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# Wisconsin Retirement System

23<sup>rd</sup> Annual Actuarial Valuations  
of Retired Lives

December 31, 2005

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Gabriel Roeder Smith & Company

# Operation of the System

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Separate reserves are maintained for fixed and variable annuities. Each year, the actuary compares reserve balances with the present value of annuities being paid within each fund.

***Fixed Annuity Division.*** If the supplemental reserve is positive and is at least 0.5% of liabilities, increases (dividends) may be granted. If the supplemental reserve is negative and is equal to or more than 0.5% of liabilities in absolute value, prior dividends are reduced by an aggregate amount equal to the shortfall. Increases or decreases become effective in April following the December valuation.

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# Operation of the System

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***Variable Annuity Division.*** If the supplemental reserve is at least 2% of liabilities, substantially all of the reserve (dropping fractions of a percent) is used to increase or decrease annuities for the ensuing year. Increases or decreases become effective in April following the December valuation.

# Smoothing Mechanisms

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It is undesirable for a retiree to experience wide swings in monthly benefits from year to year, particularly if the swings are downward. This possibility is mitigated in the Fixed division by the asset smoothing process, as well as by the portfolio mix. The variable fund is marked to market each year and subject to wide swings. The “dropping fractions of a percent” in terms of the gain that is distributed is a form of smoothing. However, the magnitude of the gains and losses is such that this has very little practical effect as a smoothing mechanism.

# Summary of Results – December 31, 2005

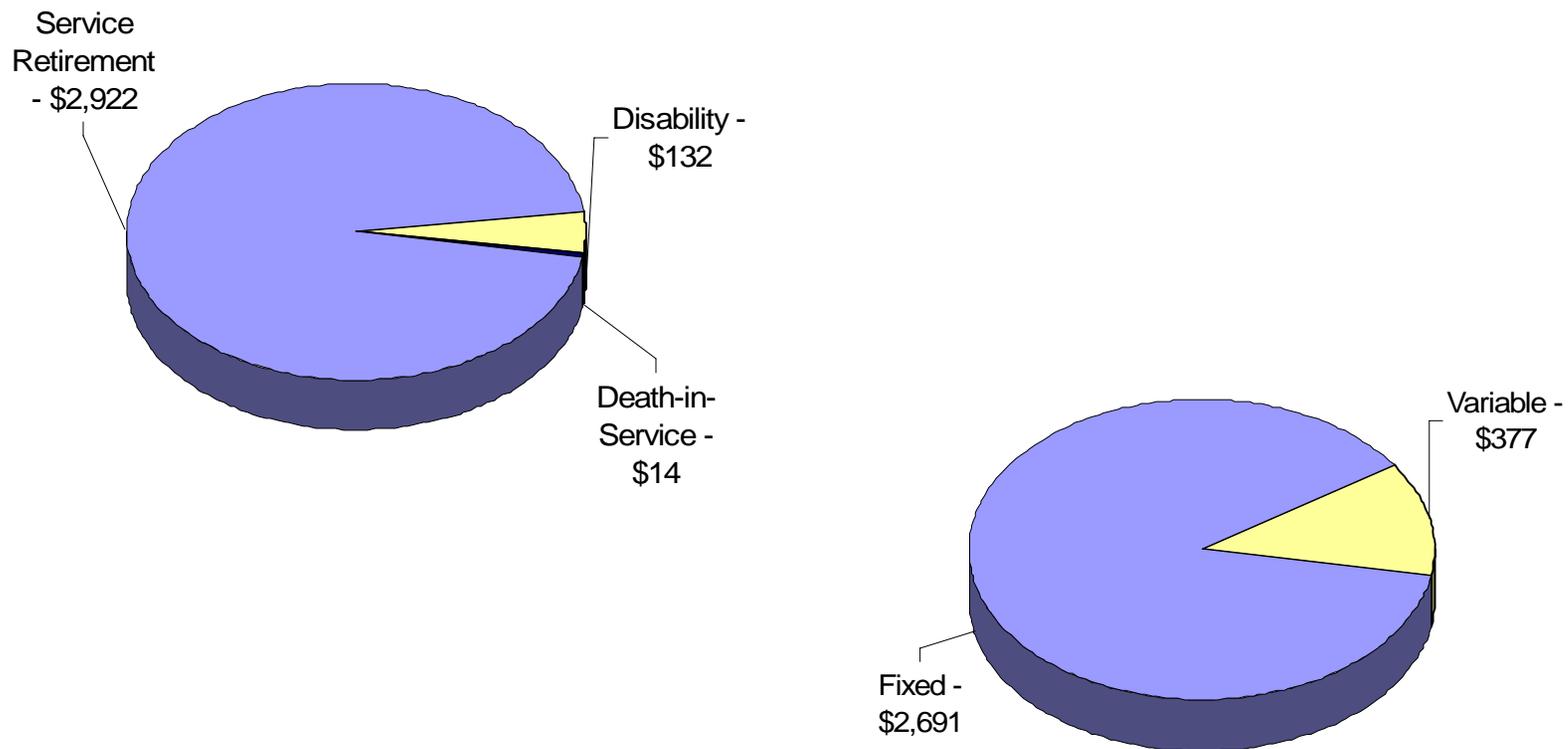
\$ Millions

	<b>Fixed</b>	<b>Variable</b>
Number of Annuitants	131,674	31,499
Annual Amount	\$ 2,691	\$ 377
Fund Balance	28,575	4,093
Actuarial Reserve	28,360	3,971
<b>Ratio</b>	<b>1.008</b>	<b>1.031</b>

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# Annuities Being Paid by Type

\$ Millions



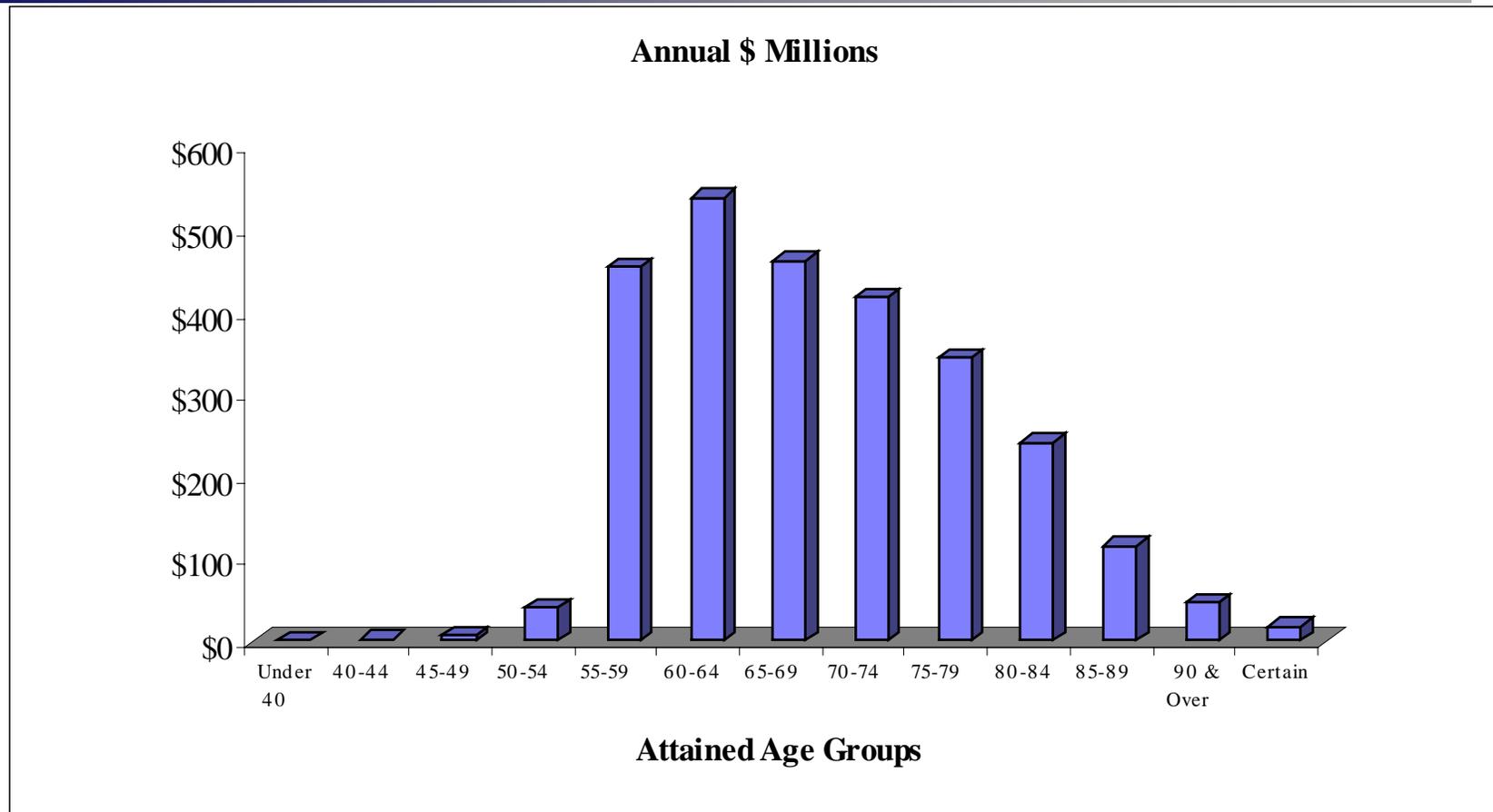
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# Primary Sources of Dividend

	<u>% of APV</u>
1. Published earnings rate	6.50%
2. Adjustment to relate earnings to average fixed annuity balance	<u>(0.31)%</u>
3. Earnings rate based on average balance	6.19%
4. Expected dividend before adjustments: 1.0619/1.05-1	1.13%
5. Adjustment to relate average asset to ending liability	0.01%
6. Carryover from last year due to timing of dividend accounting adjustments, and rounding	0.17%
7. Adjustments to contingency reserve and data reserve	(0.36)%
8. Experience Study	0.00%
9. Experience and other effects	(0.19)%
10. Statutory adjustment to round to nearest one-tenth percent	<u>0.04%</u>
11. Computed dividend rate: (4) + (5) + (6) + (7) + (8) + (9) + (10)	0.8%

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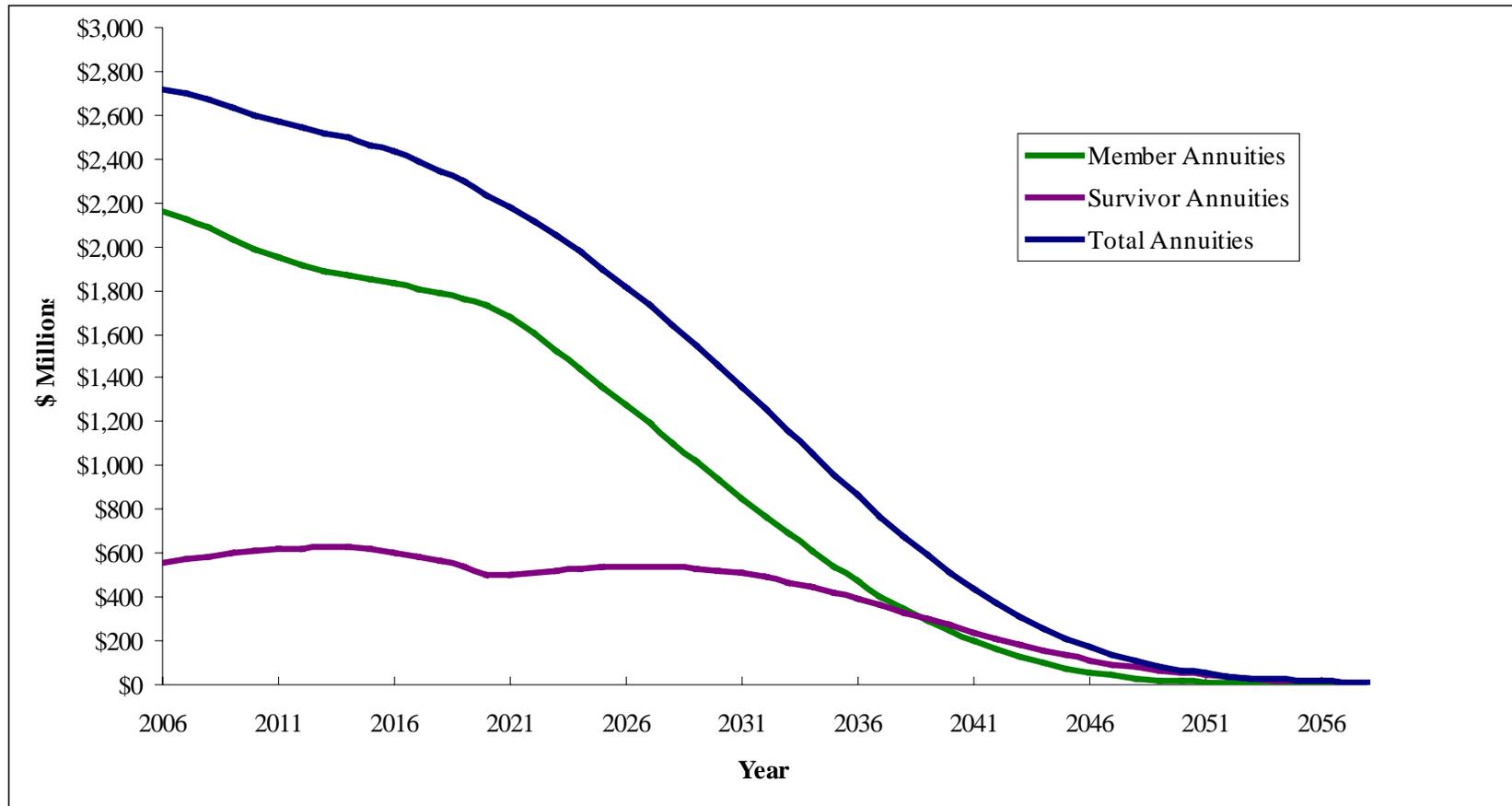
# Fixed Annuities Being Paid



<b>Average age</b>	<b>- at retirement</b>	<b>59.7 years</b>
	<b>- now (12/31/2005)</b>	<b>70.4 years</b>
<b>Average service at retirement</b>		<b>22.9 years</b>

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# Projected Future Fixed Annuities



<b>Total Future Payments</b>	<b>\$67.6 billion</b>
<b>From Present Assets</b>	<b>28.6</b>
<b>From Investment Return</b>	<b>39.0</b>

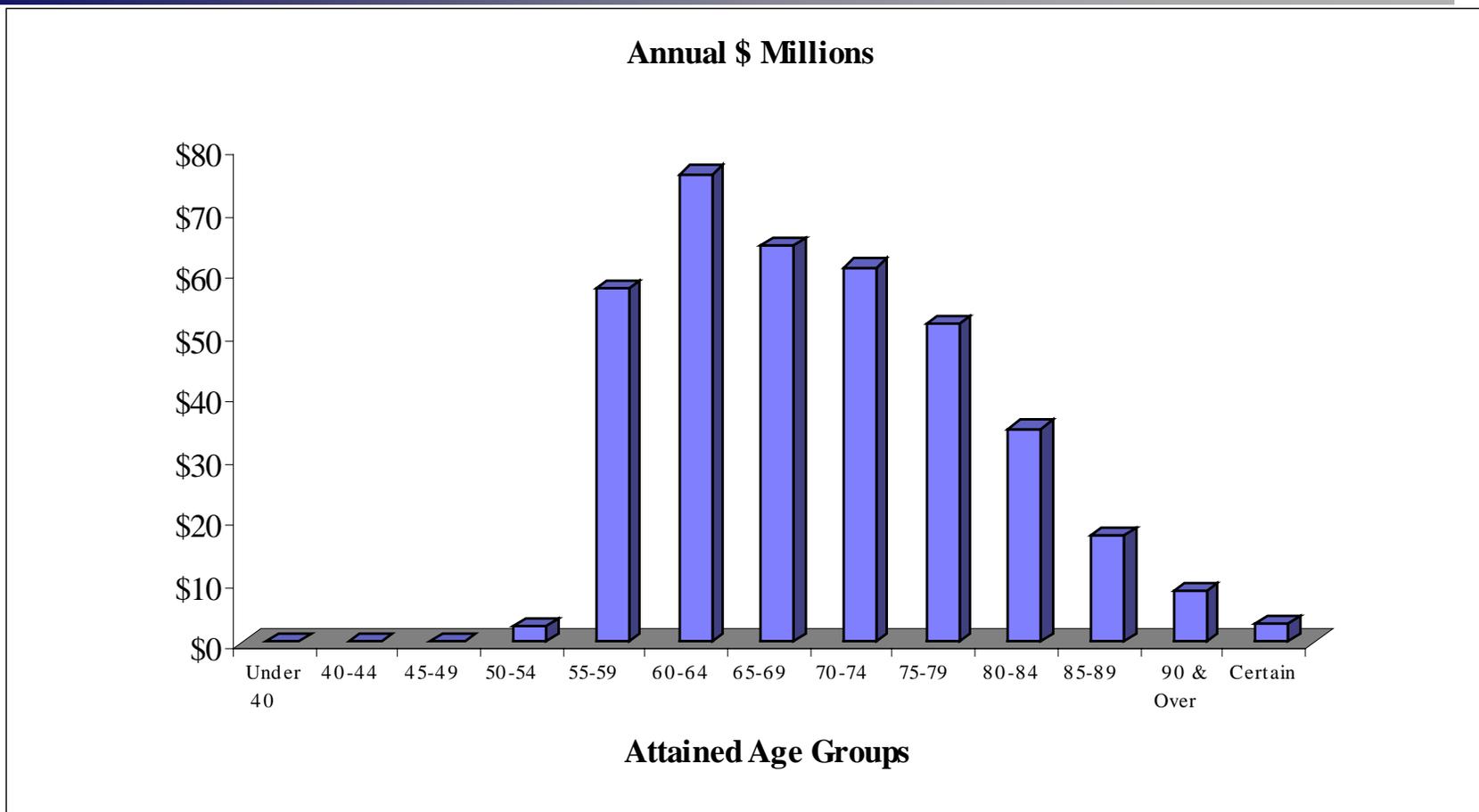
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# Primary Sources of 3.0% Variable Increase

	<u>% of APV</u>
1. Published earnings rate based on beginning of year balances	9.0%
2. Adjustment to relate earnings to average variable annuity fund balance	<u>(0.1)%</u>
3. Earnings rate based on average balance	8.9%
4. Expected change before adjustments: 1.089/1.05-1	3.7%
5. Adjustment to relate average asset to ending liability	0.0%
6. Carryover from last year due to timing of distribution, accounting adjustments, and truncation	0.0%
7. Adjustments to contingency reserve	(0.4)%
8. Experience Study	0.0%
9. Experience and other effects	(0.2)%
10. Statutory adjustment to truncate to whole percent	<u>(0.1)%</u>
11. Variable annuity change: (4)+(5)+(6)+(7)+(8)+(9)+(10)	3.0%

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# Variable Annuities Being Paid



<b>Average age</b>	<b>- at retirement</b>	<b>59.5 years</b>
	<b>- now (12/31/2005)</b>	<b>70.3 years</b>
<b>Average service at retirement</b>		<b>25.2 years</b>

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# Comparative Statement - Fixed

Year	Number	\$ Millions			Ratio	Change in	
		Annual Annuities	Fund Balance	Actuarial Reserve		Annuities	CPI
1995	88,998	955.8	10,351.7	9,804.1	1.056	5.6 %	2.6 %
1996	92,198	1,065.8	11,699.8	10,977.1	1.066	6.6 %	3.3 %
1997	95,128	1,188.4	13,185.1	12,240.4	1.077	7.7 %	1.7 %
1998	99,112	1,349.5	14,951.8	13,943.0	1.072	7.2 %	1.6 %
1999	102,817	1,513.8	16,857.8	15,687.2	1.075	17.1 %*	2.7 %
2000	107,425	1,867.0	20,517.8	19,405.3	1.057	5.7 %	3.4 %
2001	112,142	2,048.6	21,979.7	21,283.6	1.033	3.3 %	1.6 %
2002	116,289	2,226.6	23,142.4	23,202.9	0.997	0.0 %	2.4 %
2003	121,582	2,364.7	25,071.9	24,724.0	1.014	1.4 %	1.9 %
2004	126,211	2,500.3	26,920.0	26,232.2	1.026	2.6 %	3.3 %
2005	131,674	2,691.4	28,575.3	28,359.7	1.008	0.8 %	3.4 %
<b>23-Year Average</b>						<b>5.5 %</b>	<b>3.1 %</b>
<b>10-Year Average</b>						<b>5.1 %</b>	<b>2.5 %</b>

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# Comparative Statement - Variable

Year	Number	\$ Millions			Ratio	Change in	
		Annual Annuities	Fund Balance	Actuarial Reserve		Annuities	CPI
1995	22,978	150.2	1,854.2	1,556.0	1.192	19.0 %	2.6 %
1996	23,725	189.8	2,264.9	1,976.7	1.146	14.0 %	3.3 %
1997	24,462	228.2	2,800.0	2,371.5	1.181	18.0 %	1.7 %
1998	25,424	289.5	3,400.5	3,035.5	1.120	12.0 %	1.6 %
1999	26,257	345.8	4,432.9	3,659.1	1.212	21.0 %	2.7 %
2000	27,321	445.3	4,211.4	4,749.3	0.887	(11.0)%	3.4 %
2001	28,314	424.4	3,901.8	4,547.4	0.858	(14.0)%	1.6 %
2002	28,662	374.0	2,899.3	3,999.1	0.726	(27.0)%	2.4 %
2003	29,496	273.3	3,635.9	2,892.2	1.257	25.0 %	1.9 %
2004	30,270	346.0	3,909.9	3,654.5	1.070	7.0 %	3.3 %
2005	31,499	376.5	4,092.7	3,970.7	1.031	3.0 %	3.4 %
<b>23-Year Average</b>						<b>6.0 %</b>	<b>3.1 %</b>
<b>10-Year Average</b>						<b>3.4 %</b>	<b>2.5 %</b>

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# Additional Comments

- Actual versus expected mortality experience for last 3 years has been as follows (normal retirements only):

	<u>Actual Deaths</u>	<u>Expected Deaths</u>	<u>Ratio</u>
2003	3,235	3,512	92 %
2004	3,472	3,644	95
2005	3,385	3,767	90
	<u>10,092</u>	<u>10,923</u>	<u>92</u>

- Recent experience suggests some strengthening of mortality reserves may be needed in conjunction with the next Experience Study
- 3-year Experience Study will be conducted this fall

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