0.40	2,471,638
Base for coming year								Recognized:	$ 5,696,273
							Growth Factors:	Population	1.061
								Price	1.158
Target first year projected claims								First Year Projection:	$ 6,998,657
								Increase (decrease) over actual net:	13.3 %

ASSUMPTIONS FOR HEALTH CARE COVERAGES
DECEMBER 31, 2001
(CONCLUDED)

Eligibility for Medicare Coverage: All benefit recipients were assumed to be eligible for Medicare on attainment of age 65.

Health Care Inflation: Health Care inflation was assumed to equal wage inflation in the long term. Short-term assumptions are described on page B-6.

POST-RETIREMENT HEALTH PREMIUM AND MEDICARE REIMBURSEMENT SELECTION OF ASSUMPTIONS DECEMBER 31, 2001

In order to prepare actuarial studies of the coverages, it is necessary to make assumptions regarding future events such as:

1. When people will retire and how long people will live after retirement.
2. Whether or not people will quit employment prior to eligibility for a benefit.
3. Whether or not people will die in service or become disabled.
4. Rates of Investment Return and pay increases.
5. The proportion of retirees electing coverage for a spouse after retirement.
6. Rates of increase in health care premium.
7. Effect of managed care program on future claims.

Regarding items 1 through 4, the assumptions from the regular December 31, 2001 valuations were used. It was assumed that eligible retirees would elect coverage under this program. It was further assumed that 90% of males and 50% of females who retire would elect coverage for a spouse at retirement, and that coverage would be available to surviving spouses of deceased retirees and active members.

The interest rate assumption (8.00%) was chosen by default to be the same rate used in the Pension Plan valuations. The rates of pay growth used in the Retirement System valuations are 4.50% per year. Stability can only be achieved if the rate of increase in Health Care premiums is brought in line with the rate of growth of employee pays. Consequently, it was assumed that average Health Care cost increases would eventually stabilize at 4.50% per year. Higher or lower rates of increase could, however be possible for an extended period before that happens

POST-RETIREMENT HEALTH PREMIUM AND MEDICARE REIMBURSEMENT SELECTION OF ASSUMPTIONS DECEMBER 31, 2001

Three alternate assumptions for near term health care cost increases were considered and are shown below. A brief description of each of the alternate assumptions follows:

Alternate A (Valuation): The Alternate A assumption (upon which the liability calculation is based) assumes that benefits will be periodically adjusted so that the employer share of per capita costs would increase no faster than 4.50% per year. This may lead to some curtailment of benefits as the population ages.

Alternate B (Intermediate): In the middle of the range of probable conditions is the view that short-term Health Care trends will rise somewhat over the next few years before declining to the level of overall GDP growth.

Alternate C (Pessimistic): This scenario envisions poorer experience than the other two.

	Assumption Regarding Health Premium Increases		
Year	Alt. A Valuation	Alt. B Intermediate	Alt. C Pessimistic
2002	4.50%	12.00%	15.00%
2003	4.50%	11.50%	14.50%
2004	4.50%	11.00%	13.50%
2005	4.50%	10.50%	12.50%
2006	4.50%	10.00%	11.50%
2007	4.50%	9.50%	10.50%
2008	4.50%	9.00%	9.50%
2009	4.50%	8.50%	8.50%
2010	4.50%	8.00%	8.00%
2011	4.50%	7.00%	7.00%
2012	4.50%	6.00%	6.00%
2013	4.50%	4.50%	4.50%
2014	4.50%	4.50%	4.50%
2015	4.50%	4.50%	4.50%
2016 & Later	4.50%	4.50%	4.50%

Amortization periods for unfunded accrued health liabilities have been historically developed according to Alternate A above.

POST-RETIREMENT HEALTH CARE AND MEDICARE REIMBURSEMENT
PROJECTED BENEFITS
DECEMBER 31, 2001

Year Ended 12/31	Projected Benefits as % of Payroll		
	Alt. A Valuation	Alt. B Intermediate	Alt. C Pessimistic
2002	8.7%	8.7%	8.7%
2003	8.8%	9.4%	9.7%
2004	8.9%	10.2%	10.8%
2005	9.1%	11.0%	11.9%
2006	9.2%	11.9%	13.0%
2007	9.4%	12.7%	14.1%
2008	9.5%	13.5%	15.1%
2009	9.6%	14.2%	16.1%
2010	9.7%	14.9%	16.8%
2011	9.8%	15.5%	17.5%
2016	10.0%	16.5%	18.6%
2021	11.0%	18.2%	20.5%
2026	11.8%	19.4%	21.9%
2031	11.7%	19.4%	21.8%
2036	11.6%	19.1%	21.5%
2041	11.3%	18.7%	21.1%
2046	11.4%	18.9%	21.3%
2051	11.8%	19.4%	21.9%
2056	11.8%	19.4%	21.9%
2061	11.8%	19.4%	21.9%
2071	11.5%	19.0%	21.4%
2081	11.8%	19.5%	22.0%
2091	11.7%	19.3%	21.8%
2101	11.7%	19.2%	21.7%

POST-RETIREMENT HEALTH CARE AND MEDICARE REIMBURSEMENT VALUATION RESULTS
ALTERNATIVE A: HEALTH INFLATION 4.50% PER YEAR

Contributions for	Contributions Expressed as Percents of Payroll
Normal Cost	5.12%
Addition to Reserves	0.63%
Computed Employer Rate:	5.75%

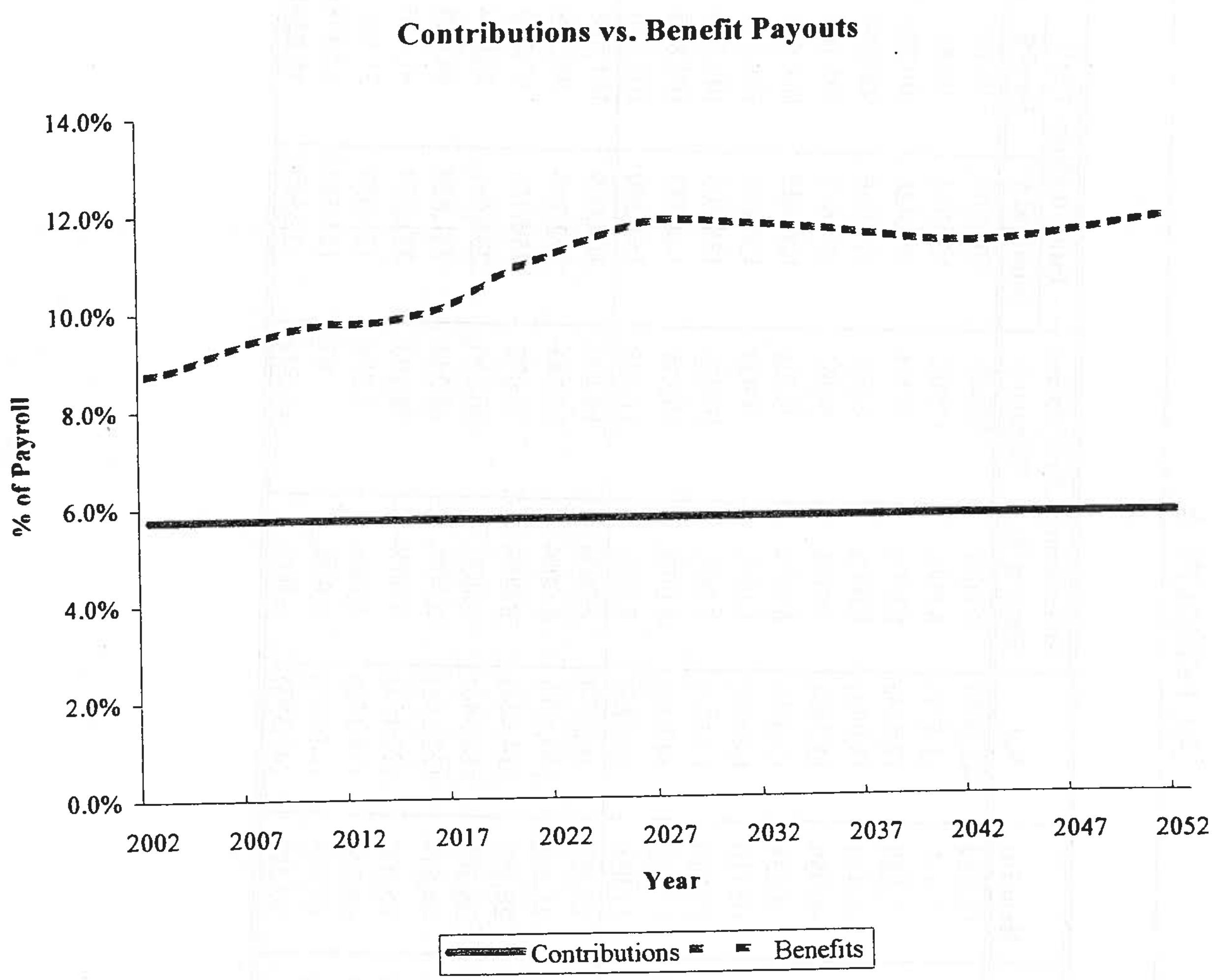
Accrued Health and Medicare Reimbursement Liabilities, $145,371,932 were more than applicable assets of $93,790,924. The next two pages show the expected development of the Health Care fund under Alternate A assumptions. These pages show that contributions are expected to fall short of benefits for the foreseeable future, and that the retiree health fund is unlikely to remain solvent indefinitely under present conditions.

In understanding the results on the next pages, readers should keep in mind the key assumption upon which they are based – namely that the employer share of health costs will not grow faster than the stated rate. As the population ages, it may become increasingly difficult for this assumption to be met. The importance of health care cost containment cannot be overemphasized.

POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT
CASH FLOW PROJECTION
HEALTH INFLATION: 4.50% PER YEAR
ALTERNATE A

Fiscal Year	Fund Balance BOY	Contributions	Benefits	Net	Investment Return %	Investment Return $	Fund Balance EOY		% of Payroll	
							Nominal $	Real $	Contrib.	Benefits
2002	$93,791	$4,604	$6,999	$(2,395)	8.00%	$7,409	$98,805	$98,805	5.75%	8.74%
2003	98,805	4,838	7,415	(2,577)	8.00%	7,803	104,031	99,551	5.75%	8.81%
2004	104,031	5,075	7,889	(2,814)	8.00%	8,211	109,428	100,206	5.75%	8.94%
2005	109,428	5,320	8,414	(3,094)	8.00%	8,632	114,966	100,744	5.75%	9.09%
2006	114,966	5,571	8,959	(3,388)	8.00%	9,063	120,641	101,165	5.75%	9.25%
2007	120,641	5,832	9,531	(3,699)	8.00%	9,505	126,447	101,468	5.75%	9.40%
2008	126,447	6,108	10,110	(4,002)	8.00%	9,958	132,403	101,672	5.75%	9.52%
2009	132,403	6,397	10,719	(4,322)	8.00%	10,422	138,503	101,776	5.75%	9.64%
2010	138,503	6,704	11,328	(4,624)	8.00%	10,898	144,777	101,805	5.75%	9.72%
2011	144,777	7,031	11,956	(4,925)	8.00%	11,388	151,240	101,770	5.75%	9.78%
2016	179,570	8,874	15,451	(6,577)	8.00%	14,106	187,099	101,028	5.75%	10.01%
2021	216,091	11,088	21,268	(10,180)	8.00%	16,885	222,796	96,538	5.75%	11.03%
2026	245,865	13,973	28,597	(14,624)	8.00%	19,092	250,333	87,042	5.75%	11.77%
2031	262,901	17,769	36,309	(18,540)	8.00%	20,300	264,661	73,844	5.75%	11.75%
2036	264,204	22,324	44,912	(22,588)	8.00%	20,244	261,860	58,629	5.75%	11.57%
2041	240,814	27,924	55,077	(27,153)	8.00%	18,193	231,854	41,656	5.75%	11.34%
2046	173,785	34,697	69,069	(34,372)	8.00%	12,546	151,959	21,908	5.75%	11.45%
2051	23,281	42,994	87,955	(44,961)	8.00%	87	(21,593)	(2,498)	5.75%	11.76%
2052	(21,593)	44,886	92,279	(47,393)	8.00%	(3,599)	(72,585)	(8,036)	5.75%	11.82%

CONTRIBUTIONS VS. BENEFIT PAYOUTS
VALUATION RESULTS
ALTERNATIVE A: HEALTH INFLATION 4.50% PER YEAR



Post-Retirement Health and Medicare Reimbursement Results with Alternate Health Inflation Assumptions December 31, 2001

Intermediate and Pessimistic assumption Alternates B and C were described on page B-6. For each assumption set, two questions are asked.

Question 1. How long will the Health Care fund remain solvent if the present employer contribution rate allocation, "Funding Level 1", is not changed?

Question 2. What is the lowest employer contribution rate, "Funding Level 2", that would maintain the solvency of the fund indefinitely?

The answers to these questions are summarized below. In reviewing the answers, it is important to keep in mind that the alternates are intended to be helpful in understanding the range of potential outcomes. They are not predictions.

	Funding Level 1 (Recommended Employer Rate)		Funding Level 2 (Lowest Employer Rate to Maintain Solvency of Fund Indefinitely)		
Assumption Set	**%**	**Fund Solvent Until**	**%**	**Fund Solvent Until**	**Prior Valuation %**
A (Valuation)	5.75%	2051	6.80%	Indefinitely	5.60%
B (Intermediate)	5.75%	2021	12.80%	Indefinitely	7.50%
C (Pessimistic)	5.75%	2018	14.80%	Indefinitely	9.60%

The above results show that

- Under the valuation assumptions, the employer rate will need to be raised prior to 2051 in order to maintain the solvency of the fund. The ultimate rate needed to support the plan would be 6.80% of payroll.

- Under the intermediate assumptions, the employer rate will need to be raised prior to 2021 in order to maintain the solvency of the fund. The ultimate rate needed to support the plan would be 12.80% of payroll if the increase were made today.

- Under the pessimistic assumptions, the employer rate will need to be raised prior to 2018 in order to maintain the solvency of the fund. The ultimate rate needed to support the plan would be 14.80% of payroll if the increase were made today.

The following pages show projected fund activity based upon Alternate Assumptions B and C, and Funding Levels 1 and 2.

POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT
CASH FLOW PROJECTION
INTERMEDIATE ASSUMPTIONS: B
FUNDING LEVEL 1

Fiscal Year	Fund Balance BOY	Contributions	Benefits	Net	Investment Return %	Investment Return $	Fund Balance EOY		% of Payroll	
							Nominal $	Real $	Contrib.	Benefits
2002	$93,791	$4,604	$6,999	$(2,395)	8.00%	$7,409	$98,805	$98,805	5.75%	8.74%
2003	98,805	4,838	7,947	(3,109)	8.00%	7,782	103,478	99,022	5.75%	9.45%
2004	103,478	5,075	9,021	(3,946)	8.00%	8,122	107,654	98,582	5.75%	10.22%
2005	107,654	5,320	10,221	(4,901)	8.00%	8,419	111,172	97,420	5.75%	11.05%
2006	111,172	5,571	11,507	(5,936)	8.00%	8,659	113,895	95,508	5.75%	11.88%
2007	113,895	5,832	12,887	(7,055)	8.00%	8,833	115,673	92,822	5.75%	12.70%
2008	115,673	6,108	14,323	(8,215)	8.00%	8,929	116,387	89,373	5.75%	13.48%
2009	116,387	6,397	15,840	(9,443)	8.00%	8,938	115,882	85,153	5.75%	14.24%
2010	115,882	6,704	17,380	(10,676)	8.00%	8,849	114,055	80,202	5.75%	14.91%
2011	114,055	7,031	18,958	(11,927)	8.00%	8,653	110,781	74,545	5.75%	15.50%
2016	84,071	8,874	25,447	(16,573)	8.00%	6,071	73,569	39,725	5.75%	16.49%
2017	73,569	9,280	27,024	(17,744)	8.00%	5,185	61,010	31,525	5.75%	16.74%
2018	61,010	9,695	28,902	(19,207)	8.00%	4,122	45,925	22,709	5.75%	17.14%
2019	45,925	10,127	30,970	(20,843)	8.00%	2,851	27,933	13,217	5.75%	17.58%
2020	27,933	10,587	33,047	(22,460)	8.00%	1,348	6,821	3,089	5.75%	17.95%
2021	6,821	11,088	35,027	(23,939)	8.00%	(400)	(17,518)	(7,591)	5.75%	18.16%
2022	(17,518)	11,614	37,184	(25,570)	8.00%	(2,411)	(45,499)	(18,866)	5.75%	18.41%

Funding Level 1 is the present contribution rate for post-retirement Health Care and Medicare reimbursement. The fund remains solvent until 2021 in this projection.

POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT
CASH FLOW PROJECTION
INTERMEDIATE ASSUMPTIONS: B
FUNDING LEVEL 2

Fiscal Year	Fund Balance BOY	Contributions	Benefits	Net	Investment Return %	Investment Return $	Fund Balance EOY		% of Payroll	
							Nominal $	Real $	Contrib.	Benefits
2002	$93,791	$10,248	$6,999	$3,249	8.00%	$7,632	$104,672	$104,672	12.80%	8.74%
2003	104,672	10,770	7,947	2,823	8.00%	8,485	115,980	110,986	12.80%	9.45%
2004	115,980	11,297	9,021	2,276	8.00%	9,368	127,624	116,869	12.80%	10.22%
2005	127,624	11,842	10,221	1,621	8.00%	10,274	139,519	122,260	12.80%	11.05%
2006	139,519	12,402	11,507	895	8.00%	11,197	151,611	127,135	12.80%	11.88%
2007	151,611	12,984	12,887	97	8.00%	12,133	163,841	131,474	12.80%	12.70%
2008	163,841	13,596	14,323	(727)	8.00%	13,079	176,193	135,298	12.80%	13.48%
2009	176,193	14,240	15,840	(1,600)	8.00%	14,032	188,625	138,607	12.80%	14.24%
2010	188,625	14,923	17,380	(2,457)	8.00%	14,993	201,161	141,453	12.80%	14.91%
2011	201,161	15,652	18,958	(3,306)	8.00%	15,962	213,817	143,878	12.80%	15.50%
2016	269,537	19,754	25,447	(5,693)	8.00%	21,338	285,182	153,991	12.80%	16.49%
2021	351,463	24,683	35,027	(10,344)	8.00%	27,709	368,828	159,814	12.80%	18.16%
2026	441,147	31,106	47,098	(15,992)	8.00%	34,660	459,815	159,879	12.80%	19.38%
2031	540,291	39,555	59,798	(20,243)	8.00%	42,424	562,472	156,938	12.80%	19.35%
2036	661,256	49,694	73,968	(24,274)	8.00%	51,942	688,924	154,247	12.80%	19.05%
2041	814,694	62,162	90,708	(28,546)	8.00%	64,048	850,196	152,751	12.80%	18.68%
2046	1,007,647	77,237	113,752	(36,515)	8.00%	79,170	1,050,302	151,425	12.80%	18.85%
2051	1,231,249	95,708	144,857	(49,149)	8.00%	96,559	1,278,659	147,930	12.80%	19.37%
2061	1,753,433	148,963	225,718	(76,755)	8.00%	137,244	1,813,922	135,132	12.80%	19.40%
2071	2,451,997	232,059	343,954	(111,895)	8.00%	191,741	2,531,843	121,454	12.80%	18.97%
2081	3,221,803	358,697	545,375	(186,678)	8.00%	250,373	3,285,498	101,488	12.80%	19.46%
2091	3,593,100	558,561	843,530	(284,969)	8.00%	276,195	3,584,326	71,295	12.80%	19.33%
2101	2,705,501	867,540	1,301,859	(434,319)	8.00%	199,290	2,470,472	31,642	12.80%	19.21%

Funding Level 2 is the lowest funding level that will keep the fund solvent indefinitely, i.e., throughout the entire 100-year projection period assuming all assumptions are realized.

POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT
CASH FLOW PROJECTION
PESSIMISTIC ASSUMPTIONS: C
FUNDING LEVEL 1

Fiscal Year	Fund Balance BOY	Contributions	Benefits	Net	Investment Return %	Investment Return $	Fund Balance EOY Nominal $	Fund Balance EOY Real $	% of Payroll Contrib.	% of Payroll Benefits
2002	$93,791	$4,604	$6,999	$(2,395)	8.00%	$7,409	$98,805	$98,805	5.75%	8.74%
2003	98,805	4,838	8,160	(3,322)	8.00%	7,773	103,256	98,810	5.75%	9.70%
2004	103,256	5,075	9,512	(4,437)	8.00%	8,085	106,904	97,895	5.75%	10.78%
2005	106,904	5,320	11,020	(5,700)	8.00%	8,327	109,531	95,982	5.75%	11.91%
2006	109,531	5,571	12,631	(7,060)	8.00%	8,484	110,955	93,043	5.75%	13.04%
2007	110,955	5,832	14,338	(8,506)	8.00%	8,541	110,990	89,064	5.75%	14.14%
2008	110,990	6,108	16,081	(9,973)	8.00%	8,485	109,502	84,086	5.75%	15.14%
2009	109,502	6,397	17,867	(11,470)	8.00%	8,307	106,339	78,141	5.75%	16.06%
2010	106,339	6,704	19,604	(12,900)	8.00%	7,998	101,437	71,329	5.75%	16.82%
2011	101,437	7,031	21,384	(14,353)	8.00%	7,548	94,632	63,678	5.75%	17.49%
2016	48,846	8,874	28,703	(19,829)	8.00%	3,125	32,142	17,356	5.75%	18.60%
2017	32,142	9,280	30,482	(21,202)	8.00%	1,734	12,674	6,549	5.75%	18.89%
2018	12,674	9,695	32,600	(22,905)	8.00%	109	(10,122)	(5,005)	5.75%	19.33%
2019	(10,122)	10,127	34,933	(24,806)	8.00%	(1,789)	(36,717)	(17,374)	5.75%	19.83%

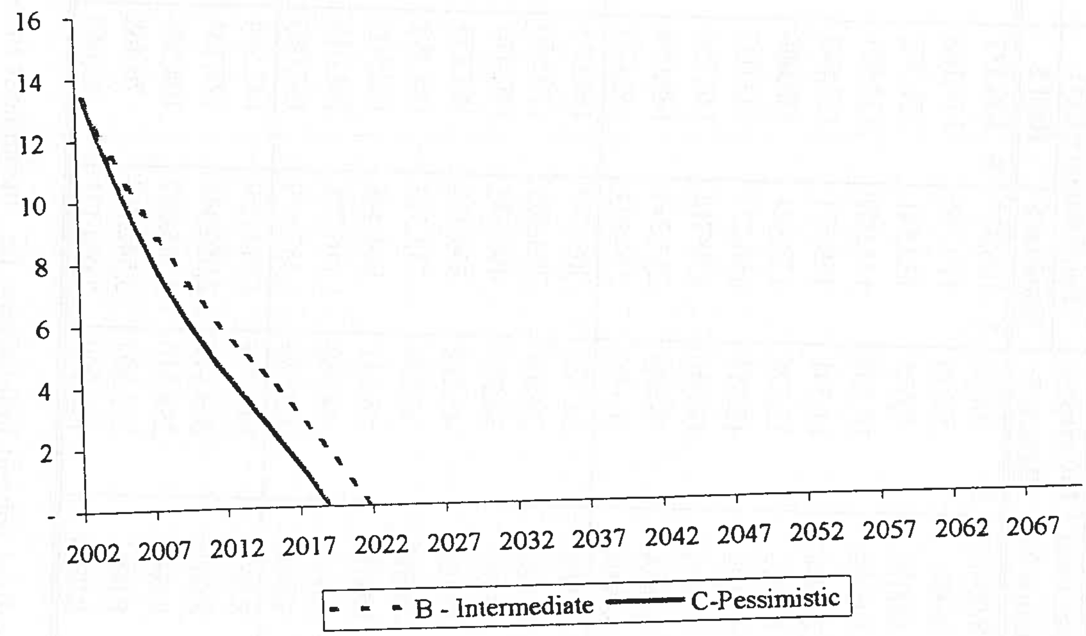
Funding Level 1 is the present contribution rate for post-retirement Health Care and Medicare reimbursement. The fund remains solvent until 2018 in this projection.

POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT
CASH FLOW PROJECTION
Pessimistic Assumptions: C
FUNDING LEVEL 2

Fiscal Year	Fund Balance BOY	Contributions	Benefits	Net	Investment Return %	Investment Return $	Fund Balance EOY Nominal $	Fund Balance EOY Real $	% of Payroll Contrib.	% of Payroll Benefits
2002	$ 93,791	$ 11,850	$ 6,999	$ 4,851	8.00%	$ 7,695	$ 106,337	$ 106,337	14.80%	8.74%
2003	106,337	12,453	8,160	4,293	8.00%	8,676	119,306	114,168	14.80%	9.70%
2004	119,306	13,062	9,512	3,550	8.00%	9,685	132,541	121,372	14.80%	10.78%
2005	132,541	13,692	11,020	2,672	8.00%	10,709	145,922	127,871	14.80%	11.91%
2006	145,922	14,339	12,631	1,708	8.00%	11,741	159,371	133,642	14.80%	13.04%
2007	159,371	15,012	14,338	674	8.00%	12,776	172,821	138,680	14.80%	14.14%
2008	172,821	15,720	16,081	(361)	8.00%	13,811	186,271	143,037	14.80%	15.14%
2009	186,271	16,464	17,867	(1,403)	8.00%	14,846	199,714	146,756	14.80%	16.06%
2010	199,714	17,255	19,604	(2,349)	8.00%	15,884	213,249	149,954	14.80%	16.82%
2011	213,249	18,098	21,384	(3,286)	8.00%	16,930	226,893	152,677	14.80%	17.49%
2016	286,920	22,841	28,703	(5,862)	8.00%	22,722	303,780	164,033	14.80%	18.60%
2021	375,007	28,540	39,509	(10,969)	8.00%	29,567	393,605	170,550	14.80%	20.49%
2026	470,754	35,966	53,125	(17,159)	8.00%	36,983	490,578	170,576	14.80%	21.86%
2031	575,872	45,736	67,450	(21,714)	8.00%	45,212	599,370	167,233	14.80%	21.83%
2036	704,017	57,459	83,432	(25,973)	8.00%	55,296	733,340	164,192	14.80%	21.49%
2041	866,783	71,875	102,314	(30,439)	8.00%	68,141	904,485	162,505	14.80%	21.07%
2046	1,071,598	89,306	128,307	(39,001)	8.00%	84,188	1,116,785	161,010	14.80%	21.26%
2051	1,307,770	110,662	163,392	(52,730)	8.00%	102,539	1,357,579	157,060	14.80%	21.85%
2061	1,851,576	172,238	254,599	(82,361)	8.00%	144,874	1,914,089	142,594	14.80%	21.88%
2071	2,569,272	268,318	387,965	(119,647)	8.00%	200,817	2,650,442	127,144	14.80%	21.40%
2081	3,327,801	414,744	615,158	(200,414)	8.00%	258,310	3,385,697	104,583	14.80%	21.95%
2091	3,574,500	645,837	951,463	(305,626)	8.00%	273,892	3,542,766	70,468	14.80%	21.80%
2101	2,303,556	1,003,093	1,468,437	(465,344)	8.00%	165,909	2,004,121	25,669	14.80%	21.66%

Funding Level 2 is the lowest funding level that will keep the fund solvent indefinitely, i.e., throughout the entire 100-year projection period assuming all assumptions are realized.

POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT PROJECTED FUNDING RATIOS BASED ON 5.75% EMPLOYER CONTRIBUTION RATE DECEMBER 31, 2001



The ***funding ratio*** is the ratio of the fund balance at the beginning of the year to the projected benefit payout during the year. It is one measure of the Plans ability to pay benefits. A funding ratio on the order of about 15 to 25 is expected in a plan that is funding health care payouts as a level percentage of payroll.

Approximate IRC Section 401(h) Computation
($ in Thousands)

Year	(1) Covered Pay	(2) EANC %	(3) Pension PUCNC %	(4) PUCNC $	(5) Health Contribution	(6) (4) + (5)	(7) Sum of (5)	(8) Sum of (6)	(9) IRC Ratio (7) / (8)
1985	$32,550	22.16%	23.16%	$ 7,538.6	$1,114.8	$8,653.4	$ 1,114.8	$ 8,653.4	12.9%
1986	34,735	22.16%	23.16%	8,044.6	1,229.0	9,273.6	2,343.8	17,927.0	13.1%
1987	39,894	21.59%	22.56%	9,000.1	1,351.4	10,351.5	3,695.2	28,278.5	13.1%
1988	40,725	21.59%	22.56%	9,187.6	1,478.2	10,665.8	5,173.4	38,944.3	13.3%
1989	43,048	22.75%	23.77%	10,232.5	1,752.8	11,985.3	6,926.2	50,929.6	13.6%
1990	45,640	22.75%	23.77%	10,848.6	1,835.5	12,684.1	8,761.7	63,613.7	13.8%
1991	48,586	22.15%	23.15%	11,247.7	2,165.1	13,412.8	10,926.8	77,026.5	14.2%
1992	50,255	22.15%	23.15%	11,634.0	2,542.7	14,176.7	13,469.5	91,203.2	14.8%
1993	54,715	22.36%	23.37%	12,786.9	2,563.5	15,350.4	16,033.0	106,553.6	15.0%
1994	58,341	22.36%	23.37%	13,634.3	3,053.4	16,687.7	19,086.4	123,241.3	15.5%
1995	56,833	23.79%	24.86%	14,128.7	3,122.0	17,250.7	22,208.4	140,492.0	15.8%
1996	60,909	23.79%	24.86%	15,142.0	2,860.8	18,002.8	25,069.2	158,494.8	15.8%
1997	61,714	24.47%	25.57%	15,780.3	2,548.8	18,329.1	27,618.0	176,823.9	15.6%
1998	65,848	24.45%	25.55%	16,824.2	2,719.5	19,543.7	30,337.5	196,367.6	15.4%
1999	69,030	24.96%	26.08%	18,003.0	3,278.9	21,281.9	33,616.4	217,649.5	15.4%
2000	68,505	24.96%	26.08%	17,866.1	3,254.0	21,120.1	33,591.5	217,487.7	15.4%
2001	70,586	25.41%	26.55%	18,740.6	4,058.7	22,799.3	34,396.2	219,166.9	15.7%

The approximate computations above indicate compliance with IRC Section 401(h) because the ratio in column 9 is below 25%. The ratio in column 9 would appear lower if the computations were extended farther into the past.

Section C

Gain/Loss Analysis

GAIN/(LOSS) ANALYSIS

Purpose of Gain/Loss Analysis. Regular actuarial valuations provide information about the composite change in unfunded actuarial accrued liabilities -- whether or not the liabilities are increasing or decreasing, and by how much.

However, valuations do not show the portion of the change attributable to each risk area within the Retirement System: the rate of investment income on plan assets; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of salary increases; the assumed ages at actual retirement. In an actuarial valuation, assumptions are made as to what these rates will be for the next year and for decades in the future.

The objective of a gain and loss analysis is to determine the portion of the change in unfunded actuarial accrued liabilities attributable to each risk area.

The fact that actual experience differs from assumed experience is to be expected. The future cannot be predicted with precision. Changes in the valuation assumption for a risk area should be made when the differences between assumed and actual experience have been observed to be sizable and persistent. One year's gain and loss analysis may or may not be indicative of ***long-term trends, which are the basis of financial assumptions.***

DEVELOPMENT OF TOTAL GAIN/(LOSS)
JANUARY 1, 2001 TO DECEMBER 31, 2001

Unfunded Accrued Liabilities (UAL), January 1	$24,182,972
Normal Cost	16,622,749
Contributions	21,494,356
Interest	1,739,773
Expected UAL Before Any Changes	$21,051,138
Effect of Changes in Assumptions	0
Expected UAL After all Changes	$21,051,138
Actual UAL	$85,436,020
Gain/(Loss) for Year	**$(64,384,882)**

This page measures the actual gain or loss for the year after adjusting for the effect of benefit and assumption changes.

ANALYSIS OF FINANCIAL EXPERIENCE FOR THE YEAR ENDED DECEMBER 31, 2001 AND 2000

Gains and Losses in Pension Accrued Liabilities Resulting from Differences Between Assumed Experience and Actual Experience

TYPE OF ACTIVITY	Gain or (Loss) for Year Ended 12/31	
	2001	2000
Age & Service Retirements. If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss.	$ 202,278	$ 16,470
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	(121,688)	(916,851)
Death-in-Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(228,887)	(71,889)
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(56,856)	519,559
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(12,023,972)	5,536,124
Contribution Income. If more contributions are received than expected, there is a gain. If less, there is a loss.	0	0
Investment Income. If there is greater investment return on pension assets than assumed, there is a gain. If less return, a loss.	(55,763,211)	(11,344,115)
Other. Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, valuation methods, etc.	3,607,454	(1,019,538)
Gain (or Loss) During Year From Financial Experience	$ (64,384,882)	$ (7,280,240)
Non-Recurring Items (Effect of Benefit/Assumption Changes)	0	13,188,717
Composite Gain (or Loss) During Year	$ (64,384,882)	$ 5,908,477

INVESTMENT GAIN LOSS
DEVELOPMENT OF PORTION ATTRIBUTABLE TO RETIREMENT, SURVIVOR AND DISABILITY ALLOWANCES
JANUARY 1, 2001 TO DECEMBER 31, 2001

Assets, Beginning of Year	$570,039,631
Net Cash Flow	(8,269,377)
Assumed Investment Return	45,272,395
Expected Assets End of Year	$607,042,649
Actual Assets End of Year	551,279,438
Gain/(Loss) for Year	**$(55,763,211)**

The total investment gain (including Health assets and any adjustments relating to the valuation asset corridor method) was $(65,258,422).

ACTIVE MEMBER POPULATION RECONCILIATION
JANUARY 1, 2001 TO DECEMBER 31, 2001

	Actual	Expected
Active Members Beginning of Year	1,489	
Plus New Hires	113	
Minus Retirements	28	24.8
Minus Deaths	1	0.9
Minus Disabilities	10	6.0
Minus Other Terminations*	43	19.7
Plus or Minus Data Correction	0	
Active Members End of Year	1,520	

* *Includes 16 members who took a leave of absence and 5 members who transferred out of the System.*

Section D

Financial Information

Current Asset Information Furnished for the Valuation December 31, 2001

Balance Sheet

Current Assets (Market Value)		Fund Balance	
Cash & short-term investments	$ 30,855,441	Employees' Savings Fund	$ 70,992,339
Fixed Income	136,082,501	Employers Accumulation Fund	93,488,775
Stocks	339,613,189	Pension Reserve Fund	302,405,102
Real Estate	82,843,221	Survivors Benefit Fund	23,004,010
Other short-term	232,518	Health Care Fund	94,919,899
Accruals & Receivables	(13,671,190)	Income Fund	(8,854,445)
Total Current Assets	$ 575,955,680	Total Fund Balance	$ 575,955,680

Revenues and Expenditures

	2001	2000
Balance - January 1	$608,318,172	$634,769,676
Revenues*		
Employee contributions	7,722,423	7,455,872
Employer contributions (net)	17,293,598	16,098,755
Investment income (net)	(20,820,340)	(17,235,268)
Miscellaneous	0	1
Total	4,195,681	6,319,360
Expenditures		
Benefit payments	29,392,281	26,986,946
Health insurance	6,179,096	4,720,260
Refund of member contributions	306,452	363,067
Administrative Expenses	615,344	644,591
Death benefit	65,000	56,000
Total	36,558,173	32,770,864
Net Addition to Assets	(32,362,492)	(26,451,504)
Balance - December 31	$575,955,680	$608,318,172

* *Revenues include transfers to and from systems.*

CAFR Asset Information Furnished for the Valuation December 31, 2001

Revenues and Expenditures

Revenues					
	Contributions		Transfers FROM	Other	
Year	Member	Employer	Other Systems	Revenue	Total*
1993	$5,755,510	$ 13,405,126	$78,880	$ 26,388,080	$ 45,627,596
1994	6,178,165	14,329,203	153,900	61,297,733	81,959,001
1995	7,303,832	13,889,107	297,977	82,009,950	103,500,866
1996	6,223,468	14,706,925	461,668	61,885,784	83,277,845
1997	6,146,774	14,779,887	298,691	77,727,118	98,952,470
1998	6,573,762	15,788,189	474,362	14,455,032	37,291,345
1999	6,708,496	16,353,264	418,603	40,516,857	63,997,220
2000	6,954,301	16,556,770	678,078	(16,964,817)	7,224,332
2001	7,042,044	17,422,978	680,379	(20,501,338)	4,644,063

* *Total excludes miscellaneous revenue and transfers to other Systems. Prior page total revenue includes miscellaneous revenues and transfers to other Systems.*

Expenses			
Year	Transfers TO Other Systems	Other Expenses	Total**
1993	$134,135	$ 13,648,303	$ 13,782,438
1994	13,908	15,734,616	15,748,524
1995	127,478	17,721,345	17,848,823
1996	140,376	18,740,923	18,881,299
1997	98,810	22,241,527	22,340,337
1998	281,606	25,586,100	25,867,706
1999	196,414	30,858,115	31,054,529
2000	904,972	30,904,921	31,809,893
2001	448,381	35,596,411	36,044,792

** *Total excludes death benefits and includes transfers to other Systems. Prior page total expenditures include death benefits and exclude transfers to other Systems.*

Development of Funding Value of Retirement System Assets
December 31, 2001

	2000	2001	2002	2003	2004
A. Preliminary Funding Value From Prior Year	$ 642,601,859	$ 668,233,948	$ 666,628,949		
B. Market Value End of Year	608,318,172	575,955,680			
C. Market Value Beginning of Year	634,769,676	608,318,172			
D. Non-Investment Net Cash Flow	(8,571,646)	(10,926,808)			
E. Investment Return:					
E1. Market Total: B - C - D	(17,879,858)	(21,435,684)			
E2. For Immediate Recognition (8.0%)	49,469,493	53,021,644			
E3. Amount for Phased-In Recognition E1-E2	(67,349,351)	(74,457,328)			
F. Phased-In Recognition of Investment Income:					
F1. Current Year: 25% x E3	(16,837,338)	(18,614,332)			
F2. First Prior Year	(1,155,598)	(16,837,338)	$ (18,614,332)		
F3. Second Prior Year	(7,092,568)	(1,155,598)	(16,837,338)	$ (18,614,332)	
F4. Third Prior Year	9,819,746	(7,092,567)	(1,155,596)	(16,837,337)	$ (18,614,334)
F5. Total Recognized Investment Gain	$ (15,265,758)	$ (43,699,835)	$ (36,607,266)	$ (35,451,669)	$ (18,614,334)
G. Funding Value End of Year:					
G1. Preliminary Funding Value End of Year: A + D + E2 + F5	$ 668,233,948	$ 666,628,949			
G2. Upper Corridor Limit: 112% x B		$ 645,070,362			
G3. Lower Corridor Limit: 88% x B		$ 506,840,998			
G4. Funding Value End of Year	$ 668,233,948	$ 645,070,362			
H. Difference between Market Value and Funding Value	$ (53,724,544)	$ (69,114,682)			
I. Funding Value Rate of Return	5.4%	(1.8)%			
J. Market Value Rate of Return	(2.8)%	(3.6)%			

The asset valuation method recognizes assumed investment income (line E2) fully each year. Differences between actual and expected investment income (line E3) are phased in over a closed 4-year period. When investment markets are performing well, Funding Value will tend to lag market value. When investment markets are performing poorly, Funding Value will tend to exceed market value. From a Funding standpoint, the asset valuation method is *neutral*.

Separation of Assets between Pensions and Health
December 31, 2001

	Pension	Health	Total
A. Market Value Beginning of Year	$518,928,240	$89,389,932	$608,318,172
B. Member Contributions	7,722,423	0	7,722,423
C. Employer Contributions	13,771,933	3,521,665	17,293,598
D. Benefits Paid	29,392,281	6,179,096	35,571,377
E. Refunds of Member Contributions	306,452	0	306,452
F. Death Benefits	65,000	0	65,000
G. Net External Cash Flow (B + C - D - E - F)	(8,269,377)	(2,657,431)	(10,926,808)
H. Other Changes in Market Value	(18,445,079)	(2,990,605)	(21,435,684)
I. Market Value End of Year (A + G + H)	492,213,784	83,741,896	575,955,680
J. Funding Value Adjustment	59,065,654	10,049,028	69,114,682
K. Funding Value End of Year (I + J)	$551,279,438	$93,790,924	$645,070,362

Line J is allocated in proportion to Line I.

Section E

Summary of Member Data

ACTIVE MEMBERS AS OF DECEMBER 31, 2001
BY ATTAINED AGE AND YEARS OF SERVICE

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Up	No.	Payroll
20-24	100							100	$ 3,708,636
25-29	248	43						291	12,253,671
30-34	145	170	63					378	17,887,497
35-39	37	67	118	45	1			268	14,131,953
40		7	20	21	2			50	2,831,846
41		2	7	23	8			40	2,272,455
42		2	9	14	28			53	3,042,486
43		3	5	18	32			58	3,396,920
44			2	9	34			45	2,704,344
45			3	9	29	1		42	2,449,693
46				5	28	1		34	1,934,902
47				4	36	2		42	2,522,923
48			1	4	24	1		30	1,867,236
49			1	3	21	4		29	1,679,229
50				2	7	7		16	992,709
51				2	7	5	1	15	896,844
52				2	5	5	3	15	972,663
53					1	1	3	5	268,646
54						4	1	5	334,970
55						1	2	3	155,150
58					1			1	39,229
Totals	**530**	**294**	**229**	**161**	**264**	**32**	**10**	**1,520**	**$76,344,002**

While not used in valuations, the following group averages are computed and shown for their general interest.

Age: 35.5 years.

Service: 10.8 years.

Annual Pay: $50,226

Active Members
By Ages of Entry into Service
December 31, 2001

Entry Age Nearest Birthday	Number	Cumulative Number	Percent	Cumulative Percent
Less than 18	0	0	0.00%	0.00%
18	1	1	0.07%	0.07%
19	20	21	1.31%	1.38%
20	19	40	1.25%	2.63%
21	204	244	13.42%	16.05%
22	259	503	17.04%	33.09%
23	182	685	11.98%	45.07%
24	182	867	11.97%	57.04%
25	135	1,002	8.88%	65.92%
26	136	1,138	8.95%	74.87%
27	102	1,240	6.71%	81.58%
28	71	1,311	4.67%	86.25%
29	41	1,352	2.70%	88.95%
30	63	1,415	4.14%	93.09%
31	34	1,449	2.24%	95.33%
32	24	1,473	1.58%	96.91%
33	20	1,493	1.31%	98.22%
34	17	1,510	1.12%	99.34%
35	9	1,519	0.59%	99.93%
36	0	1,519	0.00%	99.93%
37	0	1,519	0.00%	99.93%
38	1	1,520	0.07%	100.00%
39	0	1,520	0.00%	100.00%
40 & Up	0	1,520	0.00%	100.00%
Total	**1,520**			

AGE AND SERVICE PENSIONS BEING PAID DECEMBER 31, 2001
BY ATTAINED AGES

Attained Ages	Number	Monthly Pensions	Number Married	Average Age of Spouse
49	14	$41,400	13	46
50	29	72,792	28	48
51	32	81,204	31	50
52	35	100,660	33	49
53	47	122,334	44	51
54	69	187,442	63	52
55	46	132,392	44	54
56	42	117,794	37	54
57	54	149,271	53	54
58	41	105,971	40	55
59	54	139,455	50	55
60	40	101,775	39	56
61	29	78,693	28	57
62	28	76,985	27	59
63	28	62,358	28	60
64	29	72,075	28	61
65	20	44,216	20	62
66	18	40,514	18	64
67	16	33,044	13	62
68	10	18,434	10	64
69	15	30,398	14	66
70	14	28,029	14	68
71	17	37,528	17	67
72	18	29,136	16	71
73	17	26,832	16	71
74	18	26,459	16	71
75	13	17,680	13	72
76	17	23,778	15	73
77	9	13,180	8	75
78	6	7,782	4	73
79	9	11,529	7	76
80	11	14,483	11	77
81	7	10,765	6	76
82	4	5,608	2	81
83	5	6,299	5	79
84	2	2,524	1	85
85 & Over	16	20,184	10	79
Totals	**879**	**$2,091,003**	**822**	

DISABILITY PENSIONS BEING PAID DECEMBER 31, 2001
BY ATTAINED AGE

Attained Ages	Number	Monthly Pensions	Number Married	Average Age of Spouse
30	1	$2,228	1	26
33	1	2,038	1	35
35	3	5,604	1	35
36	2	4,177	1	45
37	1	2,040	0	N/A
38	4	8,958	3	34
39	1	2,482	1	34
40	2	5,280	2	41
41	5	10,966	4	39
42	2	4,883	2	39
43	4	8,284	3	43
44	4	7,482	3	43
45	3	6,745	3	44
46	2	5,100	2	48
48	3	7,053	3	46
49	2	3,882	1	45
50	2	4,499	2	45
51	1	1,452	1	46
52	3	6,746	3	50
53	6	11,277	5	50
54	1	1,962	1	54
55	3	5,983	3	51
57	2	4,331	2	58
58	3	4,479	3	56
59	1	2,019	1	59
60	2	2,486	2	51
64	1	2,499	1	61
66	1	1,243	1	62
70	1	1,214	1	70
71	1	1,215	1	66
72	2	2,497	1	68
74	1	1,249	1	72
75	1	1,249	1	75
79	1	1,253	1	79
Totals	**73**	**$144,855**	**62**	

DEPENDENTS BEING PAID AS OF DECEMBER 31, 2001
TABULATED BY ATTAINED AGE

Attained Ages	Number	Monthly Pensions
12 & Under	14	$2,200
13	1	177
14	1	153
15	5	817
16	1	177
17	1	177
18	3	503
19	4	697
20	2	331
24	1	900
28	2	1,849
31	1	900
33	1	1,032
35	1	949
36	1	924
37	1	924
39	2	1,925
42	2	354
44	2	2,028
46	2	1,907
47	2	1,944
49	1	995
50	4	4,030
51	3	2,929
52	1	1,246
53	3	3,258
54	5	4,819
55	2	2,329
56	3	2,973
57	2	2,217
58	4	4,002
59	6	6,909
60	1	995
61	2	1,926
62	4	4,032
63	1	1,569
64	4	4,842
65	4	3,830
66	4	3,667
67	3	2,926
68	2	1,903
69	10	9,903
70-79	78	75,489
80-89	50	48,881
90 & Over	8	7,912
Totals	**255**	**$224,450**

ACTIVE MEMBER VALUATION DATA, 1992 TO 2001

Actuarial Valuation as of December 31	Number of Active Members	Annual Payroll	Average Annual Salary	% Increase in Average Pay
1992	1,371	$50,235,996	$36,642	0.2 %
1993	1,467	55,781,585	38,024	3.8
1994	1,465	58,116,787	39,670	4.3
1995	1,455	59,825,356	41,117	3.6
1996	1,375	59,239,349	43,083	4.8
1997	1,445	62,233,299	43,068	(0.0)
1998	1,446	65,153,864	45,058	4.6
1999	1,445	66,017,381	45,687	1.4
2000	1,489	69,028,285	46,359	1.5
2001	1,520	76,344,002	50,226	8.3

RETIRANTS AND BENEFICIARIES VALUATION DATA, 1992 TO 2001

Actuarial Valuation as of December 31	Added to Rolls	Removed from Rolls	Number of People	Monthly Amounts Pensions	Average Amount
1992			706	$ 819,869	$1,161
1993	27	10	723	927,168	1,282
1994	48	7	764	1,057,577	1,384
1995	68	6	826	1,184,405	1,434
1996	113	28	911	1,402,909	1,540
1997	96	3	1,004	1,665,827	1,659
1998	96	20	1,060	1,914,091	1,806
1999	82	19	1,123	2,123,471	1,891
2000	78	27	1,174	2,300,464	1,960
2001	53	20	1,207	2,460,308	2,038

Of the 1,207 retirants and beneficiaries as of December 31, 2001, 879 are service retirees, 73 are disability retirees and 255 are survivor beneficiaries. The average monthly benefits are $2,379 for service retirees, $1,984 for disability retirees and $880 for survivor beneficiaries.

NUMBER OF RETIRED LIVES COVERED BY AETNA & OTHER CARRIERS COMPARATIVE SCHEDULE

	Census Date									
	12/01	12/00	12/99	12/98	12/97	12/96	12/95	12/94	12/93	12/92
Recipients:										
w/o Medicare A	**771**	761	724	656	589	534	460	425	408	403
Medicare A	**368**	346	339	337	333	322	298	274	266	253
Spouses:										
w/o Medicare A	**471**	447	429	373	354	324	277	253	237	225
w Medicare A	**155**	151	146	139	130	117	111	99	91	84
Dependent Children	**105**	110	107	75	70	59	54	56	49	47
Orphans	**30**	33	27	22	23	23	25	26	30	33
Total	**1,900**	1,848	1,772	1,602	1,499	1,379	1,225	1,133	1,081	1,045

A summary of recipients and dependents covered by AETNA and Medical Mutual of Ohio for 2001 and 2000 follows:

	AETNA		Medical Mutual		
	Network	Non-Network	Network	Non-Network	Total
2000	918	482	413	35	1,848
2001	899	493	468	40	1,900

DEFERRED PENSIONS AS OF DECEMBER 31, 2001
TABULATED BY ATTAINED AGE

Attained Ages	Number	Monthly Pensions
42	1	$1,991
43	1	1,092
45	1	1,915
46	3	5,513
47	1	2,003
Totals	7	**$12,514**

A ***deferred retirant*** is a member who has left active service with at least 15 (and in most cases 20) years of service credit, and has not withdrawn his accumulated contributions. Such members are entitled to a pension upon attaining eligibility age.

Section F

Assumptions Used in the Valuation

APPENDIX

SUMMARY OF VALUATION METHOD AND ASSUMPTIONS DECEMBER 31, 2001

The actuarial assumptions used in the valuation are shown in this Appendix of the report. The assumptions were established for the December 31, 2000 actuarial valuation, following a 5 year experience study. They were adopted by the Board after obtaining the advice of the Actuary and other professionals.

Economic Assumptions

The investment return rate used in making the valuations was 8.0% per year, compounded annually (net after administrative expenses). The real rate of return is the portion of total investment return, which is more than the wage inflation rate. Considering other financial assumptions, the 8.0% investment return rate translates to an assumed real rate of return of 3.5%. In order to assume a 3.5% real return over wage growth, it would be necessary to realize about a 4.5% real return over price inflation, after accounting for expenses and the difference between wage increases and price increases.

Pay increase assumptions for individual active members are shown for sample ages on page F-4. Part of the assumed increase at each age is for merit and/or seniority, and the other 4.5% recognizes changes in wage levels due to broad economic effects, including inflation and real wage growth.

Price inflation was assumed to be at least 3% per year.

The active member payroll is assumed to increase 4.5% annually, which is the portion of the individual pay increase assumptions attributable to broad economic effects.

The number of active members is assumed to continue at the present number.

Non-Economic Assumptions

The mortality tables, for post-retirement mortality, used in evaluating allowances to be paid were the 1983 Group Annuity Mortality Male and Female Tables. Related values are shown on page F-3.

(Concluded on Next Page)

Summary of Valuation Method and Assumptions
December 31, 2001
(Concluded)

The probabilities of age and service retirement are shown on page F-4.

The probabilities of withdrawal from service, disability and death-in-service are shown for sample ages on page F-4. For disability retirement, impaired longevity was recognized by basing benefit values on an adjusted age that is the actual age plus 10 years. Fifty percent of disability retirements are assumed to be non-duty related and fifty percent are assumed to be duty related.

The entry age normal actuarial cost method of valuation was used in determining liabilities and normal cost.

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce payments (principal & interest), which are level percent of payroll contributions.

Employer contributions were assumed to be ***paid in equal installments*** throughout the employer fiscal year.

Present assets (cash & investments) were used with a market value adjustment that spreads differences between actual and assumed return over a closed four-year period. Details of the method may be found in the body of the report on page D-3. Assets may be used in the valuation prior to the final audit.

The data about persons now covered and about present assets were furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.) who has experience performing public plan valuations.

SINGLE LIFE RETIREMENT VALUES
(8.00% INTEREST)

Sample Attained	Present Value of $1 Monthly for Life		Future Life Expectancy (years)	
Ages	Men	Women	Men	Women
50	$132.10	$140.42	29.18	34.92
55	124.57	134.74	24.82	30.24
60	115.04	127.24	20.64	25.67
65	103.26	117.61	16.69	21.29
70	90.18	105.53	13.18	17.13
75	76.40	91.57	10.15	13.37
80	62.65	77.16	7.64	10.20

The present values shown above are for illustrative purposes only and do not include the value of future post-retirement increases.

SEPARATIONS FROM ACTIVE EMPLOYMENT & SALARY SCALE

Sample Ages	Percent of Active Members Separating Within Next Year				Salary Increase Assumptions for an Individual Member			
	Disability	Death		Other	Service	Merit & Seniority	Base (Economic)	Increase Next Yea
		Men	Women					
20	0.08%	0.02%	0.01%	2.57%	0-4	3.70%	4.50%	8.20%
25	0.08%	0.02%	0.01%	2.24%	5-9	2.00%	4.50%	6.50%
30	0.23%	0.03%	0.02%	1.91%	10-14	1.50%	4.50%	6.00%
35	0.42%	0.04%	0.02%	1.56%	15 & Up	0.30%	4.50%	4.80%
40	0.70%	0.06%	0.03%	0.84%				
45	0.85%	0.11%	0.05%	0.41%				
50	1.13%	0.20%	0.08%	0.15%				
55	1.32%	0.31%	0.13%	0.00%				

Probabilities of Age & Service Retirement		
Retirement Ages	Percents of Eligible Members Retiring Within Next Year with an Unreduced Benefit	Percents of Eligible Members Retiring Within Next Year with a Reduced Benefit
48	40%	2%
49	35%	2%
50	25%	2%
51	30%	2%
52	25%	
53	25%	
54	40%	
55 & Over	100%	

A member was assumed eligible for unreduced retirement at age 48 or greater with 25 or more years of service or age 52 or greater with 20 or more years of service. A member was assumed eligible for reduced retirement at age 48 or greater with 20 or more years of service.

Additions to and Removals from Active Membership
Actual and Expected Numbers

Year Ended December 31	Number Added During Year		Retirement		Disability Retirement		Died-in Service		Other Terminations		Active Members
	A	E	A	E	A	E	A	E	A	E	
1993	134	69.7	23	29.8	2	1.6	1	3.1	12	35.2	1,467
1994	55	85.9	49	41.9	1	1.7	0	3.2	7	39.1	1,465
1995	62	100.2	50	57.9	4	1.7	0	3.6	18	37.0	1,455
1996	5	87.3	64	64.1	6	3.5	3	1.8	12	17.9	1,375
1997	161	81.9	73	60.7	3	3.4	1	1.7	14	16.1	1,445
1998	109	72.7	74	49.1	7	3.5	0	1.6	27	18.5	1,446
1999	86	61.8	53	37.5	14	3.5	2	1.6	18	19.2	1,445
2000	120	55.7	42	31.2	8	3.5	1	1.5	25	19.5	1,489
2001	113	51.4	28	24.8	10	6.0	1	0.9	43	19.7	1,520
Total	**845**	**666.6**	**456**	**397.0**	**55**	**28.4**	**9**	**19.0**	**176**	**222.2**	

A: Actual

E: Expected

The following pages summarize the removals from active membership by age group and years of accrued service.

AGE AND SERVICE RETIREMENTS DURING CALENDAR YEAR 2001

Age Group	15-19	20-24	25-29	30 Plus	Total
Under 20					
20-24					
25-29					
30-34					
35-39					
40-44					
45					
46					
47					
48		1			1
49		2	2		4
50		3	2		5
51		1	1		2
52		1	2	3	6
53			1	3	4
54			2	2	4
55		1		1	2
56					
57					
58					
59					
60 & Over					
Totals		9	10	9	28

DISABILITY RETIREMENTS DURING CALENDAR YEAR 2001

Age Group	Years of Accrued Service							
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Total
Under 20								
20-24								
25-29								
30-34		1						1
35-39		1	1	1				3
40-44			1	2				3
45-49				1	1			2
50 & Over					1			1
Totals		2	2	4	2			10

Death-in-Service Terminations During Calendar Year 2001

Age Group	Years of Accrued Service: 0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Total
Under 20								
20-24								
25-29	1							1
30-34								
35-39								
40-44								
45-49								
50 & Over								
Totals	1							1

Withdrew and Eligible for Deferred Benefit Terminations During Calendar Year 2001

Age Group	Years of Accrued Service: 0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Total
Under 20								
20-24								
25-29								
30-34								
35-39								
40-44					1			1
45-49					2			2
50 & Over								
Totals					3			3

WITHDREW AND PENDING CONTRIBUTIONS TERMINATION DURING CALENDAR YEAR 2001

Age Group	Years of Accrued Service							
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Total
Under 20								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49								
50 & Over								
Totals								

WITHDREW AND REFUNDED TERMINATIONS DURING CALENDAR YEAR 2001

Age Group	Years of Accrued Service							
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Total
Under 20								
20-24								
25-29	7							7
30-34	3	4						7
35-39		2	1					3
40-44		1	1					2
45-49								
50 & Over								
Totals	10	7	2					19

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS

Administrative Expenses:	Assumed investment return is net of administrative and investment expenses.
Marriage Assumption:	100% of participants are assumed to be married for purposes of death-in-service benefits.
Pay Increase Timing:	Beginning of year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Other:	Disability and turnover decrements do not operate during retirement eligibility. For death-in-service, two children are assumed to receive benefits for a 10 year period.
Miscellaneous Loading Factors:	A load of 0.6% of payroll is used of measure the effect of military service purchases.

Section G

Financial Principles and Operational Techniques

Financial Principles and Operational Techniques of the Retirement System

Promises Made, and To Be Paid For. As each year is completed, the Retirement System in effect hands an "IOU" to each member then acquiring a year of service credit -- the "IOU" says: "The Ohio State Highway Patrol Retirement System owes you one year's worth of retirement benefits, payments in cash commencing when you qualify for retirement."

The principal related financial question is: When shall the money required to cover the "IOU" be contributed? This year, when the benefit of the member's service is received? Or, some future year when the "IOU" becomes a cash demand?

The objective of level percent-of-payroll financing is that this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this objective, ***the employer contribution rate will remain approximately level from year to year*** --- and will not have to be increased for future generations of taxpayers.

(There are systems which have a design for deferring contributions to future taxpayers, lured by a lower contribution rate now and putting aside the consequence that the contribution rate must then relentlessly grow much greater over decades of time.)

An inevitable by-product of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. ***Invested assets are a by-product and not the objective.*** Investment income becomes the 3rd contributor for benefits to employees, and is interlocked with the contribution amounts required from employees and employer.

(Concluded on Next Page)

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Normal Cost (the value assigned to service being rendered this year)

. . . plus . . .

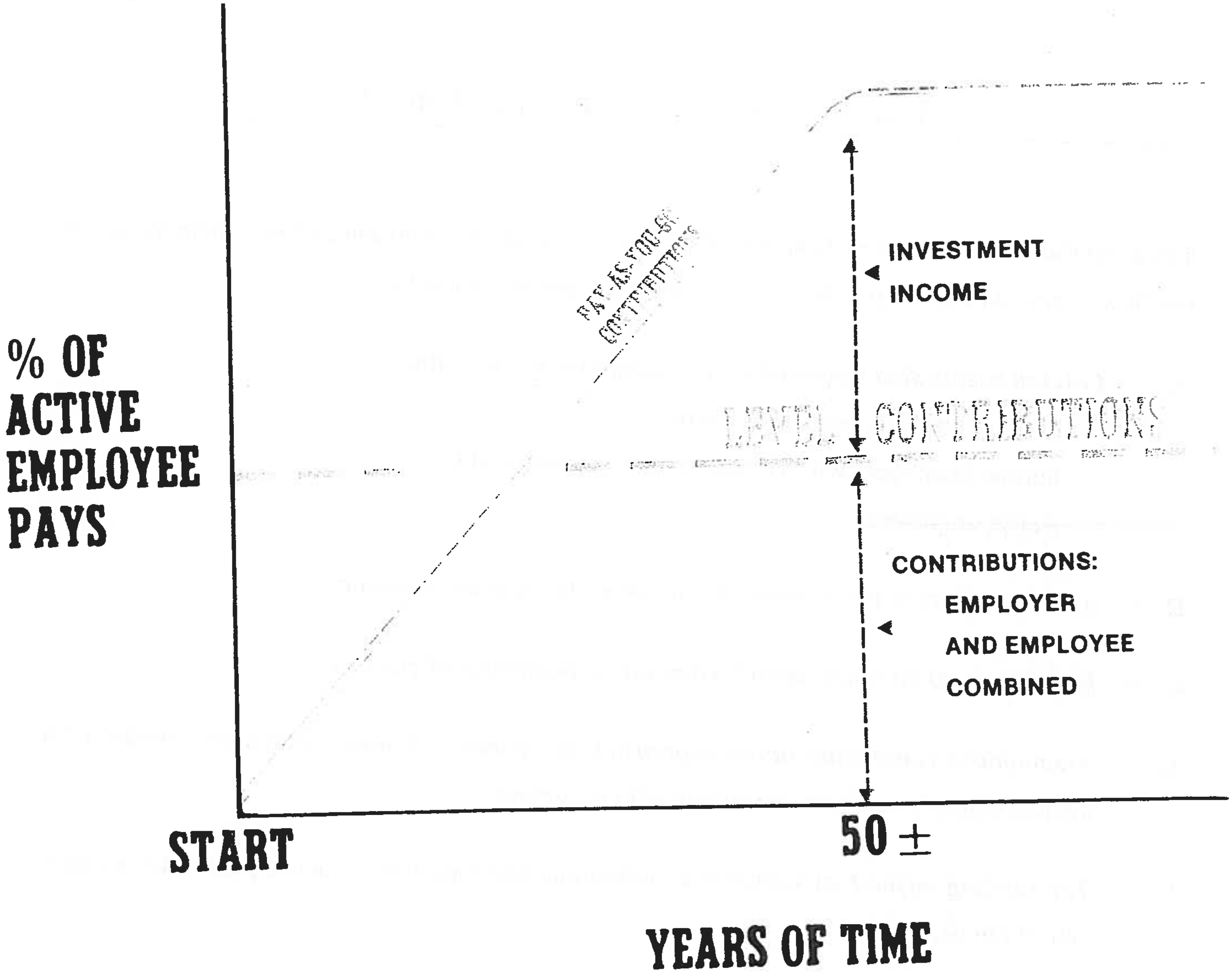
Interest on Unfunded Actuarial Accrued Liabilities (the difference between liabilities for service already rendered and the accrued assets of the Retirement System).

Computing Contributions To Support System Benefits From a given schedule of benefits and from the employee data and asset data furnished by the system, the actuary determines the contribution rates to support the benefits, by means of ***an actuarial valuation***.

An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment; the rates of mortality; the rates of disability; the rates of pay increases and the assumed age or ages at actual retirement.

In an actuarial valuation the actuary must assume what the above rates will be, for the next year and for decades in the future. Only the subsequent actual experience of the plan can indicate the degree of accuracy of the assumptions.

Reconciling Differences Between Assumed Experience and Actual Experience Once actual experience has occurred and has been observed, it will not coincide exactly with assumed experience, regardless of the skill of the actuary and the many calculations made. Most retirement systems cope with such differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is ***continuing adjustments to the financial position***.



This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

Determining the level contribution linerequires detailed assumptions concerning a variety of experiences in future decades, including:

Economic Risk Areas

- Rates of investment return
- Rates of pay increase
- Changes in active member group size

Non-Economic Risk Areas

- Ages at actual retirement
- Rates of mortality
- Rates of withdrawal of active members (turnover)
- Rates of disability

THE ACTUARIAL VALUATION PROCESS

The ***actuarial valuation*** is the mathematical process by which the contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

A. ***Covered people data*** furnished by plan administrator, including:

   Retired lives now receiving benefits

   Former employees with vested benefits not yet payable

   Active employees

B. + ***Asset data*** (cash & investments), furnished by the plan administrator

C. + ***Benefit provisions*** which specify eligibility and amounts of pensions

D. + ***Assumptions concerning future experience in various risk areas***, which are established by the Retirement Board after consulting with the actuary

E. + ***The funding method*** for employer contributions (the long-term, planned pattern for employer contributions)

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

G. = Determination of:

   Plan Financial Position and/or

   New Employer Contribution Rate

MEANING OF "UNFUNDED ACTUARIAL ACCRUED LIABILITIES"

"Actuarial accrued liabilities" are ***the portion of the present value of plan promises to pay benefits in the future that are not covered by future normal cost contributions.*** A liability has been established ("accrued") because the service has been rendered but the resulting monthly cash benefit may not be payable until years in the future. Actuarial accrued liabilities are the result of complex mathematical calculations, which are made by the plan's actuary.

If "actuarial accrued liabilities" exceed the plan's accrued assets (cash & investments), the difference is ***"unfunded actuarial accrued liabilities."*** This is the usual condition. If the plan's assets equaled the plan's "actuarial accrued liabilities," then the plan would be termed "fully funded." This is an unusual condition.

Each time a plan adds a new benefit, which applies to service already rendered, an "actuarial accrued liability" is created, which is also an "unfunded actuarial accrued liability" because the plan can't print instant cash to cover the value of the new benefit promises. Payment for such unfunded actuarial accrued liabilities is spread over a period of years, commonly in the 20-50 year range.

Unfunded actuarial accrued liabilities can occur in another way: if actual plan experience is less favorable than assumed plan experience, the difference is added to unfunded actuarial accrued liabilities. In plans where benefits are directly related to an employee's pay near time of retirement, unfunded actuarial accrued liabilities rose dramatically during the 1970's. Unexpected rates of pay increase created additional actuarial accrued liabilities, which could not be matched by reasonable investment results. More recent experience has generally been more favorable with some reductions in unfunded actuarial accrued liabilities.

The existence of unfunded actuarial accrued liabilities is not bad, but ***the changes from year to year in the amount of unfunded actuarial accrued liabilities are important***, --- "bad" or "good" or somewhere in between.

Even though unfunded actuarial accrued liabilities don't constitute a bill payable immediately, it is important that policy-makers prevent the amount from becoming unreasonably high and ***it is vital for plans to have a sound method for making payments toward them*** so that they are controlled.