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WISCONSIN RETIREMENT SYSTEM  
GAIN/LOSS ANALYSIS OF EXPERIENCE  
AMONG ACTIVE MEMBERS  
DURING CALENDAR YEAR 2002

GABRIEL, ROEDER, SMITH & COMPANY  
ACTUARIES & CONSULTANTS

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September 5, 2003

The Employee Trust Funds Board  
Wisconsin Retirement System  
801 West Badger Road  
Madison, Wisconsin 53713

Ladies and Gentlemen:

The results of the *Gain/Loss Analysis of Experience Among Active Participants* of the Wisconsin Retirement System, *covering the calendar year 2002 are presented in this report.* (The results of the December 31, 2002 regular annual actuarial valuation of active members were submitted in our report dated May 28, 2003.)

Your Secretary and staff furnished the statistical data concerning active participant changes and related financial information that was required for this analysis. The actuary did not audit data. The actuarial assumptions used are shown in the Appendix portion of the December 31, 2002 annual actuarial valuation of active participants.

Respectfully submitted,

Brian B. Murphy, FSA      Norman L. Jones, FSA

BBM/tcb

## ACTIVE MEMBER GAIN/LOSS ANALYSIS

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### Introduction

*Purpose of Gain/Loss Analysis.* Regular actuarial valuations provide information about the composite change in computed contribution rates and total liabilities -- whether or not the rates and related 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 financial mechanism: the rate of investment income on plan assets; the rates of withdrawal of active participants who leave covered employment; the rates of mortality; the rates of disability; the rates of salary increases; and 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 that is attributable to each risk area.*

The fact that actual experience differs from assumed experience should be expected. The future cannot be predicted with complete precision. Further, year-to-year statistical fluctuations occur, even in very large groups. This year's report reflects just a single year's experience. Changes in the valuation assumed experience for a risk area should be made only 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 actuarial assumptions*. In the Wisconsin Retirement System, longer term trends are reviewed in connection with the regular 3 year investigation of experience (the most recent 3 year investigation covered the period January 1, 1997 to December 31, 1999). It is the results of the 3 year investigation that lead to recommendations for changes in actuarial assumptions.

## POPULATION DEVELOPMENT DURING CALENDAR YEAR 2002

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	General	Executive & Elected	Protective		Total	Expected
			With S.S.	Without S.S.		
<b>Beginning Census</b>	238,944	1,486	17,981	2,715	261,126	
(-) Normal Retirement	1,931	31	247	55	2,264	3,392
(-) Early Retirement	3,053	12	79	8	3,152	2,909
(-) Death with Benefit	63	2	2	0	67	196
(-) Disability Retirement	172	1	7	4	184	219
(-) Other Separations	12,140	69	547	33	12,789	10,354
(-) Transfers Out	973	18	122	2	1,115	
(+) Transfers In	831	27	235	22	1,115	
(+) New Entrants	19,547	96	1,113	74	20,830	
<b>Ending Census</b>	240,990	1,476	18,325	2,709	263,500	

This page reconciles the active member populations reported in connection with the 2001 and 2002 valuations on an actual and expected basis. Assumptions related to population development are a primary focus of the gain/loss analysis. They generally tend to be more stable than economic assumptions, and therefore, measurements have more meaning.

## COMMENTS ON POPULATION RESULTS

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**Normal Retirements** were less than assumed in all groups, producing a gain.

**Early Retirements** were more than assumed in most groups except for the Executive and Elected group, and especially so in the teacher groups, producing a loss.

**Death with Benefits** were fewer than expected, producing a loss. This suggests that the death in service mortality table may need to be revised in the next experience study.

**Disabilities** were less than expected and produced a gain in all groups. This means that the reserves needed for the disability benefit were slightly smaller than the reserves that had been held for retirement benefits.

**Other Separations** among short (under 5 years) of service participants produced a gain, reflective of more terminations than assumed. Separations among longer service participants produced a loss. The loss occurred because there was only about one half the assumed number of forfeiture terminations among people with 5 or more years of service. The gain from short service separations was not sufficient to offset the loss from long service separations, and a loss was produced in total.

**In total**, the population risk areas (retirement, death, disability, and other separations) produced a small actuarial loss in 2002.

## COMMENTS ON ECONOMIC RESULTS

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**Investment Return** activity produced a loss for all valuation groups except Executive and Elected. There was a loss of about \$(414) million on the fixed funds, and a loss on the variable funds that translates into a reduction of \$(1,190.2) million in the combined value of variable excess benefits and money purchase benefits.

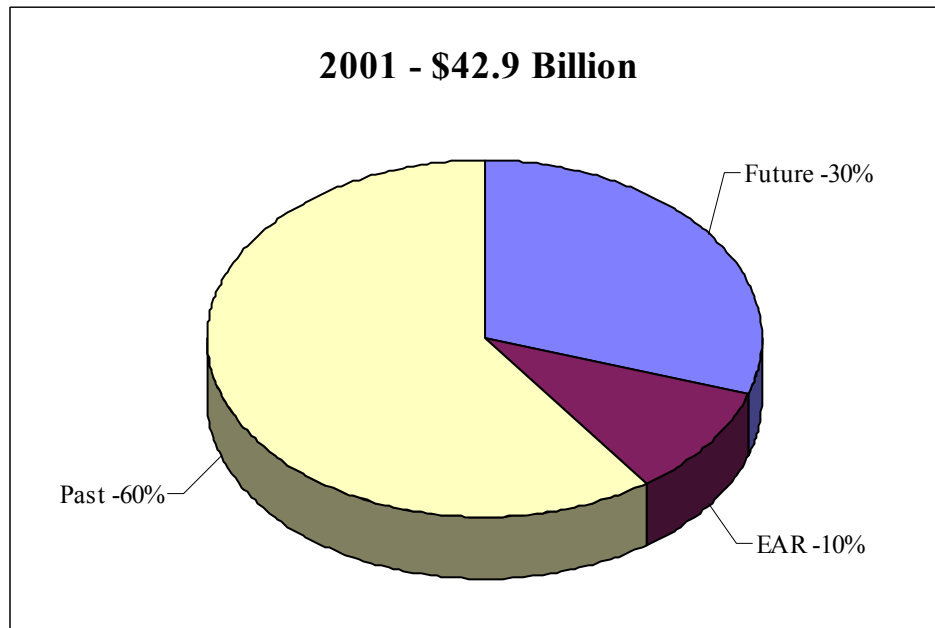
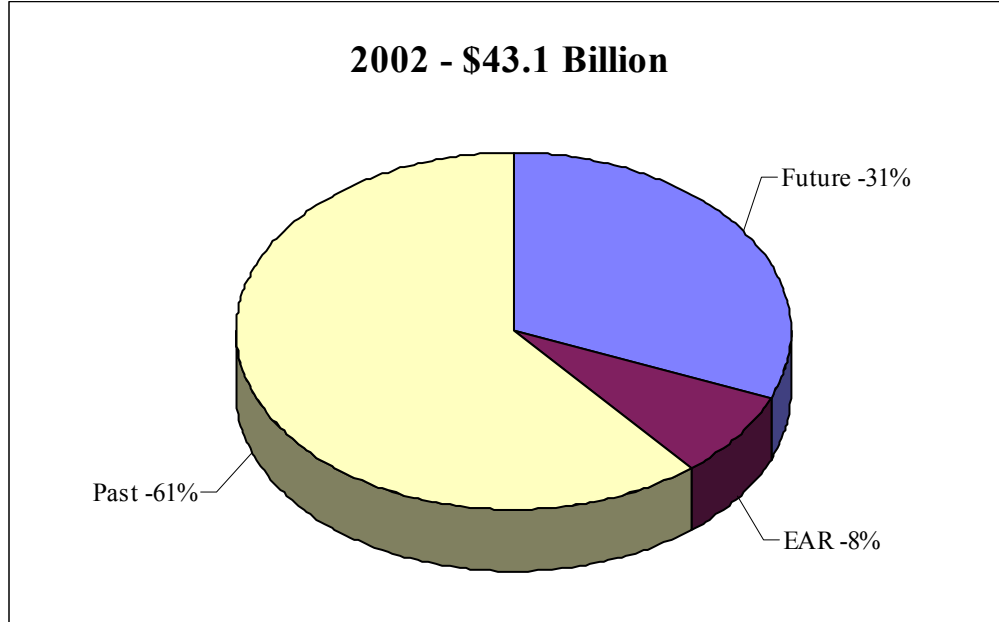
**Pay Increases** varied among groups but were, for the most part less than expected, producing a gain. Pay increase activity this year was second only to investment activity in terms of its effect on results.

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This Gain/Loss Analysis is the third in the normal three-year experience cycle. It will be part of the basis for the experience investigation covering the period January 1, 2000 to December 31, 2002.

## FINANCING RETIREMENT SYSTEM BENEFITS AT DECEMBER 31

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The gain/loss analysis studies changes in entry age normal accrued liabilities which are reflected in the Experience Amortization Reserve (E.A.R.) as shown on page 36. Future liabilities are financed via normal cost contributions each year as they accrue. Past liabilities are financed by application of present assets and unfunded liability contributions. The liabilities assigned to the E.A.R. are technically part of the future. However, as part of the valuation method, they are financed as though they were part of the past. The E.A.R. amortization period is selected each year to minimize short term contribution rate fluctuations.



**GAIN/LOSS ANALYSIS  
2002 EXPERIENCE  
DIVISIONS COMBINED**

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**ACTUARIAL GAINS & LOSSES DURING CALENDAR YEAR 2002**  
**(\$ MILLIONS)**

Type of Activity	General	Executive & Elected	Protective		Total
			With S.S.	Without S.S.	
<b>Decrement Risk Areas</b>					
Normal Retirement	\$ 3.6	\$ 0.1	\$ 0.6	\$ 0.0	\$ 4.3
Early Retirement	(6.7)	0.3	(0.8)	(0.3)	(7.5)
Death with Benefit	(3.9)	0.0	(0.2)	(0.1)	(4.2)
Disability Retirement	7.2	0.1	1.1	0.2	8.6
Other Separations	(19.8)	(0.1)	0.2	(0.2)	(19.9)
<b>Economic Risk Areas</b>					
Salary Increases	160.8	2.0	35.7	2.3	200.8
Investment Return	(285.6)	1.8	(106.3)	(23.9)	(414.0)
<b>Other Activity (See Page 10)</b>	(339.6)	(3.7)	(12.9)	(6.4)	(362.6)
<b>Total Gain(Loss)</b>	<b>(484.0)</b>	<b>0.5</b>	<b>(82.6)</b>	<b>(28.4)</b>	<b>(594.5)</b>
<b>-% of accrued liability</b>	<b>(1.8)%</b>	<b>0.2%</b>	<b>(3.9)%</b>	<b>(4.8)%</b>	<b>(2.0)%</b>

2002 beginning of year accrued liability                      26,986.0                      251.4                      2,130.4                      593.6                      29,961.4

**ANALYSIS OF OTHER ACTIVITY**  
**(\$ MILLIONS)**

	General		Executive & Elected		Protective				Total	
	Actual	Expected	Actual	Expected	With S.S.		Without S.S.		Actual	Expected
					Actual	Expected	Actual	Expected		
Reserve Transfers										
Normal Retirement	\$673	\$772	\$14	\$9	\$98	\$102	\$29	\$32	\$814	\$ 915
Early Retirement	781	885	4	3	28	33	6	6	819	927
Death with Benefit	0	11	0	1	0	0	0	0	0	12
Disability Retirement	49	43	1	0	3	2	2	2	55	47
Deferred Retirement	465	284	10	4	24	14	6	5	505	307
Total Reserve Transfers	1,968	1,995	29	17	153	151	43	45	2,193	2,208
From Retiree Report		2,359		20		169		52		2,600
<b>Reserve Difference</b>		(364)		(3)		(18)		(7)		(392)
Expected Refunds		41		0		3		0		44
Actual Refunds		22		0		2		1		25
<b>Refund Difference</b>		19		0		1		(1)		19
Total Explained Difference		(345)		(3)		(17)		(8)		(373)
Unknown Difference		5		(1)		4		2		10
Total Other Activity		\$(340)		\$(4)		\$(13)		\$(6)		\$ (363)

This page analyzes reserve transfers and contribution refunds and shows the portion of “other” activity that can be explained by those sources.

**COMPARATIVE SCHEDULE OF EXPERIENCE  
5 YEAR HISTORY OF GAINS AND (LOSSES)  
(\$ MILLIONS)**

Year	Normal & Early Retmt.	Disability Retmt.	Other Separations*	Salary Increases	Investment Return	Other	Total
<b>GENERAL</b>							
1998	\$(20.3)	\$12.7	\$42.5	\$203.6	\$542.1	\$ (251.7)	\$528.9
1999	(14.0)	13.1	42.7	383.8	524.6	(181.0)	769.2
2000	(12.2)	7.8	17.3	(189.6)	422.0	(234.9)	10.4
2001	(7.6)	8.7	(14.9)	303.3	419.9	(133.0)	576.4
2002	<b>(3.1)</b>	<b>7.2</b>	<b>(23.7)</b>	<b>160.8</b>	<b>(285.6)</b>	<b>(339.6)</b>	<b>(484.0)</b>
<b>EXECUTIVE &amp; ELECTED</b>							
1998	\$0.5	\$0.2	\$0.7	\$3.9	\$5.2	\$ (6.9)	\$3.6
1999	0.2	0.1	0.8	2.5	4.1	(5.8)	1.9
2000	0.4	0.2	(0.2)	0.2	9.0	(5.1)	4.5
2001	(0.4)	0.1	0.9	2.3	11.1	(3.3)	10.7
2002	<b>0.4</b>	<b>0.1</b>	<b>(0.1)</b>	<b>2.0</b>	<b>1.8</b>	<b>(3.7)</b>	<b>0.5</b>
<b>PROTECTIVE WITH SOCIAL SECURITY</b>							
1998	\$(3.0)	\$1.8	\$9.5	\$9.3	\$86.7	\$ (32.9)	\$ 71.4
1999	(0.7)	1.8	0.4	23.0	107.9	(36.9)	95.5
2000	(3.4)	1.1	0.6	(22.4)	11.8	(119.6)	(131.9)
2001	(1.1)	0.8	(0.4)	25.3	(12.6)	(10.4)	1.6
2002	<b>(0.2)</b>	<b>1.1</b>	<b>0.0</b>	<b>35.7</b>	<b>(106.3)</b>	<b>(12.9)</b>	<b>(82.6)</b>
<b>PROTECTIVE WITHOUT SOCIAL SECURITY</b>							
1998	\$(2.1)	\$0.7	\$4.7	\$(3.7)	\$29.3	\$ (7.2)	\$21.7
1999	(1.1)	0.5	3.5	11.8	39.4	(12.6)	41.5
2000	(2.3)	0.5	(0.4)	(0.4)	11.7	(14.1)	(5.0)
2001	(0.1)	0.5	(0.5)	4.1	3.5	(1.6)	5.9
2002	<b>(0.3)</b>	<b>0.2</b>	<b>(0.3)</b>	<b>2.3</b>	<b>(23.9)</b>	<b>(6.4)</b>	<b>(28.4)</b>

\*Includes separation due to death.

# ECONOMIC ASSUMPTION EXPERIENCE

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**GAIN (LOSS) FROM INVESTMENT INCOME DURING CALENDAR YEAR 2002**  
**(\$ MILLIONS)**

	General	Executive & Elected	Protective		Total
			With SS	Without SS	
(1) Beginning of Year Active Participant Assets					
(a) Participant Accumulation Reserve (PAR)	12,738.5	123.1	939.2	316.6	14,117.4
(b) PAR Closing Adjustment	0.1	0.0	0.0	0.0	0.1
(c) Employer Accumulation Reserve (EAR)	15,530.0	137.1	1,589.3	416.4	17,672.8
(d) EAR Closing Adjustment	23.8	0.2	2.0	0.7	26.7
(e) Total	28,292.4	260.4	2,530.5	733.7	31,817.0
(2) End of Year Active Participant Assets					
(a) Participant Accumulation Reserve	12,547.8	118.3	914.3	304.7	13,885.1
(b) Employer Accumulation Reserve	15,424.5	144.3	1,606.9	427.7	17,603.4
(c) Total	27,972.3	262.6	2,521.2	732.4	31,488.5
(3) Investment Earnings Credited					
(a) Participant Accumulation Reserve	364.0	4.3	21.8	9.0	399.1
(b) Employer Accumulation Reserve	446.8	5.1	26.9	14.4	493.2
(c) Total	810.8	9.4	48.7	23.4	892.3
(4) Average Balance: $.5 \times \{(1e)+(2c)-(3c)\}$	27,727.0	256.8	2,501.5	721.4	31,206.7
(5) Expected Earnings: $.08 \times (4)$	2,218.2	20.5	200.1	57.7	2,496.5
(6) Gain (Loss) for year from investment experience: $(3c)-(5)$	(1,407.4)	(11.1)	(151.4)	(34.3)	(1,604.2)
(7) Portion applied to Change in Variable Excess Reserve and Money Purchase Minimum Benefit	(1,121.8)	(12.9)	(45.1)	(10.4)	(1,190.2)
<b>(8) Remaining Gain (Loss): (6)-(7)</b>	<b>\$ (285.6)</b>	<b>\$ 1.8</b>	<b>\$ (106.3)</b>	<b>\$ (23.9)</b>	<b>\$ (414.0)</b>

**SALARY INCREASES DURING CALENDAR YEAR 2002  
TO PARTICIPANTS ACTIVE BOTH AT BEGINNING & END OF YEAR**

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Age Group Beginning of Year	Percent Salary Increases					Age Group Beginning of Year
	Teachers			Other General		
	Actual		Expected			
	University	Public School		Actual	Expected	
25-29	8.5 %	6.0 %	10.1 %	5.8 %	10.1 %	25-29
30-34	5.6 %	4.9 %	7.9 %	5.0 %	7.9 %	30-34
35-39	5.0 %	5.1 %	7.4 %	4.6 %	7.4 %	35-39
40-44	4.9 %	4.4 %	6.2 %	4.2 %	6.2 %	40-44
45-49	4.3 %	3.7 %	5.9 %	3.5 %	5.9 %	45-49
50-54	4.6 %	2.7 %	5.2 %	3.1 %	5.2 %	50-54
55-59	3.8 %	2.6 %	4.8 %	2.9 %	4.8 %	55-59
60-64	2.9 %	2.3 %	4.8 %	2.4 %	4.8 %	60-64
65 & Over	2.9 %	2.2 %	4.8 %	2.1 %	4.8 %	65 & Over
Average	4.4 %	3.8 %		3.7 %		Average

The salary increases shown on this and the following page are not necessarily reflective of pay increases awarded to any individual member. The figures are broad averages of figures involving large groups of people. They can be distorted to the extent that younger people may have received less than a full year's pay during their first year of employment. Pay increases tend generally to track inflation which was about 2.4% in 2002. The average inflation rate over the 25 year period 1977-2002 was 4.4%. Similarly, during that period national average earnings rose an average of 5.1% a year.

**SALARY INCREASES DURING CALENDAR YEAR 2002  
TO PARTICIPANTS ACTIVE BOTH AT BEGINNING & END OF YEAR  
(CONTINUED)**

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Age Group Beginning of Year	Percent Salary Increases						Age Group Beginning of Year
	Protective				Executives & Elected		
	Actual		Expected				
	With Soc. Sec.	Without Soc. Sec.	With Soc. Sec.	Without Soc. Sec.	Actual	Expected	
25-29	6.8 %	10.1 %	8.7 %	8.7 %	2.0 %	8.5 %	25-29
30-34	4.3 %	6.9 %	8.0 %	6.5 %	2.5 %	7.3 %	30-34
35-39	3.5 %	5.3 %	6.7 %	5.5 %	4.2 %	6.3 %	35-39
40-44	3.0 %	4.6 %	5.1 %	5.2 %	3.0 %	5.5 %	40-44
45-49	3.3 %	4.3 %	4.9 %	4.9 %	3.0 %	5.0 %	45-49
50-54	2.9 %	5.1 %	4.7 %	4.7 %	3.1 %	4.9 %	50-54
55-59	2.9 %	3.8 %	4.6 %	4.6 %	5.2 %	4.8 %	55-59
60-64	3.0 %	4.9 %	4.6 %	4.6 %	5.8 %	4.8 %	60-64
65 & Over	2.2 %	0.0 %	4.6 %	4.6 %	2.2 %	4.7 %	65 & Over
Average	3.9 %	5.6 %			4.0 %		Average



# DECREMENT ASSUMPTION EXPERIENCE

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**ACTIVE PARTICIPANTS WHO BECAME NORMAL AGE & SERVICE  
RETIRANTS DURING CALENDAR YEAR 2002**

Ages	Number of Actual Retirements						General Total	Number Expected
	University		Public Schools		Other			
	M	F	M	F	M	F		
57	8	3	166	76	63	32	348	302.8
58	10	0	66	71	64	25	236	219.3
59	15	6	55	34	43	18	171	176.0
60	14	3	46	38	44	14	159	140.8
61	9	2	21	26	35	16	109	114.4
62	18	5	21	15	28	18	105	129.6
63	9	3	10	11	22	11	66	80.9
64	9	1	4	5	15	6	40	68.9
65	21	10	9	36	64	121	261	468.4
66	16	3	8	18	43	62	150	268.4
67	9	3	3	11	12	35	73	163.1
68	11	1	4	4	7	27	54	106.0
69	2	0	2	5	7	12	28	72.6
70 & Over	17	1	7	15	22	69	131	642.8
<b>Totals</b>	<b>168</b>	<b>41</b>	<b>422</b>	<b>365</b>	<b>469</b>	<b>466</b>	<b>1,931</b>	<b>2,954.0</b>

Averages at Retirement (Years)							
Age	63.7	62.9	59.2	60.9	62.0	65.1	62.1
Service	30.7	25.4	32.6	30.3	28.0	21.7	28.1

**ACTIVE PARTICIPANTS WHO BECAME NORMAL AGE & SERVICE  
RETIRANTS DURING CALENDAR YEAR 2002  
(CONTINUED)**

Ages	Protective Occupation			Expected Number	Executive & Elected Officials	
	Number of Actual Retirements				Actual Retirements	Number Expected
	With Soc. Sec	Without Soc. Sec.	Total			
53	63	18	81	68.2		
54	56	13	69	82.8		
55	36	11	47	72.2		
56	28	5	33	49.4		
57	12	1	13	25.2	2	0.6
58	6	2	8	17.5		0.1
59	15		15	16.0	2	0.6
60	8	1	9	14.9	1	0.6
61	8	2	10	10.2		0.6
62	4		4	12.6	4	3.6
63	3	1	4	3.8	2	4.1
64	1	1	2	3.8	3	4.8
65	4		4	2.7		2.4
66	2		2	3.5	3	2.8
67	1		1	0.5	2	1.8
68				0.5	1	1.8
69					1	1.0
70 & Over				1.0	10	28.0
<b>Totals</b>	<b>247</b>	<b>55</b>	<b>302</b>	<b>384.8</b>	<b>31</b>	<b>52.8</b>

**Averages at Retirement (Years)**

Age	55.6	54.8	55.5	66.6
Service	26.3	25.7	26.2	20.3

**ACTIVE PARTICIPANTS WHO BECAME REDUCED AGE & SERVICE  
RETIRANTS DURING CALENDAR YEAR 2002**

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Ages	Number of Actual Retirements						General Total	Number Expected
	University		Public Schools		Other			
	M	F	M	F	M	F		
55	11	7	262	273	120	127	800	688.6
56	15	9	194	203	128	105	654	416.3
57	5	7	39	65	26	52	194	208.4
58	8	6	29	70	34	59	206	196.1
59	10	11	13	54	37	68	193	193.6
60	9	11	20	50	41	85	216	219.3
61	3	8	14	43	30	70	168	199.6
62	12	5	15	42	56	132	262	283.6
63	5	6	12	31	64	111	229	220.9
64	6	4	2	15	34	70	131	169.5
<b>Totals</b>	<b>84</b>	<b>74</b>	<b>600</b>	<b>846</b>	<b>570</b>	<b>879</b>	<b>3,053</b>	<b>2,795.9</b>

Averages at Retirement (Years)							
Age	58.9	59.1	56.4	57.3	58.6	59.5	58.1
Service	22.3	18.3	27.5	24.0	23.6	18.8	22.9

**ACTIVE PARTICIPANTS WHO BECAME REDUCED AGE & SERVICE  
RETIRANTS DURING CALENDAR YEAR 2002  
(CONTINUED)**

Ages	Protective Occupation			Expected Number	Executive & Elected Officials	
	Number of Actual Retirements				Actual Retirements	Number Expected
	With Soc. Sec	Without Soc. Sec.	Total			
50	27		27	15.6		
51	22	2	24	13.2		
52	26	5	31	13.2		
53	4	1	5	21.3		
54						
55					1	3.5
56					3	3.2
57						2.3
58					3	2.8
59						1.9
60						1.9
61					1	1.4
62						0.7
63						0.6
64						0.3
65 & Over					4	31.1
<b>Totals</b>	<b>79</b>	<b>8</b>	<b>87</b>	<b>63</b>	<b>12</b>	<b>50</b>

Averages at Retirement (Years)						
Age	51.1	51.9	51.2		62.2	
Service	26.1	27.6	26.2		14.4	

This page includes a few normal retirement cases that retired with very little service credit.

**ACTIVE PARTICIPANTS WHO BECAME DISABILITY RETIRANTS  
DURING CALENDAR YEAR 2002**

Ages	Number of Actual Disability Retirements						General Total	Number Expected
	University		Public Schools		Other			
	M	F	M	F	M	F		
20- 24								
25- 29								
30- 34								0.3
35- 39			1	2	1	1	5	2.6
40- 44				3	1	3	7	10.2
45- 49			3	6	4	5	18	25.6
50- 54		1	4	13	15	19	52	66.5
55- 59	2		6	13	13	14	48	64.9
60- 64	2		1	3	10	12	28	31.4
65 & Over					1	1	2	
<b>Totals</b>	<b>4</b>	<b>1</b>	<b>15</b>	<b>40</b>	<b>45</b>	<b>55</b>	<b>160</b>	<b>201.5</b>

**Averages at Retirement (Years)**

Age	58.5	54.0	52.1	51.7	54.6	54.1	53.6
Service	19.0	17.0	22.5	20.0	21.0	17.5	19.6

The people shown on this page are cases involving \$40.63 disability benefits. The LTDI plan is described in a separate report.

**ACTIVE PARTICIPANTS WHO BECAME DISABILITY RETIRANTS  
DURING CALENDAR YEAR 2002  
(CONTINUED)**

Ages	Protective Occupation			Number Expected	Executives & Elected Officials	
	Number of Actual Disability Retirements				Actual Dis. Retmts.	Number Expected
	With Soc. Sec.	Without Soc. Sec.	Total			
20- 24			0			
25- 29			0			
30- 34			0	0.2		
35- 39			0	1.0		
40- 44	2		2	1.9		
45- 49			0	5.3		0.1
50- 54	3		3	7.5		0.3
55- 59			0			0.6
60- 64			0			0.2
65 & Over			0			
<b>Totals</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>15.9</b>	<b>0</b>	<b>1.2</b>

**Averages at Retirement (Years)**

Age	49.7	48.8	49.7
Service	21.0	25.0	21.0

The people shown on this page are cases involving §40.63 disability benefits. LTDI plan cases are described in a separate report.

**ACTIVE PARTICIPANTS WHO DIED DURING CALENDAR YEAR 2002  
WITH DEATH-IN-SERVICE BENEFIT PAYABLE  
VALUATION GROUPS COMBINED**

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<b>Ages</b>	<b>Reported Number of Deaths With Survivor Benefit Payable</b>			<b>Number Expected</b>
	<b>Male</b>	<b>Female</b>	<b>Total</b>	
Under 50				47.6
50- 54	1		1	50.8
55- 59	15	11	26	50.5
60- 64	14	11	25	29.6
65- 69	5	3	8	11.8
70 & Over	5	2	7	5.9
<b>Totals</b>	<b>40</b>	<b>27</b>	<b>67</b>	<b>196.2</b>

	<b>Averages at Death</b>		
Age	61.8	61.1	61.5
Service	17.5	16.3	17.0



**ACTIVE PARTICIPANTS WHO LEFT ACTIVE STATUS  
WITH A DEFERRED BENEFIT PAYABLE  
(RETIREMENT WITH MONTHLY PAYMENTS BEGINNING AT LATER AGE)  
DURING CALENDAR YEAR 2002**

---

Ages	University		Public Schools		Other		Total General	Number Expected
	Male	Female	Male	Female	Male	Female		
Under 30	2	2	3	17	14	20	58	0.0
30- 34	8	17	25	129	33	99	311	0.0
35- 39	17	25	26	92	68	126	354	50.7
40- 44	27	32	24	64	103	170	420	204.6
45- 49	28	31	24	66	84	201	434	390.9
50- 54	15	29	49	116	105	217	531	549.9
55 & Over	5	11	27	61	80	149	333	0.0
<b>Totals</b>	<b>102</b>	<b>147</b>	<b>178</b>	<b>545</b>	<b>487</b>	<b>982</b>	<b>2,441</b>	<b>1,196.1</b>

**Averages at Retirement**

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Age	43.7	44.0	45.7	42.8	46.0	45.9	45.0
Service	10.3	8.8	14.5	10.7	12.1	10.1	10.9

The above are people who were active at the beginning of 2002, who were inactive at the end of 2002, did not take a separation benefit, and who did qualify for retirement with a monthly benefit beginning at a later age. Some people who show up on this schedule will likely withdraw their contributions sometime during the following year and forfeit entitlement to a deferred benefit.

**ACTIVE PARTICIPANTS WHO LEFT ACTIVE STATUS  
WITH A DEFERRED BENEFIT PAYABLE  
(RETIREMENT WITH MONTHLY PAYMENTS BEGINNING AT LATER AGE)  
DURING CALENDAR YEAR 2002  
(CONTINUED)**

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Ages	Protective Occupation			Number Expected	Executives & Elected Officials	
	Actual Number Leaving With Deferred Benefit Payable				Actual Number	Number Expected
	With Soc. Sec.	Without Soc. Sec.	Total			
Under 30	4	1	5	0.0		0.0
30- 34	33	2	35	0.0		0.0
35- 39	34	4	38	4.3	5	0.3
40- 44	25	1	26	13.6	2	1.3
45- 49	28	5	33	22.5	2	2.7
50- 54	12	3	15	5.1	2	5.0
55 & Over	7		7	0.0	3	0.0
<b>Totals</b>	<b>143</b>	<b>16</b>	<b>159</b>	<b>45.5</b>	<b>14</b>	<b>9.3</b>

Averages at Retirement				
Age	40.9	42.0	41.0	46.8
Service	12.7	14.1	12.8	9.3

The above are people who were active at the beginning of 2002, who were inactive at the end of 2002, did not take a separation benefit, and who did qualify for retirement with a monthly benefit beginning at a later age. Some people who show up on this schedule will likely withdraw their contributions sometime during the following year and forfeit entitlement to a deferred benefit.

**ACTIVE PARTICIPANTS WHO LEFT ACTIVE STATUS  
WITH NO MONTHLY BENEFIT PAYABLE DURING CALENDAR YEAR 2002  
INCLUDES SEPARATION BENEFITS PAID AND  
ASSUMED TO BE PAID**

Ages	Actual Number at Indicated Ages						Total General	Number Expected
	University		Public Schools		Other			
	Male	Female	Male	Female	Male	Female		
Under 20								
20- 24	21	30	9	60	323	842	1,285	586.9
25- 29	62	111	150	422	318	782	1,845	1,379.2
30- 34	118	123	87	298	237	616	1,479	1,444.8
35- 39	64	74	68	147	191	590	1,134	1,450.1
40- 44	45	58	53	129	197	661	1,143	1,461.4
45- 49	45	48	50	108	197	545	993	1,145.6
50- 54	25	45	54	116	139	394	773	705.2
55- 59	18	24	45	58	108	218	471	336.3
60- 64	9	9	8	25	83	145	279	166.7
65- 69	1	2	6	9	53	74	145	0.0
70 & Over	3	1	4	4	81	59	152	0.0
<b>Totals</b>	<b>411</b>	<b>525</b>	<b>534</b>	<b>1,376</b>	<b>1,927</b>	<b>4,926</b>	<b>9,699</b>	<b>8,676.2</b>

**5+ Years of Service**

Under 20								
20- 24								0.6
25- 29				2	2	7	11	58.1
30- 34		2	4	33	9	28	76	368.0
35- 39	2	3	7	30	14	38	94	384.1
40- 44	3	1	8	27	15	60	114	320.1
45- 49	3	8	10	13	28	47	109	229.2
50- 54	4	3	14	28	22	37	108	91.6
55- 59	2	3	14	16	17	37	89	0.0
60- 64	1	5		10	9	21	46	0.0
65- 69	1			1	5	16	23	0.0
70 & Over	1			1	9	10	21	0.0
<b>Totals</b>	<b>17</b>	<b>25</b>	<b>57</b>	<b>161</b>	<b>130</b>	<b>301</b>	<b>691</b>	<b>1,451.7</b>

**ACTIVE PARTICIPANTS WHO LEFT ACTIVE STATUS  
WITH NO MONTHLY BENEFIT PAYABLE DURING CALENDAR YEAR 2002  
INCLUDES SEPARATION BENEFITS PAID AND  
ASSUMED TO BE PAID  
(CONTINUED)**

Ages	Protective Occupation			Number Expected	Executives & Elected Officials	
	Actual Number				Number	Number
	With Soc. Sec.	Without Soc. Sec.	Total			
Under 20						
20- 24	64	2	66	54.6		
25- 29	110	4	114	116.4	1	0.5
30- 34	92	7	99	97.4	3	1.8
35- 39	49	3	52	59.4	5	3.6
40- 44	29		29	37.0	4	4.9
45- 49	25		25	20.7	6	5.5
50- 54	22	1	23	8.7	3	5.9
55- 59	9		9	3.5	7	4.4
60- 64	3		3	1.1	10	1.3
65- 69				0.2	6	
70 & Over	1		1		10	
<b>Totals</b>	<b>404</b>	<b>17</b>	<b>421</b>	<b>399.0</b>	<b>55</b>	<b>27.9</b>

**5+ Years of Service**

Under 20						
20- 24				0.1		
25- 29	4	1	5	8.1		
30- 34	10		10	31.9		0.4
35- 39	16	1	17	26.3		1.6
40- 44	10		10	16.1	1	2.2
45- 49	10		10	7.3	2	1.7
50- 54	6	1	7	0.7		0.8
55- 59	4		4			
60- 64	1		1			
65- 69						
70 & Over					1	
<b>Totals</b>	<b>61</b>	<b>3</b>	<b>64</b>	<b>90.5</b>	<b>4</b>	<b>6.7</b>

**ACTIVE PARTICIPANTS WHO LEFT ACTIVE STATUS  
WITH NO MONTHLY BENEFIT PAYABLE DURING CALENDAR YEAR 2002  
BY YEARS OF SERVICE  
INCLUDES SEPARATION BENEFITS PAID AND  
ASSUMED TO BE PAID**

**General Participants**

**Actual Number**

Service	University		Public Schools		Other		Total General	Number Expected
	Male	Female	Male	Female	Male	Female		
0	147	160	183	404	911	2,393	4,198	3,057.5
1	107	135	117	312	384	965	2,020	1,813.8
2	58	96	66	214	245	593	1,272	1,165.8
3	41	63	59	159	155	385	862	842.5
4	41	46	52	126	102	289	656	345.0
5 & Up	17	25	57	161	130	301	691	1,451.6
<b>Totals</b>	<b>411</b>	<b>525</b>	<b>534</b>	<b>1,376</b>	<b>1,927</b>	<b>4,926</b>	<b>9,699</b>	<b>8,676.2</b>

**Averages at Separation**

Age	37.4	37.0	38.4	36.2	37.9	37.2	36.7
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**Protective Occupation**

**Actual Number**

**Executives &  
Elected Officials**

Service	Protective Occupation			Number Expected	Executives & Elected Officials	
	With Soc. Sec.	Without Soc. Sec.	Total		Actual Number	Number Expected
0	150	5	155	117.6	19	8.0
1	77	4	81	79.0	12	5.0
2	44	2	46	47.0	12	4.0
3	42	1	43	41.8	5	3.6
4	30	2	32	23.5	3	0.5
5 & Up	61	3	64	90.5	4	6.7
<b>Totals</b>	<b>404</b>	<b>17</b>	<b>421</b>	<b>399.4</b>	<b>55</b>	<b>27.8</b>

**Averages at Separation**

Age	33.2	30.4	33.1	52.2
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## ACTIVE PARTICIPANTS INCLUDED IN VALUATIONS

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**ACTIVE PARTICIPANTS AS OF DECEMBER 31, 2001**  
**PROTECTIVE PARTICIPANTS WITH SOCIAL SECURITY**  
**BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date						Total
	Men			Women			
	0-4	5-29	30 Plus	0-4	5-29	30 Plus	
Under 20							
20- 24	573	2		224	1		800
25- 29	1,562	290		537	99		2,488
30- 34	1,041	1,722		303	464		3,530
35- 39	480	2,064		150	383		3,077
40- 44	285	1,922		99	419		2,725
45- 49	185	2,096		60	334		2,675
50	27	386	9	14	50		486
51	26	320	13	8	40	1	408
52	21	277	22	5	37	1	363
53	20	240	47	9	38		354
54	21	173	43	4	28	1	270
55	22	146	40	3	25	2	238
56	8	89	33	6	32	2	170
57	7	53	14	2	14	2	92
58	14	37	9		10	2	72
59	6	34	12		9	1	62
60	10	29	5	1	8	1	54
61	5	20	9		6		40
62	2	14	5	1	5		27
63		4	2	1	2		9
64	1	9		2	2		14
65	2	5	2		1		10
66	1	4	1		2		8
67	1	1					2
68		1					1
69							
70 & Over	5	1					6
<b>Totals</b>	<b>4,325</b>	<b>9,939</b>	<b>266</b>	<b>1,429</b>	<b>2,009</b>	<b>13</b>	<b>17,981</b>

Years of Service	Men	Women	Total
0	980	333	1,313
1	973	319	1,292
2	758	228	986
3	872	284	1,156
4	742	265	1,007
5 & Over	10,205	2,022	12,227
<b>TOTALS</b>	<b>14,530</b>	<b>3,451</b>	<b>17,981</b>

**ACTIVE PARTICIPANTS AS OF DECEMBER 31, 2001**  
**PROTECTIVE PARTICIPANTS WITHOUT SOCIAL SECURITY**  
**BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date						Total
	Men			Women			
	0-4	5-29	30 Plus	0-4	5-29	30 Plus	
Under 20							
20- 24	50			2			52
25- 29	232	36		9	2		279
30- 34	189	247		14	17		467
35- 39	68	392		6	17		483
40- 44	28	459		1	20		508
45- 49	3	488	1	1	12		505
50		91			1		92
51	1	85	2		3		91
52	1	61	6				68
53		45	6		1		52
54		33	10		1		44
55	1	26	9				36
56		10	4				14
57	1	4	2				7
58		3	2				5
59		1					1
60		4					4
61		2					2
62			2				2
63		1	1				2
64		1					1
65							
66							
67							
68							
69							
70 & Over							
<b>Totals</b>	<b>574</b>	<b>1,989</b>	<b>45</b>	<b>33</b>	<b>74</b>		<b>2,715</b>

Years of Service	Men	Women	Total
0	82	6	88
1	130	6	136
2	122	4	126
3	126	9	135
4	114	8	122
5 & Over	2,034	74	2,108
<b>TOTALS</b>	<b>2,608</b>	<b>107</b>	<b>2,715</b>



**ACTIVE PARTICIPANTS AS OF DECEMBER 31, 2001**  
**EXECUTIVE AND ELECTED OFFICIALS**  
**BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date						Total
	Men			Women			
	0-4	5-29	30 Plus	0-4	5-29	30 Plus	
Under 20							
20- 24							
25- 29	4			3			7
30- 34	13	4		8	5		30
35- 39	20	25		10	17		72
40- 44	28	54		16	42		140
45- 49	40	84		21	64	1	210
50	9	32		8	18	1	68
51	5	28		8	24		65
52	19	31		2	21	1	74
53	9	28		6	15	2	60
54	11	36	1	8	22	1	79
55	17	34	4	4	17	1	77
56	8	29	3	4	18	3	65
57	6	25	6	5	12	1	55
58	6	30	1	6	16		59
59	8	18	3	9	15		53
60	9	16	4	2	15		46
61	8	13	1	4	9	1	36
62	9	11	3	2	10		35
63	6	15	1	5	8	2	37
64	6	14	4	1	12		37
65	6	7	1		4		18
66	4	8	1	1	4		18
67	7	5	2	4	1	1	20
68	12	5			3		20
69	7	2		4	1	1	15
70 & Over	39	33	5	5	8		90
<b>Totals</b>	<b>316</b>	<b>587</b>	<b>40</b>	<b>146</b>	<b>381</b>	<b>16</b>	<b>1,486</b>

Years of Service	Men	Women	Total
0	104	43	147
1	71	31	102
2	56	25	81
3	54	31	85
4	31	16	47
5 & Over	627	397	1,024
<b>TOTALS</b>	<b>943</b>	<b>543</b>	<b>1,486</b>

**ACTIVE PARTICIPANTS AS OF DECEMBER 31, 2001**  
**UNIVERSITY PARTICIPANTS**  
**BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date						Total
	Men			Women			
	0-4	5-29	30 Plus	0-4	5-29	30 Plus	
Under 20							
20- 24	58			112			170
25- 29	370	14		550	23		957
30- 34	672	144		690	200		1,706
35- 39	696	370		670	437		2,173
40- 44	549	718		543	709		2,519
45- 49	405	1,126		408	978		2,917
50	56	258		75	228	1	618
51	51	272		80	255	2	660
52	48	265	1	63	217	3	597
53	66	225	6	53	187	8	545
54	51	227	9	48	227	10	572
55	50	283	24	39	197	18	611
56	44	246	22	41	170	15	538
57	30	197	33	42	166	12	480
58	26	199	45	19	112	13	414
59	27	169	71	27	96	13	403
60	20	121	87	14	108	15	365
61	11	103	71	10	79	13	287
62	16	87	84	11	60	15	273
63	14	58	53	11	47	8	191
64	11	54	50	6	25	6	152
65	7	39	43	2	24	7	122
66	2	19	44	3	15	4	87
67	5	17	27	1	14	1	65
68	1	19	20	2	8	2	52
69	1	10	17	1	3	4	36
70 & Over	12	21	47	3	10	10	103
<b>Totals</b>	<b>3,299</b>	<b>5,261</b>	<b>754</b>	<b>3,524</b>	<b>4,595</b>	<b>180</b>	<b>17,613</b>

Years of Service	Men	Women	Total
0	815	882	1,697
1	837	853	1,690
2	632	700	1,332
3	499	579	1,078
4	516	510	1,026
5 & Over	6,015	4,775	10,790
<b>TOTALS</b>	<b>9,314</b>	<b>8,299</b>	<b>17,613</b>

**ACTIVE PARTICIPANTS AS OF DECEMBER 31, 2001**  
**PUBLIC SCHOOL PARTICIPANTS**  
**BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date						Total
	Men			Women			
	0-4	5-29	30 Plus	0-4	5-29	30 Plus	
Under 20							
20- 24	175			718	1		894
25- 29	2,156	101		6,063	353		8,673
30- 34	1,448	1,576		3,147	4,317		10,488
35- 39	789	2,200		1,804	5,247		10,040
40- 44	550	2,310		1,801	5,425		10,086
45- 49	465	3,049		1,639	7,363		12,516
50	93	794		284	2,001		3,172
51	97	1,011	1	273	2,210	3	3,595
52	67	1,002	11	233	2,170	26	3,509
53	81	942	183	207	1,825	298	3,536
54	69	775	364	182	1,628	522	3,540
55	71	661	594	163	1,504	653	3,646
56	48	516	486	129	1,083	416	2,678
57	48	299	364	103	747	251	1,812
58	35	207	208	78	664	211	1,403
59	43	160	164	66	532	125	1,090
60	35	138	124	50	440	87	874
61	33	92	75	39	295	66	600
62	15	54	42	31	204	52	398
63	9	38	23	37	149	25	281
64	14	41	15	22	117	30	239
65	10	19	10	9	81	22	151
66	7	15	8	19	46	14	109
67	6	9	4	15	26	10	70
68	4	8	5	13	15	3	48
69	7	5	2	10	10	5	39
70 & Over	26	15	7	21	42	14	125
<b>Totals</b>	<b>6,401</b>	<b>16,037</b>	<b>2,690</b>	<b>17,156</b>	<b>38,495</b>	<b>2,833</b>	<b>83,612</b>

Years of Service	Men	Women	Total
0	1,572	4,024	5,596
1	1,366	3,946	5,312
2	1,226	3,354	4,580
3	1,114	3,122	4,236
4	1,123	2,710	3,833
5 & Over	18,727	41,328	60,055
<b>TOTALS</b>	<b>25,128</b>	<b>58,484</b>	<b>83,612</b>

**ACTIVE PARTICIPANTS AS OF DECEMBER 31, 2001**  
**GENERAL (NON-TEACHER) PARTICIPANTS**  
**BY ATTAINED AGE AND YEARS OF SERVICE**

Attained Ages	Years of Service to Valuation Date						Total
	Men			Women			
	0-4	5-29	30 Plus	0-4	5-29	30 Plus	
Under 20							
20- 24	1,186	3		2,720	7		3,916
25- 29	2,301	218		4,461	437		7,417
30- 34	2,371	1,364		4,338	2,298		10,371
35- 39	2,198	3,020		5,519	4,484		15,221
40- 44	2,438	5,296		7,137	7,730		22,601
45- 49	1,975	6,906		6,107	10,439	3	25,430
50	358	1,618	14	945	2,201	32	5,168
51	336	1,606	48	905	2,242	93	5,230
52	310	1,503	88	785	2,054	104	4,844
53	240	1,436	131	678	2,120	141	4,746
54	278	1,397	222	641	2,087	173	4,798
55	251	1,269	308	596	2,012	185	4,621
56	248	954	318	507	1,648	186	3,861
57	151	710	205	358	1,330	120	2,874
58	207	606	198	336	1,283	94	2,724
59	173	593	164	298	1,211	92	2,531
60	166	507	131	319	1,116	62	2,301
61	134	392	103	231	881	52	1,793
62	117	323	69	217	761	40	1,527
63	97	281	60	148	593	27	1,206
64	89	198	36	133	452	22	930
65	90	147	22	111	381	13	764
66	94	103	14	111	233	10	565
67	87	66	11	86	179	7	436
68	59	51	5	73	129	7	324
69	60	34	4	56	101	2	257
70 & Over	379	173	10	303	359	39	1,263
<b>Totals</b>	<b>16,393</b>	<b>30,774</b>	<b>2,161</b>	<b>38,119</b>	<b>48,768</b>	<b>1,504</b>	<b>137,719</b>

Years of Service	Men	Women	Total
0	4,576	11,944	16,520
1	3,912	8,867	12,779
2	3,050	6,833	9,883
3	2,730	5,723	8,453
4	2,125	4,752	6,877
5 & Over	32,935	50,272	83,207
<b>TOTALS</b>	<b>49,328</b>	<b>88,391</b>	<b>137,719</b>

# APPENDIX

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## Actuarial Methods

## ACTUARIAL VALUATION METHOD

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The actuarial funding method prescribed in the statute for WRS is the **Frozen Initial Liability Method**. Under this method, the amount of remaining unfunded accrued actuarial liabilities at any valuation date is affected only by the monthly amortization payments, compound interest, the added liability created by new employer units, and any added liabilities caused by changes in benefit provisions.

Actuarial gains or losses arising from the difference between actual and assumed experience are reflected in the determination of the normal cost. In this manner, experience gains or losses in any year are amortized (spread) over the average future working lifetime of the active participant group - a period of approximately 13 years. Hence, the computed normal cost is made up of two parts:

- The pure entry-age normal cost (EANC) determined without regard to past gains or losses, and
- an experience amortization component.

Section 40.04(1) of the Wisconsin Statutes provides authority to maintain accounts and reserves determined to be “useful in achieving the funds’ purposes - - -”. A fundamental WRS objective is stable contribution rates. Accordingly, based on the authority granted under Section 40.04, the experience portion of the normal cost is separately calculated each year and the amortization period is varied upward or downward in order to minimize short-term rate fluctuations.

## **WISCONSIN RETIREMENT SYSTEM**

### **ASSET VALUATION METHOD**

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An essential step in the valuation process is comparing valuation assets with computed liabilities. Computed liabilities result from actuarial calculations involving the covered population, the benefits, and actuarial assumptions. Valuation assets are those assets that are recognized and available to fund the System's liabilities. WRS assets are invested in the Fixed Investment Trust, and in the Variable Investment Trust, both of which are managed by the State of Wisconsin Investment Board (SWIB). Assets in the Variable Investment Trust are marked to market each year. Assets in the Fixed Investment Trust (most of the assets) are valued (or recognized) using an "asset valuation method."

Asset valuation methods are distinguished by the timing of the recognition of investment return. Total investment return is the sum of ordinary income and capital value changes. Under a book value approach, ordinary income is recognized immediately and capital gains (or losses) are recognized only when securities are sold. Book value investment return is directly affected by the timing of sales activity and underlying experience may be distorted. Under a pure market value approach, ordinary investment income and all capital value changes are recognized immediately. Because of market volatility, use of pure market values in retirement funding can result in volatile contribution rates and unstable financial ratios, contrary to WRS objectives.

The asset valuation method used for WRS valuations is statutory, and is referred to as the "Market Recognition Account" or MRA. Act 11 of 1999 closed the former Transaction Amortization Account (TAA) and created the Market Recognition Account. The MRA recognizes assumed return fully each year. Differences between actual and assumed return are phased in over a closed 5-year period. Through 2004, the amount recognized will include an additional gain of \$1.9 billion per year related to the close out of the TAA. The objective is to give recognition to long-term changes in asset values while the minimizing effect of short-term fluctuations in the capital markets. In accordance with its smoothing objective, the MRA will tend to exceed the market value when the markets are doing poorly, and will fall short of the market value when markets are doing well. Some retirement systems set limits on the amount by which the recognized value of assets can differ from the market value.

The development of the Market Recognition Account is shown on the following page. The Fixed Investment Trust includes assets for other programs, such as Sick Leave, that are not related to the funding of the Wisconsin Retirement System, and does not include assets related to the Variable Investment Trust. Consequently, the asset value developed on the next page will not balance to the total system assets. ETF Staff maintains the breakdown of the separate asset accounts.

# Wisconsin Retirement System

## Market Recognition Account (Fixed Trust Fund)

	For the Year Ended December 31				
	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
Beginning of year					
a. Funding Value	\$49,874,777,351	\$52,808,943,798	\$54,333,387,787	\$52,659,137,685	\$50,984,887,583
b. Market value	54,503,938,418	52,012,351,144	46,388,922,709	46,388,922,709	46,388,922,709
End of year					
c. Market value	52,012,351,144	46,388,922,709	46,388,922,709	46,388,922,709	46,388,922,709
d. Non-investment cash flow (contributions minus benefits)	(1,101,913,600)	(986,559,051)			
e. Investment income					
e1. Total Investment Income	(1,389,673,675)	(4,636,869,385)			
e2. Assumed rate	8.0%	8.0%			
e3. Amount for immediate recognition	3,945,905,644	4,185,253,142	-	-	-
e4. Amount for phased-in recognition: e1-e3	(5,335,579,319)	(8,822,122,527)	-	-	-
f. Phased-in recognition of investment income					
f1. Current year: .2 x e4	(1,067,115,864)	(1,764,424,505)	-	-	-
f2. First prior year	(824,740,722)	(1,067,115,864)	(1,764,424,505)	-	-
f3. Second prior year	-	(824,740,722)	(1,067,115,864)	(1,764,424,505)	-
f4. Third prior year	-	-	(824,740,722)	(1,067,115,864)	(1,764,424,505)
f5. Fourth prior year	-	-	-	(824,740,722)	(1,067,115,864)
f6. Total MRA recognition	(1,891,856,586)	(3,656,281,091)	(3,656,281,091)	(3,656,281,091)	(2,831,540,369)
f7. Amount for TAA recognition	1,982,030,989	1,982,030,989	1,982,030,989	1,982,030,989	-
f8. Total recognized gain (loss)	90,174,403	(1,674,250,102)	(1,674,250,102)	(1,674,250,102)	(2,831,540,369)
g. Total Recognized Investment Income: e3 + f8	4,036,080,047	2,511,003,040	(1,674,250,102)	(1,674,250,102)	(2,831,540,369)
h. Funding value end of year: a + d + e3 + f8	52,808,943,798	54,333,387,787	52,659,137,685	50,984,887,583	48,153,347,214
i. Difference between market and funding values	(796,592,654)	(7,944,465,079)	(6,270,214,977)	(4,595,964,874)	(1,764,424,505)
j. Recognized Rate of Return	8.2%	4.8%			
k. Market Rate of Return	(2.6)%	(9.3)%			



## DEVELOPMENT OF EAR AS OF DECEMBER 31, 2002

	General	Executive & Elected Officials	Protective Occupation		Total
			With Soc. Sec	Without Soc. Sec.	
<b>\$ Millions</b>					
1. Present Value of Future Benefits for non-retired	\$38,033.4	\$338.3	\$3,786.7	\$944.5	\$43,102.9
2. Present Value of Future Entry Age Normal Costs	11,183.8	88.2	1,593.3	332.8	13,198.1
3. Entry Age Accrued Liability: (1)-(2)	26,849.6	250.1	2,193.4	611.7	29,904.8
4. Non-Retired Assets-WRS	27,972.3	262.6	2,521.2	732.4	31,488.5
-LTDI	193.8	1.7	24.1	3.6	223.2
-Total	28,166.1	264.3	2,545.3	736.0	31,711.7
5. Entry Age Unfunded Accrued Liability:(3)-(4)	(1,316.5)	(14.2)	(351.9)	(124.3)	(1,806.9)
6. WRS Frozen Unfunded Accrued Liability	1,622.2	12.5	61.0	31.9	1,727.6
<b>7. EAR:(6)-(5)</b>	<b>\$2,938.7</b>	<b>\$26.7</b>	<b>\$412.9</b>	<b>\$156.2</b>	<b>\$3,534.5</b>

**ACTUAL VS. EXPECTED CHANGES IN EXPERIENCE AMORTIZATION RESERVE (E.A.R.) - CALENDAR YEAR 2002**  
**(\$ MILLIONS)**

	Year Ended December 31, 2002				
	General	Executive & Elected	Protective		Total
			With S.S.	Without S.S.	
(1) Entry Age UAAL at start of year	\$ (1,481.6)	\$ (10.7)	\$ (419.3)	\$ (143.4)	\$ (2,055.0)
(2) Normal cost from last valuation (Total)	1,103.2	11.5	133.9	31.1	1,279.7
(3) Actual contributions	1,272.7	13.5	115.4	28.8	1,430.4
(4) Interest	(125.3)	(0.9)	(32.8)	(11.4)	(170.4)
(5) Expected UAAL before changes: (1) + (2) - (3) + (4)	(1,776.4)	(13.6)	(433.6)	(152.5)	(2,376.1)
(6) Change from experience study	0.0	0.0	0.0	0.0	0.0
(7) Other changes	(24.1)	(0.1)	(0.9)	(0.2)	(25.3)
(8) Expected UAAL after changes: (5) + (6) + (7)	(1,800.5)	(13.7)	(434.5)	(152.7)	(2,401.4)
(9) Actual Entry Age UAAL at end of year	(1,316.5)	(14.2)	(351.9)	(124.3)	(1,806.9)
<b>(10) Gain (loss): (8) - (9)</b>	<b>\$ (484.0)</b>	<b>\$ 0.5</b>	<b>\$ (82.6)</b>	<b>\$ (28.4)</b>	<b>\$ (594.5)</b>

The gain loss analysis is intended to explain the financial effect of differences between actual and assumed experience in basic risk areas: Investment Income, Pay increases, retirement rates, turnover rates, etc. In order for the gain loss analysis to proceed, the change in the Entry Age Unfunded Actuarial Accrued Liabilities from one year to the next is analyzed to remove the effect of expected changes.

The table above develops this year's gain or loss (line 10) which is added to the Experience Amortization Reserve (E.A.R.). When the E.A.R. increases "unexpectedly," this is favorable experience and downward pressure is exerted on contribution rates. Similarly, an unexpected decrease in the E.A.R. is unfavorable experience and upward pressure is exerted on contribution rates. In addition to the gain or (loss) described in line 10, non-recurring changes in lines 6 and 7 also may affect contribution rates.

By measuring gains and losses each year and, to the extent possible, determining the "responsible" assumptions, insight is gained into how well the actuarial assumptions estimate WRS liabilities. Such information aids in understanding financial effects of emerging trends and is particularly useful during preparation of the WRS experience study.

September 5, 2003

Ms. Julie Reneau, Director  
Retirement and Survivor Benefits  
Wisconsin Department of Employee Trust Funds  
801 West Badger Road  
Madison, Wisconsin 53713

Re: 2002 Gain Loss Analysis

Dear Julie:

Enclosed are 75 bound copies of this report.

Sincerely,

Norman L. Jones

NLJ/tcb/lr  
Enclosures