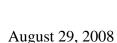


OHIO STATE HIGHWAY PATROL RETIREMENT SYSTEM ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2007

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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, 2007** 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 and comments on pages 2 through 6.

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.

The actuaries submitting this report are Members of the American Academy of Actuaries (M.A.A.A.) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Brian B. Murphy, F.S.A., M.A.A.A.

Mita D. Drazilov, A.S.A., M.A.A.A.

BBM:dks:mrb

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#### DECEMBER 31, 2007 SUMMARY

Valuations performed as of odd-numbered years (2007, 2009, 2011...) 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, and to provide the Board an opportunity to reallocate the total employer contribution rate between the pension and retiree health programs, if necessary.

The employer contribution rate for the two-year period beginning July 1, 2009 was determined in accordance with the December 31, 2007 valuation. The employer contribution rate for the two-year period beginning July 1, 2009 is to be determined in accordance with this December 31, 2007 valuation.

The **total employer contribution rate** for the two-year period beginning July 1, 2007 is 25.50%, as established by the Board based upon the results of the December 31, 2005 actuarial valuation. Based upon preliminary December 31, 2007 actuarial valuation results, the Board at its August, 2008 meeting voted to increase the employer contribution rate to 26.50% for the two-year period beginning July 1, 2009. (In addition, the Board voted to pursue legislation enabling a member contribution rate increase of 1.0% of payroll. The figures in this report are based upon a continuation of the member rate at its present (10%) level, since such legislation has not yet been enacted.) The breakdown between employer, employee, pension and health is shown below. This breakdown produces an amortization period of 27 years for pensions.

	Employer Contribution Rates Expressed As % of Active Payroll						
	Retirement, Survivor Post Retirement & Disability Allowances Health Care Totals						
Employer	21.00%	5.50%	26.50%				
Employee	10.00%	0.00 %	10.00%				
Totals	31.00%	5.50%	36.50%				

#### DECEMBER 31, 2007 SUMMARY

The rate of market value investment return for the calendar year was below the actuarial assumed investment return rate of 8.0%. The market value rate of return for calendar year 2007 was approximately 7.8%. This figure will generally differ from other reported return figures due to restated audited asset figures, approximate formulas and treatment of System expenses. The funding value rate of return was above the assumed investment return rate. The funding value rate of return for calendar year 2007 was approximately 10.1%. The market value of assets currently exceeds the funding value of assets by approximately \$22 million. (This is primarily due to the unrecognized portion of investment gains from calendar year 2006.)

Unfavorable experience in the retiree health program during the calendar year had a negative effect on the solvency period of the retiree health fund. Under the optimistic and pessimistic scenarios the solvency period remained unchanged, and decreased slightly under the intermediate scenario since the last actuarial valuation, based upon a 4.5% contribution rate to the retiree health fund. With the increase in retiree health contributions to 5.5% of payroll, solvency periods are up approximately 1 year since the prior valuation (please see page B-12). Significantly higher contributions or adjustments to benefits continue to be needed if the program is to continue in its present form.

**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 3.8% of assets are expected to be needed to pay benefits each year. This is a normal and expected condition.

### SUMMARY & RECOMMENDATIONS - DECEMBER 31, 2007 (CONTINUED)

**This valuation indicates that** a total employer contribution rate of 26.50% with an employee rate of 10.00% produces an amortization period for the pension program of 27 years, based upon a 5.50% employer rate allocation to the retiree health program and based upon the Funding Value of Assets.

#### **Comment on Post Retirement Health Care:**

With regard to the retiree health plan, higher contributions are required to extend the solvency of the fund. The benefit payout rate currently exceeds 11% of payroll, approximately double the contribution income. This situation cannot continue indefinitely, and of course if for any reason the pension amortization period should be over 30 years on some future date, it might be necessary for the Board to reduce the contribution to the health plan. Changes to the retiree health plan and/or further increases in contribution rates will need to be a part of the future. The Board may wish to consider reviewing the investment return assumption used for solvency projections. Please see pages B-7 and B-11 for details.

**Recommendation:** The following reserve transfers are recommended as of December 31, 2007:

Transfer To (From)	Total Amount
Pension Reserve Fund:	\$84,532,055
Survivor Benefit Fund:	1,146,223
Total	\$85,678,278

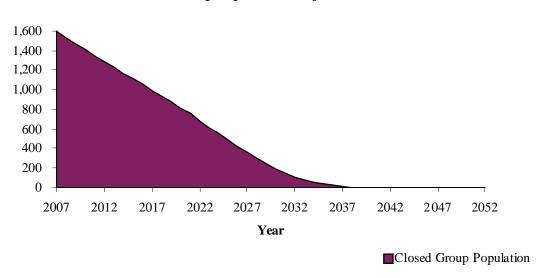
The reserve funds from which the transfers are made are determined as follows: First, the accumulated contributions of members who retired or died with survivor benefits payable prior to January 1, 2008 should be transferred from the Employees' Savings Fund if this has not already been done. The remainder 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 Accumulation Fund.

### SUMMARY & RECOMMENDATIONS - DECEMBER 31, 2007 (CONTINUED)

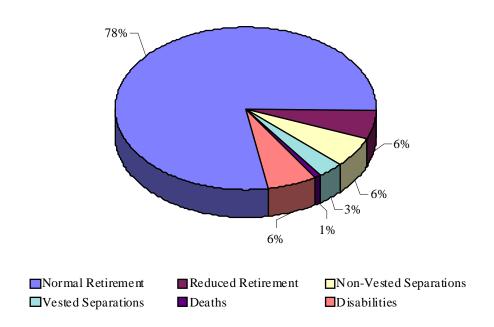
**Conclusion:** Based upon the results of the December 31, 2007 regular annual actuarial valuation, it is our opinion that with regard to pension benefits, the Ohio State Highway Patrol Retirement System is in sound condition in accordance with actuarial principles of level-cost financing. With regard to the Retiree Health Plan, solvency to 2025 is a relatively favorable result, but most people presently near retirement will live beyond that date. A combination of contribution increases and continued cost containment measures will be important for the retiree health plan to accomplish its objectives.

### EXPECTED DEVELOPMENT OF PRESENT POPULATION DECEMBER 31, 2007

#### **Closed Group Population Projection**



**Expected Terminations from Active Employment for Current Active Members** 



The charts show the expected future development of the present population in simplified terms. The retirement system presently covers 1,597 active members. Eventually, 6% of the population is expected to terminate covered employment prior to retirement and forfeit eligibility for an employer provided benefit. 87% of the present population is expected to receive monthly retirement benefits either by retiring directly from active service, or by separating from service without withdrawing contributions. 7% of the present population is expected to become eligible for death-in-service or disability benefits. Within 15 years, over half of the covered membership is expected to consist of new hires.

#### **SECTION A**

RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES

## RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES BENEFITS AND CONDITIONS VALUED DECEMBER 31, 2007

Age & Service Pension: A member may retire at age 52 to age 60, 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 60 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.

## RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES BENEFITS AND CONDITIONS VALUED DECEMBER 31, 2007

(CONTINUED)

#### 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.

*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 10.0% of salary to the employees' savings fund. 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.

## RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES BENEFITS AND CONDITIONS VALUED DECEMBER 31, 2007

(CONTINUED)

*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.

**PLUS:** A qualified member may elect a partial lump sum benefit of not less than 6 times the monthly amount payable to the member as a single lifetime pension and not more than 60 times that amount.

**Deferred Retirement Option Program** (**DROP**): Members are eligible for a one-time election to "DROP in" upon attainment of unreduced retirement eligibility. The primary features of the DROP include:

- a) During participation in the DROP, members continue to make contributions based upon the 10% member contribution rate. While participating in the DROP, 100% of members' contributions are deposited to their DROP account.
- b) 100% of the member's computed benefit (based upon service and salary at time of DROP), including any scheduled 3% post-retirement increases, is credited to the member's DROP account.
- c) The DROP account is credited with interest annually based upon a rate of return earned on a selected group of cash equivalent type investments (assumed to be 3% for actuarial valuation purposes).

# RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES BENEFITS AND CONDITIONS VALUED DECEMBER 31, 2007 (CONCLUDED)

#### Deferred Retirement Option Program (DROP) (Continued):

- d) A member who "DROPs in" must stay in the DROP for a minimum period of time based on age at time of "DROPing in". A minimum participation period of 3 years for members who "DROP in" prior to age 52 and 2 years for members who "DROP in" on or after age 52. After a maximum of 8 years in the DROP program or attaining age 60, the member who entered the DROP program must retire.
- e) If the member "DROPs in", the member's annual benefit when the member "DROPs out" (i.e. retires) is based upon the benefit calculations at time of the "DROP in", including any post-retirement increases that may have accrued during the DROP participation period.
- f) If, during participation in the DROP, a member becomes disabled due to a duty related injury/illness, the member can choose to 1) have a disability pension benefit calculated based on the assumption that participation in the DROP did not occur, or 2) the member can elect to accept the age/service pension benefit achieved through DROP participation plus the accumulation in the DROP account. Duty disability benefit recipients will not suffer the loss of accumulated interest for early departure from the DROP.
- g) Once a member elects to participate in the DROP, their contributions are committed for the minimum period (2 or 3 years). If the member voluntarily discontinues DROP participation prior to the minimum participation period, the member will not receive any interest accumulated in the DROP account but will receive all accumulated pension benefits and pension contributions deposited into the DROP account at the end of the minimum participation period.

#### SAMPLE BENEFIT COMPUTATION FOR MEMBERS

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

	Data	Description			
A. B. C. D.	\$40,000 27 50 50%	Final Average Compensation Years of Credited Service Age of Retirant Percentage to continue to spouse after retirant's death (this is automatic)			
	Sample Computation Steps				
E.	Bene fit Formula:	0.0250 x 20 x \$40,000 = 0.0225 x 5 x \$40,000 = 0.0200 x 2 x \$40,000 =			
	Benefit payable to:				
G.	Retirant while spouse is alive (E) Spouse after retirant's death (D x E) Retirant after spouse's death (E)		\$26,100 \$13,050 \$26,100		

#### **Projected Benefits to Member**

Year Ended December 31	Amount Payable
2008	\$ 26,100
2009	26,100
2010	26,100
2011	26,883
2012	27,666
2013	28,449
2014	29,232
2015	30,015
2016	30,798

Benefits for years 2017 and later increase by \$783 over the previous year's amount.

## RETIREMENT SURVIVOR & DISABILITY ALLOWANCES COMPUTED EMPLOYER CONTRIBUTIONS TO SUPPORT BENEFITS

Contributions for		s Expressed as of Payroll
Valuation Date - December 31	2007	2006
Results for the Period Beginning July 1	2009	2008
Normal Cost:		
Age & Service Benefits	16.14%	16.14%
Disability Benefits	2.85%	2.83%
Survivor Benefits	0.18%	0.19%
Separation Benefits	0.89%	0.87%
Purchase of Military Service	0.75%	0.75%
Total Normal Cost	20.81%	20.78%
Less Member Contributions	10.00%	10.00%
Employer Normal Cost	10.81%	10.78%
Unfunded Actuarial Accrued Liabilities	10.19%	10.22%
Amortization Period	27 years	28 years
PENSION EMPLOYER CONTRIBUTION RATE	21.00%	21.00%
I ENSIGN EMI LOTER CONTRIBUTION RATE	21.0070	21.0070

The amortization period is the period of years over which the employer contribution rate and the employee contribution rate will finance the unfunded liabilities.

# RETIREMENT, SURVIVOR, & DISABILITY ALLOWANCES METHOD OF FINANCING FUTURE BENEFITS FOR PRESENT ACTIVE MEMBERS DECEMBER 31, 2007

**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, \$866,255,394, less pension assets of \$700,860,707 resulted in unfunded actuarial accrued liabilities of \$165,394,687, which were amortized as a level percent of payroll over a period of 27 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 4.00% AND AN INVESTMENT RETURN ASSUMPTION OF 8.00% COMPOUNDED ANNUALLY

#### Level % of Payroll Amortization: Closed Amortization Completed in 27 Years (\$ Thousands)

	Active Employee	Unfunded Actuarial Accrued	Annual Contributions		UAAL as % of
Year	Payroll	Liability	Dollars	% of Payroll	Payroll
1	\$ 97,503	\$ 165,395	\$ 9,936	10.19%	169.6%
2	101,403	168,301	10,333	10.19%	166.0%
3	105,459	171,027	10,746	10.19%	162.2%
4	109,677	173,541	11,176	10.19%	158.2%
5	114,064	175,810	11,623	10.19%	154.1%
6	118,627	177,796	12,088	10.19%	149.9%
7	123,372	179,457	12,572	10.19%	145.5%
8	128,307	180,749	13,074	10.19%	140.9%
9	133,439	181,622	13,597	10.19%	136.1%
10	138,777	182,021	14,141	10.19%	131.2%
11	144,328	181,887	14,707	10.19%	126.0%
12	150,101	181,154	15,295	10.19%	120.7%
13	156,105	179,751	15,907	10.19%	115.1%
14	162,349	177,600	16,543	10.19%	109.4%
15	168,843	174,616	17,205	10.19%	103.4%
16	175,597	170,705	17,893	10.19%	97.2%
17	182,621	165,766	18,609	10.19%	90.8%
18	189,926	159,688	19,353	10.19%	84.1 %
19	197,523	152,350	20,128	10.19%	77.1 %
20	205,424	143,621	20,933	10.19%	69.9%
21	213,641	133,357	21,770	10.19%	62.4%
22	222,187	121,401	22,641	10.19%	54.6%
23	231,074	107,584	23,546	10.19%	46.6%
24	240,317	91,721	24,488	10.19%	38.2%
25	249,930	73,610	25,468	10.19%	29.5%
26	259,927	53,032	26,487	10.19%	20.4%
27	270,324	29,749	27,546	10.19%	11.0%

# RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES ACTUARIAL PRESENT VALUE OF FUTURE BENEFITS PRESENT RETIRED LIVES AND VESTED DEFERRED CASES DECEMBER 31, 2007

		Monthly	Actuarial
Benefits Payable	Number	Amount	Value
From Employer Accumulation Fund:			
Regular Retirements Effective Before 1/1/66	1	\$ 1,728	\$ 41,059
Disability Retirements Effective Before 1/1/66	0	0	0
Total Benefits Payable from Employer Accumulation Fund	1	1,728	41,059
From Pension Reserve Fund:			
Regular Retirements Effective After 1/1/66	991	2,948,119	442,018,380
Disability Retirements Effective After 1/1/66	100	235,288	36,186,809
Total Benefits Payable from Pension Reserve Fund	1,091	3,183,407	478,205,189
From Survivor Benefit Fund:			
Surviving Spouses, Dependent Children & Dependent			
Parents	267	285,194	29,532,780
Total Benefits Payable from Survivor Benefit Fund	267	285,194	29,532,780
Total Retirement Benefits Payable	1,359	3,470,329	507,779,028
j			
Total Vested Deferred Benefits Payable	5	11,448	1,400,631
Grand Total	1,364	\$3,481,777	\$509,179,659

## RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES DEVELOPMENT OF ACTUARIAL ACCRUED LIABILITIES DECEMBER 31, 2007

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	\$ 505,458,202	\$	157,285,311	\$ 348,172,891
Disability allowances likely to be paid to present active members who become totally and permanently disabled	34,273,163		26,663,754	7,609,409
Survivor benefits likely to be paid to spouses and children of present active members who die before retiring	2,660,430		1,637,336	1,023,094
Separation benefits (refunds of contributions and deferred allowances likely to be paid on behalf of present active members)	8,392,939		8,122,598	270,341
Retirement benefits likely to be paid to current retirants and beneficiaries and to present inactive members	509,179,659		0	509,179,659
Total	\$ 1,059,964,393	\$	193,708,999	\$ 866,255,394
Member portion	178,315,792		92,630,619	85,685,173
Employer portion	\$ 881,648,601	\$	101,078,380	\$ 780,570,221

## RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES SUMMARY STATEMENT OF SYSTEM RESOURCES AND OBLIGATIONS DECEMBER 31, 2007

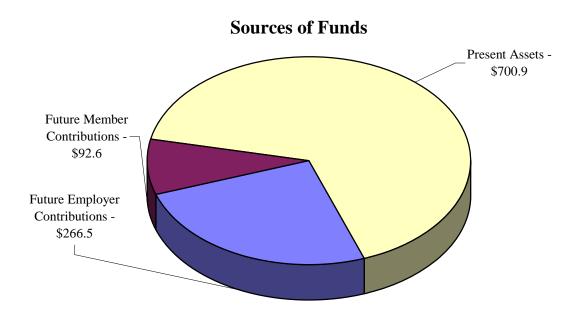
#### PRESENT RESOURCES AND EXPECTED FUTURE RESOURCES

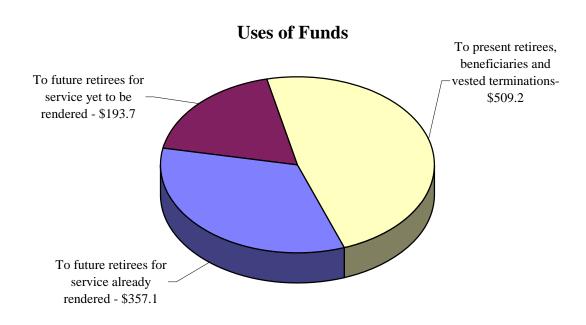
A.	Present valuation assets  1. Net assets from system financial statements 2. Market Value Adjustment 3. Health Assets 4. Valuation Assets: 1 + 2 - 3	\$ 833,704,076 (21,663,013) 111,180,356	\$ 700,860,707
В.	Actuarial present value of expected future Employer contributions  1. For normal costs  2. For unfunded actuarial accrued liability  3. Total	101,078,380 165,394,687	266,473,067
C.	Actuarial present value of expected future member contributions	,	92,630,619
D.	Total Present and Expected Future Resources		\$ 1,059,964,393

#### **ACTUARIAL PRESENT VALUE OF EXPECTED FUTURE BENEFIT PAYMENTS**

To retirants and beneficiaries	\$ 507,779,028
To terminated members	1,400,631
To present active members	
1. Allocated to service rendered prior to	
valuation date (actuarial accrued liability)	357,075,735
2. Allocated to service likely to be	
rendered after valuation date	 193,708,999
3. Total	550,784,734
Total Actuarial Present Value of Expected Future	
Benefit Payments	\$ 1,059,964,393

## RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES FINANCING \$1,060.0 MILLION OF BENEFIT PROMISES DECEMBER 31, 2007





### RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES COMPARATIVE STATEMENT

Valuation Date		Annual	Actu	arial Accrued Liab	ilities	Unfunded/	%	Funding
December 31	No.	Payroll	Total	Funded	Unfunded	Payroll	Funded	Years
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
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	569,858,387	37,552,933	0.5	93.8%	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
2002 #	1,548	78,997,065	668,605,932	492,430,826	176,175,106	2.2	73.7%	32
2003	1,542	81,737,962	702,799,017	545,981,513	156,817,504	1.9	77.7%	32
2004	1,562	81,757,707	737,867,378	569,858,387	168,008,991	2.1	77.2%	37
2004 *	1,562	81,757,707	734,464,371	569,858,387	164,605,984	2.0	77.6%	34
2005	1,573	83,408,155	766,741,437	591,922,200	174,819,237	2.1	77.2%	37
2005 #	1,573	83,408,155	773,856,164	591,922,200	181,933,964	2.2	76.5%	35
2006 *	1,592	85,878,329	807,760,712	653,493,046	154,267,666	1.8	80.9%	28
2007	1,597	93,752,908	866,255,394	700,860,707	165,394,687	1.8	80.9%	27

<sup>\*</sup> Plan amended.

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.

<sup>#</sup> Revised actuarial assumptions or methods.

#### **CHANGES IN AVERAGE PAY**

	Number of			% Change	% Change from Prior Y			
Year	Members	<b>Total Payroll</b>	Average Pay	Average Pay	Average Pay N.A.E.+ (			
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%	2.4%	1.6%		
2002	1,548	78,997,065	51,032	1.6%	1.0%	2.4%		
2003	1,542	81,737,962	53,008	3.9%	2.4%	1.9%		
2004	1,562	81,757,707	52,342	(1.3)%	4.6%	3.3%		
2005	1,573	83,408,155	53,025	1.3%	3.7%	3.4%		
2006	1,592	85,878,329	53,944	1.7%	4.6%	2.6%		
2007	1,597	93,752,908	58,706	8.8%	4.7% *	4.1%		
		10 Year Averag	ge	3.1%	4.0%	2.9%		

<sup>+</sup> 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 the change in average pay may tend to be less than actual pay increases experienced by members.

<sup>\*</sup> Estimated National Average Earnings published by the Social Security Administration.

### RETIREMENT, SURVIVOR, AND DISABILITY BENEFITS IN PAY STATUS COMPARATIVE STATEMENT

Valuation Date	Number of	Monthly	Active	Average	% of Active
December 31	People	Pensions	Payroll	Amount	Member Pays
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	635	12.0%
1985 #	530	359,208	32,500,428	678	13.3%
1986	544	382,419	34,757,277	703	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%
2002	1,231	2,603,108	78,997,065	2,115	39.5%
2003	1,253	2,770,149	81,737,962	2,211	40.7%
2004	1,282	3,023,341	81,757,707	2,358	44.4%
2005 #	1,301	3,177,731	83,408,155	2,443	45.7%
2006 *	1,337	3,341,805	85,878,329	2,499	46.7%
2007	1,359	3,470,329	93,752,908	2,554	44.4%

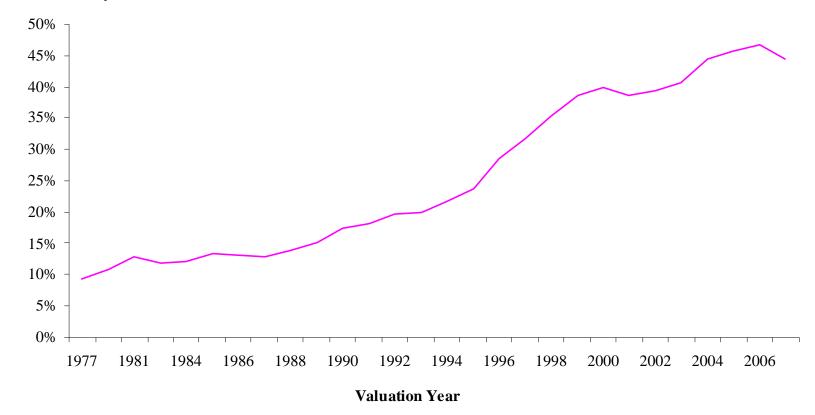
<sup>\*</sup> Plan amended.

Pensions expressed as a % of payroll exceed contribution income by a considerable margin. This is a normal and expected condition in a funded plan such as HPRS, but it does have implications for cash flow and investment planning.

<sup>#</sup> Revised actuarial assumptions or methods.

## RETIREMENT, SURVIVOR, AND DISABILITY ALLOWANCES BEING PAID EXPRESSED AS A % OF ACTIVE MEMBER PAYROLL DECEMBER 31, 2007

#### % of Active Payroll



The employer contribution rate for the year ended June 30, 2010 is scheduled to be 21.00%.

#### 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

	(1)	(2)	(3)		Portio	on of Ac	crued
	Active	Retirants,	Active Members		Liabi	lities Co	vered
Valuation	Member	Beneficiaries &	(Employer Financed	Valuation	By Ro	eported A	Assets
Year	Contributions	<b>Vested Deferreds</b>	Portion)	Assets	(1)	(2)	(3)
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	570,039,631	100%	100%	80%
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%
2002	68,794,904	391,098,788	208,712,240	492,430,826	100%	100%	16%
2002 #	68,794,904	391,098,788	203,176,113	527,604,456	100%	100%	33%
2003	73,358,075	412,818,959	216,621,983	545,981,513	100%	100%	28%
2004	77,100,466	445,084,791	215,682,121	569,858,387	100%	100%	22%
2004 *	77,100,466	445,084,791	212,279,114	569,858,387	100%	100%	22%
2005	77,779,569	462,913,927	226,047,941	591,922,200	100%	100%	23%
2005 #	77,779,569	463,476,318	232,600,277	591,922,200	100%	100%	22%
2006 *	82,720,940	482,998,754	242,041,018	653,493,046	100%	100%	36%
2007	89,279,853	509,179,659	267,795,882	700,860,707	100%	100%	38%

<sup>\*</sup> Plan amendment.

<sup>#</sup> 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

	Actuarial					UAAL as a
	Accrued		Unfunded Actuarial	Ratio of	Active	% of Active
Valuation   Liability		Valuation	Accrued Liability	Assets to	Member	Member
Year	(AAL)	Assets	(UAAL)	AAL	Payroll	Payroll
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%
2002	668,605,932	492,430,826	176,175,106	73.7%	78,997,065	223.0%
2002 #	663,069,805	527,604,456	135,465,349	79.6%	78,997,065	171.5%
2003	702,799,017	545,981,513	156,817,504	77.7%	81,737,962	191.9%
2004	737,867,378	569,858,387	168,008,991	77.2%	81,757,707	205.5%
2004 *	734,464,371	569,858,387	164,605,984	77.6%	81,757,707	201.3%
2005	766,741,437	591,922,200	174,819,237	77.2%	83,408,155	209.6%
2005 #	773,856,164	591,922,200	181,933,964	76.5%	83,408,155	218.1%
2006 *	807,760,712	653,493,046	154,267,666	80.9%	85,878,329	179.6%
2007	866,255,394	700,860,707	165,394,687	80.9%	93,752,908	176.4%

<sup>\*</sup> Plan amendment.

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

<sup>#</sup> Assumption or method change.

### GASB STATEMENT NO. 25 SCHEDULE OF EMPLOYER CONTRIBUTIONS

Year Ended December 31	Actual Contributions	Percent of Required Contributed
1999	\$13,569,730	100%
2000	13,210,189	100%
2001	13,901,313	100%
2002	14,923,893	100%
2003	16,361,339	100%
2004	17,205,610	100%
2005	18,467,789	100%
2006	19,263,941	98%
2007	19,956,700	96%

This information is presented in draft form for review by the System's auditor. Please let us know if there are any changes so that we may maintain consistency with the System's financial statements.

The amounts reported in this schedule do not include contributions for post-employment Health Care benefits.

#### GASB STATEMENT NO. 25 ANNUAL REQUIRED CONTRIBUTION

For purposes of Governmental Accounting Standards Board (GASB) Statement No. 25, the System's Annual Required Contribution for the plan year ending December 31, 2008 will be ½ of the employer contribution for the period from July 1, 2007 to June 30, 2008 (22.90% of payroll, based upon an amortization period of 30 years) plus ½ of the employer contribution for the period from July 1, 2008 to June 30, 2009 (21.00% of payroll, based upon an amortization period of 28 years). The System's Annual Required Contribution for the plan year ending December 31, 2009 will be ½ of the employer contribution for the period from July 1, 2008 to June 30, 2009 (21.00% of payroll, based upon an amortization period of 28 years) plus ½ of the employer contribution for the period from July 1, 2009 to June 30, 2010 (21.00% of payroll, based upon an amortization period of 27 years).

#### GASB STATEMENT NO. 25 NOTES TO TREND DATA

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

the Annual Required Contribution

20 % Corridor

Valuation Date

Actuarial Cost Method

Amortization Method

Remaining Amortization Period

December 31, 2007

Entry Age

Level Percent Open

27 years for retirement allowances in determining

Asset Valuation Method 4 year smoothed market

Actuarial Assumptions:

Investment Rate of Return

Projected Salary Increases

\* Includes Wage Inflation at

4.0%

#### OTHER REQUESTED CAFR INFORMATION

As of December 31, 2007, the actuarial present value of credited projected benefits for current employees is shown below:

	Actuarial Present Value of Credited Projected Benefits
Current Employees Accumulated employee contributions	
including allocated investment income	\$ 89,279,853
Employer - financed vested	172,211,694
Employer - financed non-vested	47,554,428

As of December 31, 2007, there were 615 vested active members and 982 non-vested active members.



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 copayments for the retirant, spouse, or dependent children, and any other changes in plan design for the following calendar year. The premium for 2007 applicable to spouses under age 65 is \$80 per month and \$25 for spouses 65 and older. 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 \$5,000 and \$10,000, 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 \$2,000,000 per person. If the covered person is in a network area and uses non-network providers, the annual deductible for the individual is \$1,000.

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 \$30.00 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 \$30.00 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.

**Dental/Vision**: System pays premiums for all benefit recipients. The premium for dependents is deducted from the pension benefit.

#### POST-RETIREMENT HEALTH CARE AND MEDICARE REIMBURSEMENT

		Amounts Paid to Vendors (Including Medicare Part B)						Member				
Year	Covered Lives	Medical	Drugs	Medicare Part B	Dental	Vision	Total	Premiums and Other Adjustments	Net Paid by OHPRS	Per Covered Life	Payroll	% of Payroll
1985	697	\$ 427,361	\$ 60,015	\$ 28,272			\$ 515,648		\$ 515,648	\$ 740	\$ 32,500,428	1.6%
1986	715	787,245	80,911	30,457			898,613		898,613	1,257	34,757,277	2.6%
1987	731	559,832	115,544	38,037			713,413		713,413	976	39,938,912	1.8%
1988	761	522,747	145,847	57,461			726,055		726,056	954	40,674,634	1.8%
1989	810	1,043,650	186,795	77,869			1,308,314	\$ 97,864	1,406,178	1,736	43,053,057	3.3%
1990	925	1,009,153	213,716	77,363			1,300,232	(94,251)	1,205,981	1,304	45,679,355	2.6%
1991	976	1,267,327	251,004	86,740			1,605,071	180,583	1,785,654	1,830	48,488,406	3.7%
1992	1,045	1,643,276	298,493	97,117			2,038,886	76,046	2,114,932	2,024	50,235,996	4.2%
1993	1,081	1,553,628	299,410	118,109			1,971,147	(90,525)	1,880,622	1,740	55,781,585	3.4%
1994	1,133	1,239,008	320,360	141,384			1,700,752	3,314	1,704,066	1,504	58,116,787	2.9%
1995	1,225	1,512,523	364,096	149,440			2,026,059	(66,834)	1,959,225	1,599	59,825,356	3.3%
1996	1,379	1,353,932	491,525	155,769			2,001,226	21,382	2,022,608	1,467	59,239,349	3.4%
1997	1,499	1,623,640	849,321	166,743			2,639,704	(140,526)	2,499,178	1,667	62,233,299	4.0%
1998	1,602	2,147,334	1,122,248	171,223			3,440,805	(311,917)	3,128,888	1,953	65,153,864	4.8%
1999	1,772	3,315,914	1,364,990	197,606			4,878,510	619,894	5,498,404	3,103	66,017,381	8.3%
2000	1,848	3,190,885	1,684,300	203,157			5,078,342	(358,082)	4,720,260	2,554	69,028,285	6.8%
2001	1,900	3,730,167	1,960,825	231,046			5,922,038	138,317	6,060,355	3,190	76,344,002	7.9%
2002	1,943	4,147,534	2,431,297	260,772	\$194,893	\$80,909	7,115,405	(200,021)	6,915,384	3,559	78,997,065	8.8%
2003	1,912	4,256,046	2,681,414	290,506	209,429	82,097	7,519,492	(507,642)	7,011,850	3,667	81,737,962	8.6%
2004	1,928	4,074,972	2,710,367	347,585	230,994	84,136	7,448,054	(641,707)	6,806,347	3,530	81,757,707	8.3%
2005	1,958	6,015,277	2,980,755	422,045	364,139	124,658	9,906,874	(552,570)	9,354,304	4,777	83,408,155	11.2%
2006	2,078	4,999,822	2,832,743	503,034	408,667	127,266	8,871,532	(198,141)	8,673,391	4,174	85,878,328	10.1%
2007#	2,085	6,580,455	3,513,662	572,127	464,402	130,029	11,260,675	(980,539)	10,280,136	4,931	93,752,908	11.0%

<sup>#</sup> Member premiums and other adjustments for calendar year 2007 include member premiums totaling \$608,033, and claims of \$372,506 paid in 2007 but recognized in 2006.

Separate information for dental and vision was not available for years prior to 2002.

#### POST-RETIREMENT HEALTH CARE AND ME DICARE REIMBURSEMENT



### ASSUMPTIONS FOR HEALTH CARE COVERAGES DECEMBER 31, 2007

**Development of Health Care Rates:** Based on the 2007 retired life data, the HPRS portion of the total health care rates was developed as follows:

		Age/Gender Weighted HPRS Monthly Rates					
				Prior Year			
		<b>Gross Rate</b>	Member Paid	Net Rate	Net Rate		
A.	One person without Medicare	\$451.52	\$0.00	\$451.52	\$388.77		
B.	One person with Medicare*	272.66	0.00	272.66	242.84		
C.	Two persons without Medicare	903.05	80.00	823.05	697.54		
D.	Two persons with Medicare*	545.32	25.00	520.32	485.68		
E.	Child	182.81	25.00	157.81	185.84		
F.	Medicare Part B Reimbursement	96.40	0.00	96.40	93.50		

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. Pre-Medicare rates are lower than would be expected when compared with other retired groups. This may be attributable to a higher than average amount of coordination of benefit claims for younger HPRS retirees. Many younger retirees likely have other employment. Please see page B-5 for age specific rates used for valuation purposes. Employment related primary coverage for recipients and dependents have been reflected in the age based specific premium rates.

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

-		Claims Member and		_	Population	Medical	Price		Secondary Provision		
<b>Year</b>	Gross	Adjustments	<u>Net</u>	<b>Enrollees</b>	<b>Adjusted</b>	<u>CPI</u>	<b>Adjusted</b>	Weight	Adjustment		Recognized
2003	\$7,519,492	\$507,642	\$7,011,850	1,912	\$7,646,290	297.1	\$9,036,057	0.00	0.96	\$	-
2004	7,448,054	641,707	6,806,347	1,928	7,360,598	310.1	8,333,783	0.10	1.00		833,378
2005	9,906,874	552,570	9,354,304	1,958	9,961,044	323.2	10,820,924	0.20	1.00		2,164,185
2006	9,244,039	570,648	8,673,391	2,078	8,702,608	336.2	9,088,298	0.30	1.00		2,726,489
2007	11,260,675	980,539	10,280,136	2,085	10,280,136	351.1	10,280,136	0.40	1.00		4,112,054
					(	Base for co	oming year ) Re	ecognized:		\$	9,836,106
					Growth Factors: Population						1.017
								Price			1.065
							First Year l	Projection:		\$	10,653,536

<sup>\*</sup> Does not include Medicare Part B monthly premium of \$96.40.

## ASSUMPTIONS FOR HEALTH CARE COVERAGES AGE SPECIFIC HPRS MONTHLY GROSS RATES

	Gros	s Rate		Gross	s Rate		Gross	Rate
Age	Male	Female	Age	Male	Female	Age	Male	Female
16	\$ 118.82	\$ 185.38	51	\$ 325.49	\$ 359.86	86	\$ 336.86	\$ 295.52
17	120.01	187.23	52	347.33	375.80	87	338.39	296.09
18	121.21	189.10	53	369.84	392.74	88	338.39	296.09
19	122.42	190.99	54	393.17	410.42	89	338.39	296.09
20	123.65	192.90	55	417.29	428.82	90	338.39	296.09
21	124.89	194.83	56	442.14	447.92	91	338.39	296.09
22	126.13	196.78	57	467.68	467.68	92	338.39	296.09
23	127.40	198.75	58	492.11	485.13	93	338.39	296.09
24	128.67	200.74	59	516.90	502.94	94	338.39	296.09
25	129.96	202.74	60	541.98	521.06	95	338.39	296.09
26	131.26	204.77	61	567.28	539.44	96	338.39	296.09
27	132.57	206.82	62	592.72	558.04	97	338.39	296.09
28	133.89	208.89	63	617.91	577.10	98	338.39	296.09
29	135.23	210.97	64	643.07	596.28	99	338.39	296.09
30	136.59	213.08	65	234.80	216.22	100	338.39	296.09
31	137.95	215.22	66	242.38	221.90	101	338.39	296.09
32	139.33	217.37	67	249.80	227.49	102	338.39	296.09
33	140.72	219.54	68	257.03	232.97	103	338.39	296.09
34	142.13	221.74	69	264.05	238.33	104	338.39	296.09
35	143.55	223.95	70	270.84	243.54	105	338.39	296.09
36	144.99	226.19	71	277.38	248.60	106	338.39	296.09
37	146.44	228.46	72	283.66	253.47	107	338.39	296.09
38	147.90	230.74	73	289.64	258.15	108	338.39	296.09
39	149.38	233.05	74	295.32	262.61	109	338.39	296.09
40	150.88	235.38	75	300.68	266.85	110	338.39	296.09
41	161.61	242.99	76	305.72	270.85	111	338.39	296.09
42	173.36	251.28	77	310.42	274.59	112	338.39	296.09
43	186.13	260.28	78	314.76	278.06	113	338.39	296.09
44	199.95	270.02	79	318.76	281.26	114	338.39	296.09
45	214.82	280.51	80	322.40	284.18	115	338.39	296.09
46	230.72	291.78	81	325.68	286.81	116	338.39	296.09
47	247.66	303.83	82	328.60	289.14	117	338.39	296.09
48	265.63	316.66	83	331.17	291.18	118	338.39	296.09
49	284.60	330.28	84	333.40	292.92	119	338.39	296.09
50	304.56	344.68	85	335.29	294.36	120	338.39	296.09

## ASSUMPTIONS FOR HEALTH CARE COVERAGES DECEMBER 31, 2007 (CONCLUDED)

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

**Health Care Inflation:** If the price for any product or service were to increase faster than wages for an indefinite period, eventually that product or service would be priced out of the market and either the product or service would not be offered or substituted with an affordable product or service. For this reason, health care inflation was assumed to equal wage inflation in the long term. The assumed point in time when health care inflation reduces to wage growth inflation is uncertain. Our assumptions are based on an approximate 5 to 10-year horizon. Short-term assumptions are described on page B-8.

Retiree health valuations require an assumption about how the health costs that the System is absorbing will change over the years. This assumption includes more than just "health inflation". It includes the impact of:

- The introduction of new procedures and medications and how they are priced.
- The utilization of services and products by covered retirees and their dependents and how that utilization changes over the years.

Retiree health valuations use a health cost trend assumption that changes over the years. The near term rates reflect the fact that currently employers are seeing sharp increases in the cost of health goods and services. If this trend is projected to continue for years to come, it implies that years from now virtually all our expenditures will be for health care. The seemingly more reasonable alternative is that in the not too distant future inflation in medical expenses will decrease to a level at or near wage inflation. It is on this basis that we project premium rates will continue to exceed wage inflation for the next 5 - 10 years, but by less each year until leveling off at an ultimate rate, assumed to be 4.0% in this valuation.

The trend assumption is established by reviewing the System's historical trends and evaluating their relationship with national trends. Comparative trends obtained from a variety of resources including trend surveys from major insurers and benefit consulting groups. This information is added to information we have collected from analysis done in conjunction with many retiree health valuations we have completed for other clients.

This analysis is done separately for the prescription drug program and the remainder of the medical benefits since the trends and forces driving the trends are quite different in these two segments. Review of the System's recent experience indicates trends typical of our comparative trends for both prescription drug and medical, that is in the high teens for prescription drugs and low teens for medical. Trends are predicted to moderate in the near term but are still high in the 10% to 14% area. The trends used in this valuation are found on page B-8.

### POST-RETIREMENT HEALTH PREMIUM AND MEDICARE REIMBURSEMENT SELECTION OF ASSUMPTIONS DECEMBER 31, 2007

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, 2007 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.

For purposes of the solvency projections, an investment return assumption of 8.0% was chosen by default to be the same rate used in the Pension Plan valuations. It is uncertain how much longer retiree health fund assets can be invested in the same manner as pension assets given the current solvency period of the retiree health fund. For purposes of GASB Statements No. 43 and No. 45 reporting, an investment return assumption of 6.5% was used. The rates of pay growth used in the Retirement System valuations are 4.00% 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 4.00% 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, 2007

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 (Optimistic):** The Alternate A assumption assumes that the employer share of per capita costs would increase at 6% next year, 5.5% the second year, 5% the third year, 4.5% the fourth year and no faster than 4% per year thereafter.

**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. This is the assumption set upon which Governmental Accounting Standards Board (GASB) statements 43 and 45 information is based.

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

No trend was applied to the \$80 monthly spouse premium.

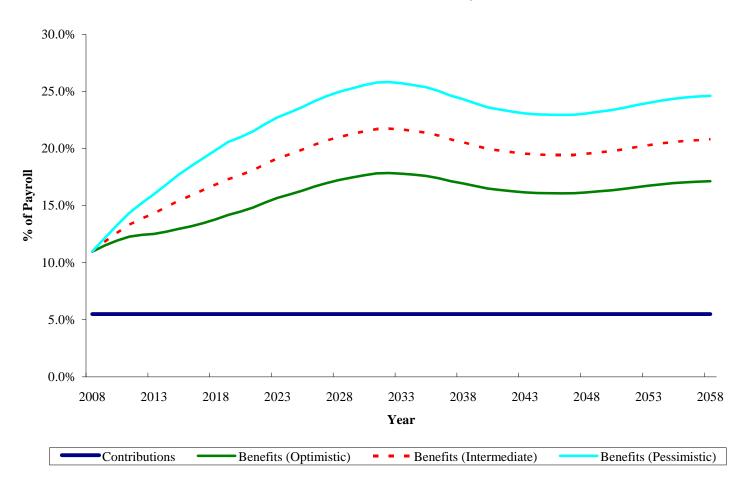
	Hea	lth Trend Above	Wage Inflation	Assumption of 4	1.0%		
	Medica	l and Prescription	on Drug	Medicare			
	Alt. A	Alt. B	Alt. C	Part	Part		
Year	Optimistic	Intermediate	Pessimistic	D	В		
2008							
2009	2.00%	5.00%	8.00%	3.00%	5.00%		
2010	1.50%	4.50%	7.25%	2.70%	4.50%		
2011	1.00%	4.00%	6.50%	2.40%	4.00%		
2012	0.50%	3.50%	5.75%	2.10%	3.50%		
2013	0.00%	3.00%	5.00%	1.80%	3.00%		
2014	0.00%	2.50%	4.25%	1.50%	2.50%		
2015	0.00%	2.00%	3.50%	1.20%	2.00%		
2016	0.00%	1.50%	2.75%	0.90%	1.50%		
2017	0.00%	1.00%	2.00%	0.60%	1.00%		
2018	0.00%	0.50%	1.25%	0.30%	0.50%		
2019	0.00%	0.00%	1.00%	0.00%	0.00%		
2020	0.00%	0.00%	0.00%	0.00%	0.00%		
2021	0.00%	0.00%	0.00%	0.00%	0.00%		
2022 & Later	0.00%	0.00%	0.00%	0.00%	0.00%		

# POST-RETIREMENT HEALTH CARE AND MEDICARE REIMBURSEMENT PROJECTED BENEFITS DECEMBER 31, 2007

	Projected Benefits as % of Payroll								
	Alt. A	Alt. B	Alt. C						
Year Ended 12/31	Optimistic	Intermediate	Pessimistic						
2008	11.0%	11.0%	11.0%						
2009	11.5%	11.8%	12.1%						
2010	11.9%	12.6%	13.3%						
2011	12.3%	13.3%	14.4%						
2012	12.4%	13.9%	15.2%						
2013	12.5%	14.3%	16.0%						
2014	12.7%	14.9%	16.9%						
2015	13.0%	15.4%	17.7%						
2016	13.2%	15.9%	18.4%						
2017	13.5%	16.4%	19.2%						
2022	15.3%	18.6%	22.1%						
2027	17.0%	20.7%	24.6%						
2032	17.9%	21.7%	25.8%						
2037	17.1%	20.8%	24.6%						
2042	16.3%	19.7%	23.2%						
2047	16.1%	19.4%	23.0%						
2052	16.6%	20.1%	23.8%						
2057	17.1%	20.7%	24.6%						

Under the intermediate assumption, the payout under the retiree health plan is expected to nearly double as a percentage of payroll within 50 years.

### **Contributions vs. Benefit Payouts**



### POST-RETIREMENT HEALTH CARE AND MEDICARE REIMBURSEMENT GASB 43/45 REPORTING

#### ALTERNATIVE B: INTERMEDIATE HEALTH TREND

Determination of the Annual Required Contribution for the Period July 1, 2009 to June 30, 2010	Contributions Expressed as Percents of Payroll
Normal Cost	10.24%
UAL Payment (30 year amortization)	10.92%
Total (Annual Required Contribution)	21.16%
Current Employer Contribution Rate Allocation	5.50%

Accrued Health and Medicare Reimbursement Liabilities, \$335,231,779 were more than applicable assets of \$111,180,356.

The calculations above show the employer's annual required contribution (ARC) for the year ended June 30, 2010. The System's ARC for the year ended December 31, 2009 will be ½ of 19.58% and ½ of the 21.16% shown above.

### GASB STATEMENTS 43/45 NOTES TO TREND DATA

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date Actuarial Cost Method Amortization Method

Remaining Amortization Period

Asset Valuation Method

**Actuarial Assumptions:** 

**Investment Rate of Return Projected Salary Increases** \* Includes Wage Inflation at Health Trend

December 31, 2007 Entry Age Level Percent Open 30 years for retiree health benefits in determining the Annual Required Contribution

4 year smoothed market 20 % Corridor

6.5% 4.3% - 14.0% 4.0%

Intermediate Trend (See Page B-8)

# POST-RETIREMENT HEALTH AND MEDICARE REIMBURSEMENT RESULTS WITH ALTERNATE HEALTH INFLATION ASSUMPTIONS DECEMBER 31, 2007

Optimistic, Intermediate and Pessimistic assumption sets were described on page B-8. 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
(Employer Rate Allocation)

Funding Level 2 (Lowest Employer Rate to Maintain Solvency of Fund Indefinitely)

<b>Assumption Set</b>	<b>%</b>	Fund Solvent Until	%	Fund Solvent Until	Prior Valuation %
A (Optimistic)	5.50%	2030	9.80%	Indefinitely	9.50%
B (Intermediate)	5.50%	2025	12.70%	Indefinitely	11.50%
C (Pessimistic)	5.50%	2022	15.60%	Indefinitely	14.90%

The above results show that:

- Under the optimistic assumptions, the employer rate will need to be raised prior to 2030 in order to maintain the solvency of the fund. The ultimate rate needed to support the plan would be 9.80% of payroll.
- Under the intermediate assumptions, the employer rate will need to be raised prior to 2025 in order to maintain the solvency of the fund. The ultimate rate needed to support the plan would be 12.70% of payroll if the increase were made today.
- Under the pessimistic assumptions, the employer rate will need to be raised prior to 2022 in order to maintain the solvency of the fund. The ultimate rate needed to support the plan would be 15.60% of payroll if the increase were made today.

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

# POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT CASH FLOW PROJECTION OPTIMISTIC ASSUMPTIONS: A

FUNDING LEVEL 1

Fiscal	Fund Balance				Investment	Investment	Fund Bala	nce EOY	% of I	Payroll
Year	BOY	Contributions	Benefits	Net	Return %	Return \$	Nominal \$	Real \$	Contrib.	Benefits
2008	\$111,180	\$4,702	\$10,653	\$(5,949)	8.00%	\$8,659	\$113,890	\$113,890	5.50%	10.97%
2009	113,890	5,393	11,532	(6,139)	8.00%	8,869	116,620	112,135	5.50%	11.49%
2010	116,620	6,143	12,403	(6,260)	8.00%	9,082	119,442	110,431	5.50%	11.92%
2011	119,442	6,406	13,250	(6,844)	8.00%	9,285	121,883	108,354	5.50%	12.28%
2012	121,883	6,692	13,901	(7,209)	8.00%	9,466	124,140	106,115	5.50%	12.43%
2013	124,140	6,985	14,509	(7,524)	8.00%	9,634	126,250	103,768	5.50%	12.51%
2014	126,250	7,287	15,293	(8,006)	8.00%	9,784	128,028	101,182	5.50%	12.71%
2015	128,028	7,594	16,181	(8,587)	8.00%	9,903	129,344	98,291	5.50%	12.96%
2016	129,344	7,915	17,090	(9,175)	8.00%	9,985	130,154	95,102	5.50%	13.19%
2017	130,154	8,236	18,095	(9,859)	8.00%	10,023	130,318	91,560	5.50%	13.46%
2018	130,318	8,558	19,240	(10,682)	8.00%	10,004	129,640	87,580	5.50%	13.80%
2019	129,640	8,887	20,505	(11,618)	8.00%	9,912	127,934	83,103	5.50%	14.18%
2020	127,934	9,246	21,720	(12,474)	8.00%	9,742	125,202	78,201	5.50%	14.47%
2021	125,202	9,617	23,087	(13,470)	8.00%	9,484	121,216	72,799	5.50%	14.82%
2022	121,216	9,990	24,661	(14,671)	8.00%	9,118	115,663	66,793	5.50%	15.27%
2023	115,663	10,392	26,265	(15,873)	8.00%	8,626	108,416	60,200	5.50%	15.67%
2024	108,416	10,835	27,854	(17,019)	8.00%	8,001	99,398	53,069	5.50%	15.99%
2025	99,398	11,298	29,563	(18,265)	8.00%	7,231	88,364	45,364	5.50%	16.31%
2026	88,364	11,774	31,437	(19,663)	8.00%	6,293	74,994	37,019	5.50%	16.67%
2027	74,994	12,279	33,365	(21,086)	8.00%	5,167	59,075	28,040	5.50%	16.99%
2028	59,075	12,817	35,305	(22,488)	8.00%	3,838	40,425	18,449	5.50%	17.24%
2029	40,425	13,386	37,255	(23,869)	8.00%	2,291	18,847	8,271	5.50%	17.45%
2030	18,847	13,982	39,314	(25,332)	8.00%	507	(5,978)	(2,522)	5.50%	17.65%

Funding Level 1 is the present contribution rate for post-retirement Health Care and Medicare reimbursement. The fund remains solvent until 2030 in this projection.

# POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT CASH FLOW PROJECTION OPTIMISTIC ASSUMPTIONS: A

FUNDING LEVEL 2

Fiscal	Fund Balance				Investment	Investment	Fund Bala	nce EOY	% of	Payroll
Year	BOY	Contributions	Benefits	Net	Return %	Return \$	Nominal \$	Real \$	Contrib.	Benefits
2008	\$111,180	\$9,850	\$10,653	\$(801)	8.00%	\$8,863	\$119,242	\$119,242	9.80%	10.97%
2009	119,242	10,211	11,532	(1,321)	8.00%	9,487	127,408	122,508	9.80%	11.49%
2010	127,408	10,616	12,403	(1,787)	8.00%	10,122	135,743	125,502	9.80%	11.92%
2011	135,743	11,046	13,250	(2,204)	8.00%	10,772	144,311	128,292	9.80%	12.28%
2012	144,311	11,501	13,901	(2,400)	8.00%	11,450	153,361	131,094	9.80%	12.43%
2013	153,361	11,972	14,509	(2,537)	8.00%	12,169	162,993	133,968	9.80%	12.51%
2014	162,993	12,461	15,293	(2,832)	8.00%	12,928	173,089	136,795	9.80%	12.71%
2015	173,089	12,964	16,181	(3,217)	8.00%	13,720	183,592	139,515	9.80%	12.96%
2016	183,592	13,487	17,090	(3,603)	8.00%	14,545	194,534	142,144	9.80%	13.19%
2017	194,534	14,015	18,095	(4,080)	8.00%	15,402	205,856	144,632	9.80%	13.46%
2022	253,582	16,936	24,661	(7,725)	8.00%	19,982	265,839	153,515	9.80%	15.27%
2027	315,003	20,726	33,365	(12,639)	8.00%	24,701	327,065	155,239	9.80%	16.99%
2032	374,072	25,713	43,359	(17,646)	8.00%	29,229	385,655	150,452	9.80%	17.85%
2037	436,063	32,131	51,611	(19,480)	8.00%	34,116	450,699	144,517	9.80%	17.14%
2042	520,664	39,459	59,855	(20,396)	8.00%	40,848	541,116	142,612	9.80%	16.25%
2047	634,204	47,953	71,941	(23,988)	8.00%	49,789	660,005	142,971	9.80%	16.08%
2052	769,196	57,909	90,088	(32,179)	8.00%	60,265	797,282	141,953	9.80%	16.61%
2057	910,631	70,100	112,557	(42,457)	8.00%	71,174	939,348	137,465	9.80%	17.09%
2067	1,221,204	104,065	163,088	(59,023)	8.00%	95,366	1,257,547	124,325	9.80%	16.67%
2077	1,641,204	154,379	236,878	(82,499)	8.00%	128,039	1,686,744	112,655	9.80%	16.36%
2087	2,022,450	227,777	361,942	(134,165)	8.00%	156,498	2,044,783	92,260	9.80%	16.92%
2097	2,013,351	337,914	529,526	(191,612)	8.00%	153,502	1,975,241	60,208	9.80%	16.69%
2107	1,026,620	500,315	778,518	(278,203)	8.00%	71,144	819,561	16,876	9.80%	16.58%

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

### **INTERMEDIATE ASSUMPTIONS: B**

### FUNDING LEVEL 1

Fiscal	Fund Balance				Investment	Investment	Fund Balar	nce EOY	% of	Payroll
Year	BOY	Contributions	Benefits	Net	Return %	Return \$	Nominal \$	Real \$	Contrib.	Benefits
2008	\$111,180	\$4,702	\$10,653	\$(5,951)	8.00%	\$8,659	\$113,888	\$113,888	5.50%	10.97%
2009	113,888	5,393	11,860	(6,467)	8.00%	8,856	116,277	111,805	5.50%	11.82%
2010	116,277	6,143	13,112	(6,969)	8.00%	9,027	118,335	109,407	5.50%	12.60%
2011	118,335	6,406	14,394	(7,988)	8.00%	9,151	119,498	106,233	5.50%	13.34%
2012	119,498	6,692	15,507	(8,815)	8.00%	9,212	119,895	102,487	5.50%	13.86%
2013	119,895	6,985	16,612	(9,627)	8.00%	9,211	119,479	98,203	5.50%	14.32%
2014	119,479	7,287	17,892	(10,605)	8.00%	9,140	118,014	93,268	5.50%	14.87%
2015	118,014	7,594	19,259	(11,665)	8.00%	8,981	115,330	87,641	5.50%	15.42%
2016	115,330	7,915	20,597	(12,682)	8.00%	8,726	111,374	81,380	5.50%	15.89%
2017	111,374	8,236	21,989	(13,753)	8.00%	8,367	105,988	74,466	5.50%	16.36%
2018	105,988	8,558	23,478	(14,920)	8.00%	7,890	98,958	66,852	5.50%	16.84%
2019	98,958	8,887	25,032	(16,145)	8.00%	7,279	90,092	58,522	5.50%	17.31%
2020	90,092	9,246	26,506	(17,260)	8.00%	6,526	79,358	49,567	5.50%	17.66%
2021	79,358	9,617	28,168	(18,551)	8.00%	5,616	66,423	39,892	5.50%	18.08%
2022	66,423	9,990	30,090	(20,100)	8.00%	4,520	50,843	29,361	5.50%	18.63%
2023	50,843	10,392	32,041	(21,649)	8.00%	3,213	32,407	17,994	5.50%	19.12%
2024	32,407	10,835	33,966	(23,131)	8.00%	1,679	10,955	5,849	5.50%	19.50%
2025	10,955	11,298	36,042	(24,744)	8.00%	(101)	(13,890)	(7,131)	5.50%	19.89%

Funding Level 1 is the present contribution rate for post-retirement Health Care and Medicare reimbursement. The fund remains solvent until 2025 in this projection.

## POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT CASH FLOW PROJECTION

### **INTERMEDIATE ASSUMPTIONS: B**

### FUNDING LEVEL 2

Fiscal	Fund Balance				Investment	Investment	Fund Balar	nce EOY	% of	Payroll
Year	BOY	Contributions	Benefits	Net	Return %	Return \$	Nominal \$	Real \$	Contrib.	Benefits
2008	\$111,180	\$12,667	\$10,653	\$2,014	8.00%	\$8,974	\$122,168	\$122,168	12.70%	10.97%
2009	122,168	13,122	11,860	1,262	8.00%	9,823	133,253	128,128	12.70%	11.82%
2010	133,253	13,633	13,112	521	8.00%	10,681	144,455	133,557	12.70%	12.60%
2011	144,455	14,175	14,394	(219)	8.00%	11,548	155,784	138,491	12.70%	13.34%
2012	155,784	14,745	15,507	(762)	8.00%	12,433	167,455	143,141	12.70%	13.86%
2013	167,455	15,335	16,612	(1,277)	8.00%	13,346	179,524	147,556	12.70%	14.32%
2014	179,524	15,950	17,892	(1,942)	8.00%	14,285	191,867	151,635	12.70%	14.87%
2015	191,867	16,585	19,259	(2,674)	8.00%	15,244	204,437	155,355	12.70%	15.42%
2016	204,437	17,245	20,597	(3,352)	8.00%	16,223	217,308	158,785	12.70%	15.89%
2017	217,308	17,912	21,989	(4,077)	8.00%	17,224	230,455	161,915	12.70%	16.36%
2022	285,316	21,621	30,090	(8,469)	8.00%	22,491	299,338	172,860	12.70%	18.63%
2027	355,244	26,422	40,674	(14,252)	8.00%	27,857	368,849	175,071	12.70%	20.71%
2032	421,442	32,757	52,804	(20,047)	8.00%	32,924	434,319	169,437	12.70%	21.74%
2037	490,796	40,865	62,620	(21,755)	8.00%	38,405	507,446	162,713	12.70%	20.79%
2042	588,292	50,138	72,406	(22,268)	8.00%	46,184	612,208	161,349	12.70%	19.66%
2047	722,105	60,924	86,974	(26,050)	8.00%	56,740	752,795	163,071	12.70%	19.45%
2052	883,421	73,642	109,133	(35,491)	8.00%	69,272	917,202	163,304	12.70%	20.12%
2057	1,054,562	89,194	136,546	(47,352)	8.00%	82,495	1,089,705	159,469	12.70%	20.74%
2067	1,446,369	132,442	197,778	(65,336)	8.00%	113,130	1,494,163	147,717	12.70%	20.21%
2077	2,027,724	196,381	286,952	(90,571)	8.00%	158,642	2,095,795	139,974	12.70%	19.81%
2087	2,698,135	289,811	438,932	(149,121)	8.00%	209,962	2,758,976	124,484	12.70%	20.52%
2097	3,211,747	429,915	641,892	(211,977)	8.00%	248,569	3,248,339	99,013	12.70%	20.23%
2107	3,269,672	636,458	943,443	(306,985)	8.00%	249,452	3,212,139	66,145	12.70%	20.10%

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	<b>Fund Balance</b>				Investment	Investment	Fund Bala	nce EOY	% of I	Payroll
Year	BOY	Contributions	Benefits	Net	Return %	Return \$	Nominal \$	Real \$	Contrib.	Benefits
2008	\$111,180	\$4,702	\$10,653	\$(5,954)	8.00%	\$8,659	\$113,885	\$113,885	5.50%	10.97%
2009	113,885	5,393	12,189	(6,796)	8.00%	8,842	115,931	111,472	5.50%	12.14%
2010	115,931	6,143	13,809	(7,666)	8.00%	8,972	117,237	108,392	5.50%	13.27%
2011	117,237	6,406	15,498	(9,092)	8.00%	9,020	117,165	104,159	5.50%	14.36%
2012	117,165	6,692	17,025	(10,333)	8.00%	8,965	115,797	98,984	5.50%	15.22%
2013	115,797	6,985	18,551	(11,566)	8.00%	8,807	113,038	92,909	5.50%	16.00%
2014	113,038	7,287	20,282	(12,995)	8.00%	8,530	108,573	85,807	5.50%	16.86%
2015	108,573	7,594	22,116	(14,522)	8.00%	8,112	102,163	77,635	5.50%	17.71%
2016	102,163	7,915	23,906	(15,991)	8.00%	7,542	93,714	68,476	5.50%	18.45%
2017	93,714	8,236	25,742	(17,506)	8.00%	6,806	83,014	58,325	5.50%	19.15%
2018	83,014	8,558	27,680	(19,122)	8.00%	5,886	69,778	47,140	5.50%	19.86%
2019	69,778	8,887	29,746	(20,859)	8.00%	4,759	53,678	34,868	5.50%	20.57%
2020	53,678	9,246	31,517	(22,271)	8.00%	3,415	34,822	21,750	5.50%	21.00%
2021	34,822	9,617	33,489	(23,872)	8.00%	1,843	12,793	7,683	5.50%	21.50%
2022	12,793	9,990	35,775	(25,785)	8.00%	5	(12,987)	(7,500)	5.50%	22.15%

Funding Level 1 is the present contribution rate for post-retirement Health Care and Medicare reimbursement. The fund remains solvent until 2022 in this projection.

# POST-RETIREMENT HEALTH CARE & MEDICARE REIMBURSEMENT CASH FLOW PROJECTION Program regram A service Program of C

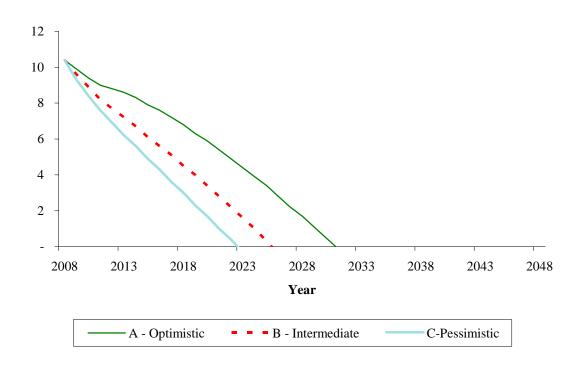
### PESSIMISTIC ASSUMPTIONS: C

### FUNDING LEVEL 2

Fiscal	<b>Fund Balance</b>				Investment	Investment	Fund Bala	ance EOY	% of	Payroll
Year	BOY	Contributions	Benefits	Net	Return %	Return \$	Nominal \$	Real \$	Contrib.	Benefits
2008	\$ 111,180	\$ 15,484	\$ 10,653	\$ 4,828	8.00%	\$ 9,085	\$ 125,093	\$ 125,093	15.60%	10.97%
2009	125,093	16,033	12,189	3,844	8.00%	10,159	139,096	133,746	15.60%	12.14%
2010	139,096	16,650	13,809	2,841	8.00%	11,240	153,177	141,621	15.60%	13.27%
2011	153,177	17,304	15,498	1,806	8.00%	12,325	167,308	148,736	15.60%	14.36%
2012	167,308	17,988	17,025	963	8.00%	13,423	181,694	155,313	15.60%	15.22%
2013	181,694	18,698	18,551	147	8.00%	14,541	196,382	161,412	15.60%	16.00%
2014	196,382	19,440	20,282	(842)	8.00%	15,677	211,217	166,928	15.60%	16.86%
2015	211,217	20,207	22,116	(1,909)	8.00%	16,822	226,130	171,840	15.60%	17.71%
2016	226,130	21,004	23,906	(2,902)	8.00%	17,976	241,204	176,245	15.60%	18.45%
2017	241,204	21,810	25,742	(3,932)	8.00%	19,141	256,413	180,152	15.60%	19.15%
2022	318,216	26,305	35,775	(9,470)	8.00%	25,083	333,829	192,778	15.60%	22.15%
2027	395,446	32,119	48,327	(16,208)	8.00%	30,996	410,234	194,714	15.60%	24.60%
2032	466,426	39,800	62,694	(22,894)	8.00%	36,410	479,942	187,236	15.60%	25.81%
2037	539,120	49,598	74,149	(24,551)	8.00%	42,160	556,729	178,516	15.60%	24.62%
2042	643,183	60,818	85,548	(24,730)	8.00%	50,478	668,931	176,298	15.60%	23.23%
2047	787,450	73,895	102,716	(28,821)	8.00%	61,858	820,487	177,734	15.60%	22.96%
2052	959,788	89,374	129,075	(39,701)	8.00%	75,215	995,302	177,210	15.60%	23.79%
2057	1,136,876	108,289	161,665	(53,376)	8.00%	88,842	1,172,342	171,562	15.60%	24.55%
2067	1,518,598	160,819	234,103	(73,284)	8.00%	118,594	1,563,908	154,612	15.60%	23.92%
2077	2,055,777	238,383	339,386	(101,003)	8.00%	160,474	2,115,248	141,274	15.60%	23.43%
2087	2,557,553	351,844	519,551	(167,707)	8.00%	197,982	2,587,828	116,762	15.60%	24.29%
2097	2,584,031	521,916	759,553	(237,637)	8.00%	197,339	2,543,733	77,536	15.60%	23.94%
2107	1,477,583	772,601	1,116,141	(343,540)	8.00%	104,641	1,238,684	25,507	15.60%	23.77%

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 5.50% EMPLOYER CONTRIBUTION RATE DECEMBER 31, 2007



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 Plan's 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. Given the experience of the last several years, very few, if any plans, are likely to be able to report such a funded ratio.

## APPROXIMATE IRC SECTION 401(H) COMPUTATION (\$ IN THOUSANDS)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Covered		Pension		Health		Sum of	Sum of	IRC Ratio
Year	Pay	EANC %	PUCNC %	PUCNC \$	Contribution	(4) + (5)	(5)	(6)	(7) / (8)
1005	Ф <b>22</b> 550	00.160/	22.050/	ф 7.502 Q	ф1 114 O	Φ0 <b>(17 (</b>	Ф 1 1140	Φ 0 (17 (	10.00/
1985	\$32,550	22.16%	23.05%	\$ 7,502.8	\$1,114.8	\$8,617.6	\$ 1,114.8	\$ 8,617.6	12.9%
1986	34,735	22.16%	23.05%	8,006.4	1,229.0	9,235.4	2,343.8	17,853.0	13.1%
1987	39,894	21.59%	22.45%	8,956.2	1,351.4	10,307.6	3,695.2	28,160.6	13.1%
1988	40,725	21.59%	22.45%	9,142.8	1,478.2	10,621.0	5,173.4	38,781.6	13.3%
1989	43,048	22.75%	23.66%	10,185.2	1,752.8	11,938.0	6,926.2	50,719.6	13.7%
1990	45,640	22.75%	23.66%	10,798.4	1,835.5	12,633.9	8,761.7	63,353.5	13.8%
1991	48,586	22.15%	23.04%	11,194.2	2,165.1	13,359.3	10,926.8	76,712.8	14.2%
1992	50,255	22.15%	23.04%	11,578.8	2,542.7	14,121.5	13,469.5	90,834.3	14.8%
1993	54,715	22.36%	23.25%	12,721.2	2,563.5	15,284.7	16,033.0	106,119.0	15.1%
1994	58,341	22.36%	23.25%	13,564.3	3,053.4	16,617.7	19,086.4	122,736.7	15.6%
1995	56,833	23.79%	24.74%	14,060.5	3,122.0	17,182.5	22,208.4	139,919.2	15.9%
1996	60,909	23.79%	24.74%	15,068.9	2,860.8	17,929.7	25,069.2	157,848.9	15.9%
1997	61,714	24.47%	25.45%	15,706.2	2,548.8	18,255.0	27,618.0	176,103.9	15.7%
1998	65,848	24.45%	25.55%	16,824.2	2,719.5	19,543.7	30,337.5	195,647.6	15.5%
1999	69,030	24.96%	26.08%	18,003.0	3,278.9	21,281.9	33,616.4	216,929.5	15.5%
2000	68,505	24.96%	26.08%	17,866.1	3,254.0	21,120.1	36,870.4	238,049.6	15.5%
2001	74,140	23.10%	23.63%	17,519.3	3,521.7	21,041.0	40,392.1	259,090.6	15.6%
2002	79,594	23.14%	23.71%	18,871.7	3,780.7	22,652.4	44,172.8	281,743.0	15.7%
2003	80,641	21.88%	22.72%	18,321.6	3,395.7	21,717.3	47,568.5	303,460.3	15.7%
2004	81,931	21.91%	22.83%	18,704.8	2,867.6	21,572.4	50,436.1	325,032.7	15.5%
2005	85,828	21.68%	22.59%	19,388.5	3,006.4	22,394.9	53,442.5	347,427.6	15.4%
2006	87,563	20.99%	21.83%	19,115.0	3,384.8	22,499.8	56,827.3	369,927.4	15.4%
2007	95,032	20.78%	21.92%	20,831.0	4,575.1	25,406.1	61,402.4	395,333.5	15.5%

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, 2007 TO DECEMBER 31, 2007

Unfunded Accrued Liabilities (UAL), January 1 Normal Cost Contributions Interest	\$154,267,666 18,323,481 28,858,154 11,920,026
Expected UAL Before Any Changes Effect of Changes in Benefits Expected UAL After All Changes	155,653,019 0 155,653,019
Actual UAL  Gain/(Loss) for Year From Financial Experience	165,394,687 \$( <b>9,741,668</b> )

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, 2007 AND 2006

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

	Gain or (Loss) for Year Ended 12/31						
Type of Activity	2007	2006					
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.	\$ 590,891	\$ 809,589					
<b>Disability Retirements.</b> If disability claims are less than assumed, there is a gain. If more claims, a loss.	738,713	(218,643)					
<b>Death-in-Service Benefits.</b> If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	(190,263)	20,027					
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	(166,202)	(161,554)					
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(14,289,526)	6,152,934					
<b>Contribution Income.</b> If more contributions are received than expected, there is a gain. If less, there is a loss.	0	0					
<b>Investment Income.</b> If there is greater investment return on pension assets than assumed, there is a gain. If less return, a loss.	11,307,544	27,841,080					
Other. Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, valuation methods, etc.	(7,732,825)	(2,533,870)					
Gain (or Loss) During Year From Experience	\$ (9,741,668)	\$ 31,909,563					
Non-Recurring Items (Effect of Benefit/Assumption Changes)	0	0					
Composite Gain (or Loss) During Year	\$ (9,741,668)	\$ 31,909,563					

# INVESTMENT GAIN (LOSS) DEVELOPMENT OF PORTION ATTRIBUTABLE TO RETIREMENT, SURVIVOR AND DISABILITY ALLOWANCES JANUARY 1, 2007 TO DECEMBER 31, 2007

Assets, Beginning of Year	\$653,493,046
Net Cash Flow	(15,595,506)
Assumed Investment Return	51,655,623
Expected Assets End of Year	\$689,553,163
Actual Assets End of Year	700,860,707
Gain/(Loss) for Year	\$11,307,544

The total investment gain (loss) was \$15,562,783, including the gain on health assets.

# ACTIVE MEMBER POPULATION RECONCILIATION JANUARY 1, 2007 TO DECEMBER 31, 2007

	Actual	Expected
Active Members Beginning of Year	1,592	
Plus New Hires	47	
Minus Retirements	17	36.7
Minus Deaths	3	0.8
Minus Disabilities	4	6.7
Minus Other Terminations*	24	21.7
Returned to Active Status	6	
Plus or Minus Data Correction	0	
Active Members End of Year	1,597	

<sup>\*</sup> Includes 4 members who took a leave of absence and 1 member who transferred out of the System.

### **SECTION D**

FINANCIAL INFORMATION

### CURRENT ASSET INFORMATION FURNISHED FOR THE VALUATION DECEMBER 31, 2007

### **Balance Sheet**

Current Assets (Marke	et Value)	Fund Balance	<u> </u>
Cash & short-term investments	\$ 12,225,581	Employees' Savings Fund	\$ 85,685,173
Fixed Income	127,101,792	Employer Accumulation Fund	38,533,822
Stocks	519,905,417	Pension Reserve Fund	393,673,134
Real Estate	51,107,904	Survivors Benefit Fund	28,386,557
Alternatives	129,123,247	Health Care Fund	114,146,341
Other short-term	10,091	Income Fund	173,279,049
Accruals & Receivables	(5,769,956)		
	_	Total Fund Balance	\$ 833,704,076
Total Current Assets	\$ 833,704,076		

### **Revenues and Expenditures**

_	2007	2006
Balance - January 1	\$794,427,257	\$711,718,909
Revenues*		
Employee contributions	8,901,454	8,610,088
Employer contributions (net)	24,918,250	22,382,054
Investment income (net)	61,652,161	101,069,778
Miscellaneous	0	0
Total	95,471,865	132,061,920
Expenditures		
Benefit payments	44,676,510	40,343,244
Health insurance	10,652,642	7,980,823
Refund of member contributions	98,628	299,128
Administrative expenses	702,266	665,377
Death benefit	65,000	65,000
Total	56,195,046	49,353,572
Net Addition to Assets	39,276,819	82,708,348
Balance - December 31	\$833,704,076	\$794,427,257

<sup>\*</sup> Revenues include transfers to and from systems.

# CAFR ASSET INFORMATION FURNISHED FOR THE VALUATION DECEMBER 31, 2007

### **ADDITIONS BY SOURCE**

	Pension Benefits						Postemployment B	enefi	its
	Contri	butions	Net Investment	Transfers from		Employer	Net Investment		
Year	Member*	Employer	Income	Other Systems	Total	Contributions	Income		Total
1998	\$6,573,762	\$13,101,039	\$13,029,413	\$503,509	\$ 33,207,723	\$2,687,150	\$ 1,396,472	\$	4,083,622
1999	6,708,497	13,569,730	33,612,434	444,135	54,334,796	2,783,534	6,878,890		9,662,424
2000	6,954,301	13,210,189	(14,120,288)	925,998	6,970,200	3,346,581	(3,114,980)		231,601
2001	7,042,044	13,901,313	(17,920,157)	999,380	4,022,580	3,521,665	(2,900,183)		621,482
2002	7,563,173	14,923,893	(42,921,956)	999,176	(19,435,714)	3,780,715	(6,673,383)		(2,892,668)
2003	8,136,974	16,361,339	105,112,725	763,419	130,374,457	3,395,749	18,885,722		22,281,471
2004	8,192,944	17,205,609	62,907,281	856,496	89,162,330	2,867,602	12,051,961		14,919,563
2005	8,582,130	18,467,789	35,511,228	1,180,951	63,742,098	3,006,385	8,603,479		11,609,864
2006	8,610,088	19,263,941	85,757,656	648,282	114,279,967	3,384,780	15,312,122		18,696,902
2007	8,901,454	19,956,700	51,176,733	717,017	80,751,904	4,575,072	10,475,428		15,050,500

<sup>\*</sup> Does not include service purchases.

### **DEDUCTIONS BY TYPE**

	Pension Benefits						· Postemployment Be	nefits
			Transfers to			Health		
Year	Benefits#	Refunds	Other Systems	Administrative	Total	Care	Administrative	Total
1998	\$21,539,636	\$164,054	\$281,606	\$648,144	\$22,633,440	\$3,128,888	\$ 114,378	\$3,243,266
1999	24,324,038	529,654	196,414	449,167	25,499,273	5,498,402	78,854	5,577,256
2000	27,042,946	363,067	904,972	549,168	28,860,153	4,720,260	95,423	4,815,683
2001	29,457,281	306,452	448,381	524,922	30,737,036	6,179,096	90,422	6,269,518
2002	31,325,089	266,137	1,054,264	462,200	33,107,690	7,025,043	78,635	7,103,678
2003	33,074,853	386,931	789,387	559,052	34,810,223	7,181,129	93,769	7,274,898
2004	35,187,531	155,989	602,345	518,834	36,464,699	6,948,650	86,031	7,034,681
2005	37,716,268	495,640	403,975	561,817	39,177,700	8,932,259	92,344	9,024,603
2006	40,408,244	299,128	914,949	572,616	42,194,937	7,980,823	92,761	8,073,584
2007	44,741,510	98,628	330,539	605,165	45,775,842	10,652,642	97,101	10,749,743

<sup>#</sup> Includes death benefits.

### DEVELOPMENT OF FUNDING VALUE OF RETIREMENT SYSTEM ASSETS DECEMBER 31, 2007

			2005		2006		2007	2008	2009	2010
A.	Funding Value From Prior Year	\$	663,524,635	\$	687,811,479	\$	758,350,258			
B.	Market Value End of Year		711,718,909		794,427,257		833,704,076			
C.	Market Value Beginning of Year		684,569,250		711,718,909		794,427,257			
D.	Non-Investment Net Cash Flow		(16,310,887)		(17,696,053)		(21,673,076)			
E.	Investment Return:									
	E1. Market Total: B - C - D		43,460,546		100,404,401		60,949,895			
	E2. For Immediate Recognition (8.0%)		52,429,535		54,317,076		59,801,098			
	E3. Amount for Phased-In Recognition E1-E2		(8,968,989)		46,087,325		1,148,797			
F.	Phased-In Recognition of Investment Return:									
	F1. Current Year: 25% x E3		(2,242,247)		11,521,831		287,199			
	F2. First Prior Year		5,995,999		(2,242,247)		11,521,831	\$ 287,199		
	F3. Second Prior Year		18,642,172		5,995,999		(2,242,247)	11,521,831	\$ 287,199	
	F4. Third Prior Year		(34,227,728)		18,642,173		5,996,000	(2,242,248)	11,521,832	\$ 287,200
	F5. Total Recognized Phase-ins	\$	(11,831,804)	\$	33,917,756	\$	15,562,783	\$ 9,566,782	\$11,809,031	287,200
G.	Funding Value End of Year:									
	G1. Preliminary Funding Value End of Year: $A + D + E2 + F5$	\$	, ,	\$	758,350,258	\$	812,041,063			
	G2. Corridor Percent		20%		20%		20%			
	G3. Upper Corridor Limit: (100% + G2) x B	\$	, ,	\$	953,312,708	\$	1,000,444,891			
	G4. Lower Corridor Limit: (100% - G2) x B G5. Funding Value End of Year	\$ \$	<i>' '</i>	\$ \$	635,541,806 758,350,258	\$ \$	666,963,261 812,041,063			
**	•	_								
H.	Difference between Market Value and Funding Value	\$	23,907,430	\$	36,076,999	\$	21,663,013			
I.	Funding Value Rate of Return		6.2 %		13.0 %		10.1 %			
J.	Market Value Rate of Return		6.4 %		14.3 %		7.8 %			
K.	Ratio of Funding Value to Market Value		97%		95%		97%			

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, 2007

	Pension	Health	Total
A. Market Value Beginning of Year	\$684,581,673	\$109,845,584	\$794,427,257
<ul><li>B. Member Contributions</li><li>B1. Pension Contributions</li><li>B2. Retiree Health Contributions</li></ul>	8,901,454	608,033	8,901,454 608,033
<ul><li>C. Employer Contributions</li><li>C1. System Contributions</li><li>C2. Transfers</li><li>C3. Medicare Part D Reimbursement</li></ul>	19,956,700 386,478	4,276,436 298,636	24,233,136 386,478 298,636
<ul> <li>D. Benefits Paid</li> <li>D1. Pension Benefits</li> <li>D2. HPRS Paid Retiree Health Benefits</li> <li>D3. HPRS Paid Medicare Part B Benefits</li> <li>D4. Member Paid Retiree Health Benefits</li> </ul>	44,676,510	10,080,515 572,127 608,033	44,676,510 10,080,515 572,127 608,033
E. Refunds of Member Contributions	98,628	0	98,628
F. Death Benefits	65,000	0	65,000
G. Net External Cash Flow (B + C - D - E - F)	(15,595,506)	(6,077,570)	(21,673,076)
H. Other Changes in Market Value	50,571,568	10,378,327	60,949,895
I. Market Value End of Year (A + G + H)	719,557,735	114,146,341	833,704,076
J. Funding Value Adjustment	(18,697,028)	(2,965,985)	(21,663,013)
K. Funding Value End of Year $(I + J)$	\$700,860,707	\$111,180,356	\$812,041,063

Line J is allocated in proportion to Line I.

### **SECTION E**

SUMMARY OF MEMBER DATA

## ACTIVE MEMBERS AS OF DECEMBER 31, 2007 BY ATTAINED AGE AND YEARS OF SERVICE\*

Attained		Yea	ı	Totals					
Age	0-4	5-9	10-14	15-19	20-24	25-29	30 Up	No.	Payroll
20-24	32							32	\$ 1,292,759
25-29	158	68	1					227	10,742,120
30-34	73	198	77	1				349	18,825,483
35-39	34	109	145	109	2			399	23,335,293
40	1	9	18	36	1			65	4,094,777
41		7	10	36	4			57	3,620,582
42		2	9	21	11	1		44	2,874,012
43		6	9	26	16			57	3,712,576
44		1	7	15	23	1		47	3,135,211
45		1	3	15	24	5		48	3,082,357
46			2	16	20	5		43	2,974,377
47			1	5	18	11		35	2,369,601
48			1	8	16	23		48	3,332,303
49				4	16	14	3	37	2,642,040
50				1	10	16	1	28	1,970,546
51				1	8	13	1	23	1,558,198
52					3	7	3	13	873,330
53					2	8	2	12	853,681
54				1		3	9	13	1,128,059
55					3	6	3	12	791,915
56						1	3	4	291,767
57							1	1	69,362
58						2	1	3	182,559
Totals	298	401	283	295	177	116	27	1,597	\$93,752,908

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

Age: 37.5 years.

Service: 12.7 years.

Annual Pay: \$58,706

<sup>\*</sup> Includes 85 DROP members.

# ACTIVE MEMBERS BY AGES OF ENTRY INTO SERVICE DECEMBER 31, 2007

Entry Age		G 1.1		G 14
Nearest	.,	Cumulative	<b>.</b>	Cumulative
Birthday	Number	Number	Percent	Percent
Less than 18	1	1	0.06%	0.06%
18	7	8	0.44%	0.50%
19	51	59	3.19%	3.69%
20	51	110	3.20%	6.89%
21	158	268	9.89%	16.78%
22	223	491	13.97%	30.75%
23	195	686	12.21%	42.96%
24	208	894	13.02%	55.98%
25	152	1,046	9.52%	65.50%
26	127	1,173	7.95%	73.45%
27	99	1,272	6.20%	79.65%
28	84	1,356	5.26%	84.91%
29	40	1,396	2.50%	87.41%
30	63	1,459	3.95%	91.36%
31	33	1,492	2.07%	93.43%
32	32	1,524	2.00%	95.43%
33	35	1,559	2.19%	97.62%
34	22	1,581	1.38%	99.00%
35	14	1,595	0.87%	99.87%
36	0	1,595	0.00%	99.87%
37	0	1,595	0.00%	99.87%
38	1	1,596	0.07%	99.94%
39	0	1,596	0.00%	99.94%
40 & Up	1	1,597	0.06%	100.00%
Total	1,597	,		

# AGE AND SERVICE PENSIONS BEING PAID DECEMBER 31, 2007 BY ATTAINED AGES

Attained		Monthly	Number	Average Age
Ages	Number	Pensions	Married	of Spouse
47	1	\$1,050		
48	14	45,116		
49	18	55,947	14	65
50	17	54,269	12	46
51	15	48,767	13	50
52	34	108,964	30	50
53	22	67,762	22	52
54	14	45,623	12	53
55	30	104,568	25	52
56	46	143,035	39	54
57	45	149,890	39	54
58	40	138,640	35	55
59	55	171,246	47	57
60	74	237,014	65	58
61	46	156,409	44	60
62	40	134,305	36	60
63	53	170,184	52	60
64	38	114,096	34	62
65	52	158,315	48	61
66	40	118,068	37	62
67	28	88,465	26	63
68	28	89,800	27	65
69	26	67,152	26	66
70	28	78,401	27	66
71	18	45,411	17	68
72	14	38,983	13	70
73	15	36,066	13	69
74	9	20,085	9	70
75	13	30,959	11	70
76	12	26,620	12	74
77 <b>-</b> 2	16	40,073	15	73
78	15	29,158	13	75
79	14	25,632	13	76 
80	13	23,765	11	77
81	7	11,499	6	77
82	6	10,576	5	78
83	9	16,613	7	81
85 & Over	27	47,321	17	83
Totals	992	\$ 2,949,847	872	

# DISABILITY PENSIONS BEING PAID DECEMBER 31, 2007 BY ATTAINED AGE

Attained		Monthly	Number	Average Age
Ages	Number	Pensions	Married	of Spouse
29	1	\$1,938		
30	1	1,873		N/A
33	1	2,455	1	33
35	2	5,348	2	36
36	1	2,530	_	N/A
37	2	4,672	2	34
38	1	2,619	1	43
39	2	4,740	2	36
40	3	6,897	2	30
41	4	8,760	2	41
42	2	2,980	1	51
43	4	9,167	3	43
44	4	9,218	4	41
45	2	6,401	2	37
46	3 5	10,757	3	47
47	5	12,404	4	47
48	4	10,616	3	43
49	7	15,908	4	48
50	7	17,940	5	51
51	4	10,730	4	45
52	2	5,932	2	54
54	3 3	7,763	3	52
55	3	7,059	2	54
56	3	8,297	3	54
57	1	1,663	1	52
58	4	8,482	2	56
59	6	12,034	5	
60	1	2,305	1	60
61	3	7,126	2	55
63	2	5,070	1	65
64	2	3,762	2	63
65	1	2,324	_	N/A
66	1	1,482	1	60
70	1	2,900	1	67
72	1	1,482	1	68
77	1	1,574	1	72
78	2	3,187	1	74
80	1	1,599	1	78
81	1	1,609	1	81
85	1	1,685	1	85
Totals	100	\$235,288	77	

### DEPENDENTS BEING PAID AS OF DECEMBER 31, 2007 TABULATED BY ATTAINED AGE

Attained	Number	Monthly Pensions
Ages		
12 & Under	9	\$1,503
13	1	180
14	1	150
15	3	508
16	4	698
17	4	735
18	3	508
19	1	204
20	1	180
21	7	1,989
22	1	195
28	1	927
30	1	1,062
34	1	1,083
35	1	1,152
37	1	1,083
39 41	1 1	1,213 1,152
42	1	1,132
42	$\frac{1}{2}$	2,054
45		3,294
48	2	408
50	3 2 2 2 2 3	2,454
52	2	2,486
53	3	3,277
54	1	900
55	1	1,270
56	5	6,142
57	$\frac{3}{2}$	2,677
58	$\frac{2}{2}$	2,486
59	$\frac{2}{4}$	5,201
60	6	7,798
61	5	7,007
62	5	6,764
63	5 5	7,088
64	3	3,920
65	7	9,359
66	1	1,198
67	4	4,579
68	4	4,792
70-79	70	84,763
80-89	70	81,015
90 & Over	15	18,613
Totals	267	\$285,194

### **ACTIVE MEMBER VALUATION DATA, 1998 TO 2007**

Actuarial Valuation as of December 31	Number of Active Members	Annual Payroll	Average Annual Salary	% Increase in Average Pay
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
2002	1,548	78,997,065	51,032	1.6
2003	1,542	81,737,962	53,008	3.9
2004	1,562	81,757,707	52,342	(1.3)
2005	1,573	83,408,155	53,025	1.3
2006	1,592	85,878,329	53,944	1.7
2007	1,597	93,752,908	58,706	8.8

### RETIRANTS AND BENEFICIARIES VALUATION DATA, 1998 TO 2007

Actuarial	Add	led to Rolls	Removed from Rolls		Number	Total		
Valuation as of December 31	No.	Monthly Benefits	No.	Monthly Benefits	of People	Monthly Benefits	Average Benefit	
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	\$181,427	20	\$21,583	1,207	2,460,308	2,038	
2002	55	184,301	31	41,501	1,231	2,603,108	2,115	
2003	48	196,385	26	29,344	1,253	2,770,149	2,211	
2004	58	287,345	29	34,153	1,282	3,023,341	2,358	
2005	45	194,666	26	40,276	1,301	3,177,731	2,443	
2006	70	215,820	34	51,746	1,337	3,341,805	2,499	
2007	53	184,644	31	56,120	1,359	3,470,329	2,554	

Of the 1,359 retirants and beneficiaries as of December 31, 2007, 992 are service retirees, 100 are disability retirees and 267 are survivor beneficiaries. The average monthly benefits are \$2,974 for service retirees, \$2,353 for disability retirees and \$1,068 for survivor beneficiaries.

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

	Census Date									
	12/07	12/06	12/05	12/04	12/03	12/02	12/01	12/00	12/99	12/98
Recipients:										
w/o Medicare A	751	779	806	808	791	773	771	761	724	656
Medicare A	503	522	437	411	394	386	368	346	339	337
Spouses:										
w/o Medicare A	372	420	375	373	403	483	471	447	429	373
w Medicare A	242	156	187	176	165	158	155	151	146	139
Dependent Children	154	168	127	130	129	111	105	110	107	75
Orphans	63	33	26	30	30	32	30	33	27	22
Totals	2,085	2,078	1,958	1,928	1,912	1,943	1,900	1,848	1,772	1,602

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

	AETNA		Medica		
	Network	Non-Network	Network	Non-Network	Totals
2002	880	491	516	56	1,943
2003	815	486	546	65	1,912
2004	783	494	568	83	1,928
2005	767	505	588	98	1,958
2006	1,279	22	749	28	2,078
2007	1,264	25	723	73	2,085

## DEFERRED PENSIONS AS OF DECEMBER 31, 2007 TABULATED BY ATTAINED AGE

Attained Ages	Number	Monthly Pensions
45	1	\$ 3,354
47	2	5,988
49	1	1,092
52	1	1,014
Totals	5	\$11,448

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.



ASSUMPTIONS USED IN THE VALUATION

#### **APPENDIX**

### SUMMARY OF VALUATION METHOD AND ASSUMPTIONS DECEMBER 31, 2007

The actuarial assumptions used in the valuation are shown in this Appendix of the report. The assumptions were established for the December 31, 2005 actuarial valuation, following a 5-year experience study covering the period January 1, 2000 through December 31, 2004. 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 defined to be 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 over wage growth of 4.0%. In order to assume a 4.0% real return over wage growth, it would be necessary to realize about a 5.0% real return over price inflation, after accounting for expenses and the difference between wage increases and price increases. Based on our experience with other public employee retirement systems, both nationally and statewide, and published results of national surveys, the assumed investment return rate remains reasonable. The current assumed rate probably would be close to the average for retirement systems with asset allocations similar to HPRS. The economic assumptions were last reviewed as part of the 5-year experience study for the period January 1, 2000 through December 31, 2004. It is scheduled to be reviewed again following the December 31, 2009 actuarial valuation.

**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 4.0% recognizes changes in wage levels due to broad economic effects, including inflation and real wage growth. No specific price inflation assumption is required to perform the actuarial valuation.

The active member payroll is assumed to increase 4.0% 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 105% of the RP-2000 Combined Healthy Male and Female Tables. This assumption was last reviewed and updated as part of the 5-year experience study for the period January 1, 2000 through December 31, 2004. As shown in that study, the current assumption allows some margin for future mortality improvement. It is scheduled to be reviewed again following the December 31, 2009 actuarial valuation. Related values are shown on page F-3.

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 the RP-2000 Combined Healthy Male and Female Tables set-forward 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. Funding value is not permitted to deviate from market value by more than 20%. 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		Value of \$1 y for Life	Future Life Expectancy (years)			
Ages	Men	Ĭ		Women		
50	\$135.03	\$138.31	30.37	33.14		
55	127.41	131.75	25.76	28.47		
60	117.65	123.20	21.35	23.95		
65	105.90	112.81	17.24	19.72		
70	92.57	100.81	13.54	15.86		
75	77.83	87.41	10.27	12.40		
80	62.54	72.92	7.50	9.38		

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

		Percent of Ac	tive Member	Sa	Salary Increase Assumptions				
	S	Separating Wi	ithin Next Ye	ar	f	for an Individual Member			
Sample		Dea	ath			Merit &	Base	Increase	
Ages	Disability	Men	Women	Other	Service	Seniority	(Economic)	Next Year	
20	0.08%	0.02%	0.01%	2.57%	1-2	10.00%	4.00%	14.00%	
25	0.08%	0.02%	0.01%	2.24%	3-5	3.00%	4.00%	7.00%	
30	0.23%	0.02%	0.01%	1.91%	6-10	1.00%	4.00%	5.00%	
35	0.42%	0.04%	0.02%	1.56%	11 & Up	0.30%	4.00%	4.30%	
40	0.70%	0.05%	0.04%	0.84%					
45	0.85%	0.08%	0.06%	0.41%					
50	1.13%	0.11%	0.08%	0.15%					
55	1.32%	0.18%	0.14%	0.00%					

In the first year of employment, 8% of active members are assumed to terminate employment.

Pr	obabilities of Age & Service Retirem	ent
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%	7%
49	35%	7%
50	25%	7%
51	30%	7%
52	30%	
53	30%	
54	40%	
55	25%	
56	25%	
57	25%	
58	30%	
59	35%	
60 & Over	100%	

In addition, it was assumed that 100% of eligible members age 55 and older would retire upon attaining 34 years of service. 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.

It was assumed that members eligible to DROP would either retire or "DROP in" at first eligibility for unreduced retirement. Current retirement rates were adjusted according to the following:

Beginning at first age of eligibility, the normal retirement pattern is as follows:

% of current retirement rates = 85%, 0%, 25%, 50%, 100%, 150%, 200%, 200%. 100% of members still working 8 years after first reaching retirement eligibility are assumed to retire.

## ADDITIONS TO AND REMOVALS FROM ACTIVE MEMBERSHIP ACTUAL AND EXPECTED NUMBERS

	Nu	Number									
	Ac	lded			Disa	bility	Dea	Death-in-		ther	
Year Ended	Durii	ng Year	Reti	rement	Retir	ement	Sei	rvice	Terminations		Active
December 31	A	E	A	E	A	E	A	E	A	E	Members
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
2002	92	53.8	35	26.7	3	6.2	0	0.9	26	20.0	1,548
2003	64	61.0	32	33.5	6	6.3	0	1.0	32	20.2	1,542
2004	90	63.6	39	36.5	4	6.5	1	1.0	26	19.6	1,562
2005	76	60.7	23	33.2	8	6.7	0	1.0	34	19.8	1,573
2006	80	70.4	26	41.9	9	6.7	2	0.8	24	21.0	1,592
2007	53	65.9	17	36.7	4	6.7	3	0.8	24	21.7	1,597
Total	883	617.0	369	351.1	73	55.6	10	11.1	279	199.2	

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 2007

Age Group	15-19	20-24	25-29	30 Plus	Total
Under 20	20 25		20 27	0 1 1 1 1 1	2 0 0 0 1
20-24 25-29					
30-34 35-39					
40-44 45 46 47 48 49		1 1	5 1		6 2
50 51 52 53 54			3 1 2	1	3 2 2
55 56 57 58 59				1 1	1 1
60 & Over					
Totals		2	12	3	17

# DISABILITY RETIREMENTS DURING CALENDAR YEAR 2007

	Years of Accrued Service								
Age Group	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		1	2					1 2	
40-44 45-49					1			1	
50 & Over									
Totals	<del></del>	1	2		1			4	

#### DEATH-IN-SERVICE TERMINATIONS DURING CALENDAR YEAR 2007

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

## WITHDREW AND ELIGIBLE FOR DEFERRED BENEFIT TERMINATIONS DURING CALENDAR YEAR 2007

			Y	ears of Ac	crued Serv	vice		Years of Accrued Service							
Age Group	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						4		4							
50 & Over															
Totals						4		4							

## WITHDREW AND PENDING CONTRIBUTIONS TERMINATION DURING CALENDAR YEAR 2007

	Years of Accrued Service									
Age Group	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	-	-		-	-	•		0		

### WITHDREW AND REFUNDED TERMINATIONS\* DURING CALENDAR YEAR 2007

			Ye	ars of Acc	rued Servi	ce		
Age Group	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	Total
Under 20								
20-24	3							3
25-29	3							3
30-34		4						4
35-39		1	3					4
40-44			1					1
45-49								
50 & Over								
Totals	6	5	4					15

<sup>\*</sup> In addition to the 15 terminations above, there were also 4 members who took a leave of absence and 1 member who transferred out of the System.

#### 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 0.75% 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)

## FINANCIAL PRINCIPLES AND OPERATIONAL TECHNIQUES OF THE RETIREMENT SYSTEM (CONCLUDED)

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 . . .

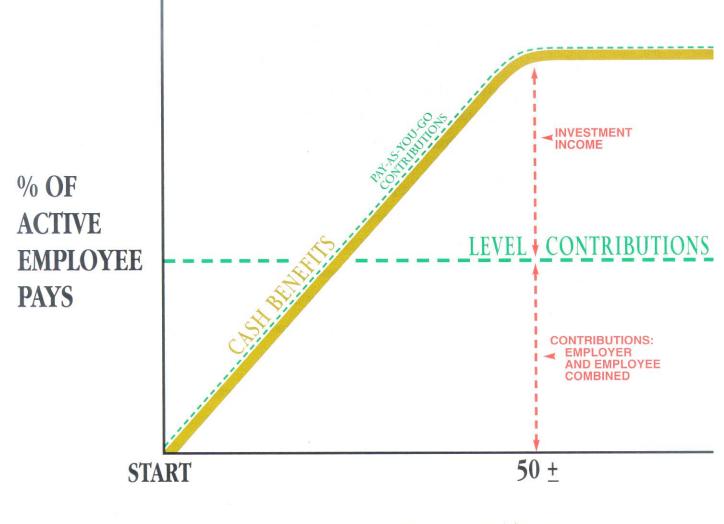
*Interest on Unfunded Actuarial Accrued Liabilities* (the difference between liabilities for service already rendered and the accrued assets of the Retirement System).

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.



#### **YEARS OF TIME**

**CASH BENEFITS LINE.** 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).

**LEVEL CONTRIBUTION LINE.** Determining the level contribution line requires 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.



August 29, 2008

Mr. Richard Curtis Director Ohio State Highway Patrol Retirement System 6161 Busch Boulevard, Suite 119 Columbus, Ohio 43229

Dear Richard:

Enclosed are 20 bound copies of the December 31, 2007 actuarial valuation of the Ohio State Highway Patrol Retirement System.

An additional 10 unbound, 3-hole punched copies are enclosed for your convenience.

Sincerely,

Brie & Marfy Brian B. Murphy

BBM:dks:mrb **Enclosures** 

cc: Kennedy, Cottrell & Associates LLC (+1 report copy).