

NORTH DAKOTA TEACHERS' FUND FOR RETIREMENT

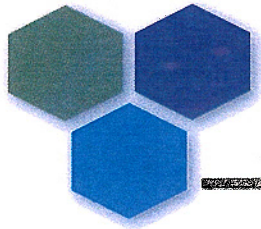
ACTUARIAL VALUATION AS OF JULY 1, 2008

Presented by Chris Conradi

GRS

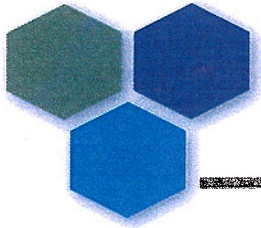
Gabriel Roeder Smith & Company
Consultants & Actuaries
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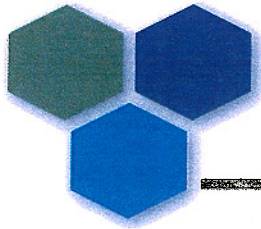
Actuarial Valuation

- ◆ Prepared as of July 1, 2008, using member data, financial data, benefit and contribution provisions, actuarial assumptions and methods
- ◆ Purposes:
 - ▶ Measure the actuarial liabilities
 - ▶ Determine adequacy of current statutory contributions
 - ▶ Provide other information for reporting
 - GASB #25
 - Financial Report (CAFR)
 - ▶ Explain changes in actuarial condition of TFFR
 - ▶ Track changes over time
 - ▶ Warn about possible future problems and issues



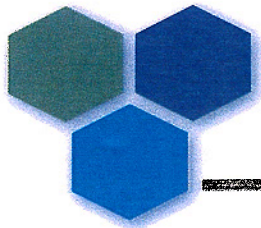
New Legislation Enacted in 2007

- ◆ New benefit tier created
 - ▶ Hires on or after July 1, 2008 = Tier 2
 - ▶ Rule of 90 (rather than Rule of 85)
 - ▶ 5-year vesting (rather than 3-year vesting)
 - Also affects retirement eligibility
 - ▶ 5-year average final avg. pay (not 3-year average)
- ◆ Employer contribution rate increases from 7.75% to 8.25% effective July 1, 2008
 - ▶ Sunsets back to 7.75% when TFFR is 90% funded
- ◆ Employer contributions required for retirees who have returned to a TFFR position, effective July 1, 2007



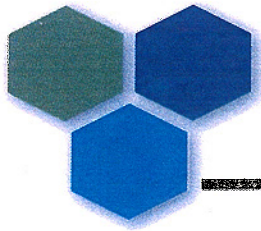
Membership – Actives and Inactives

- ◆ The number of active members decreased by 38 from 9,599 to 9,561
 - ▶ 0.4% decrease
 - Includes effect of 16 CTE employees transferring to PERS
 - ▶ Over last 10 years, active membership has decreased an average of 0.3% per year
 - ▶ Earlier census projections show school-age population decreasing over next 15-20 years



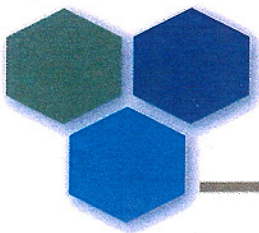
Membership – Actives and Inactives

- ◆ Payroll for active members increased 4.1%, from \$401.3 million to \$417.7 million
 - ▶ Payroll has increased an average of 3.4% per year over the last ten years
- ◆ Average pay for active members increased 4.5%, from \$ 41,810 to \$43,684
- ◆ Average age of active members is 44.6, compared to 44.7 last year and to 43.5 ten years ago
- ◆ Average years of service is 14.4, compared to 14.5 last year and to 14.0 ten years ago
- ◆ There are also 1,459 inactive, vested members, and there are 229 inactive nonvested members

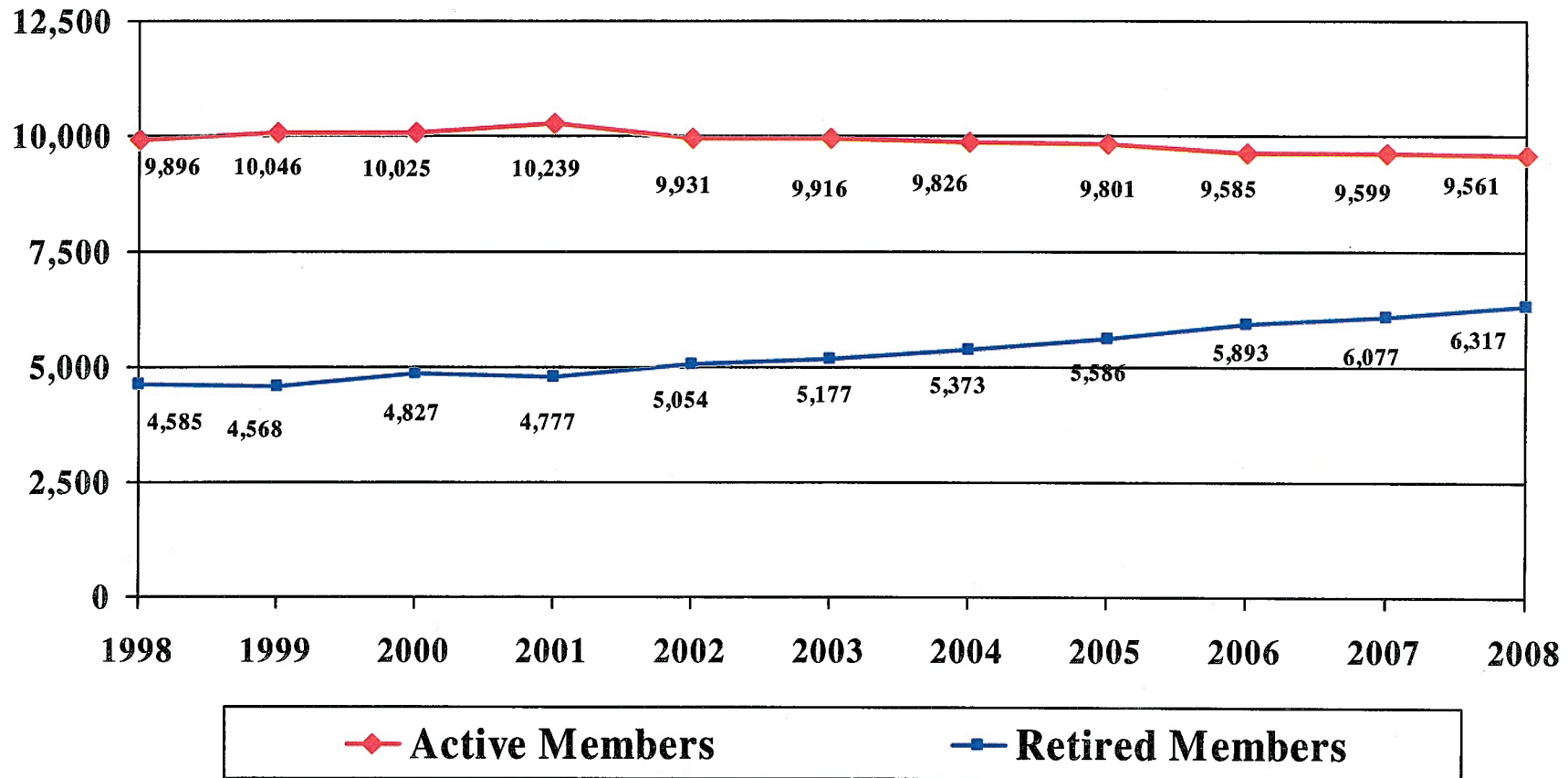


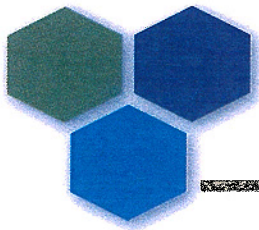
Membership – Annuitants

- ◆ The number of annuitants increased by 240, from 6,077 to 6,317, a 3.9% increase
 - ▶ Annuitants include service retirees, disabled retirees, and beneficiaries receiving benefits
 - ▶ Over the last ten years, the number of retirees has grown an average of 3.3% per year
- ◆ Average annual retiree benefit is \$17,728
- ◆ There are 1.5 active members for each retiree
 - ▶ Ratio is decreasing, was 2.2 ten years ago

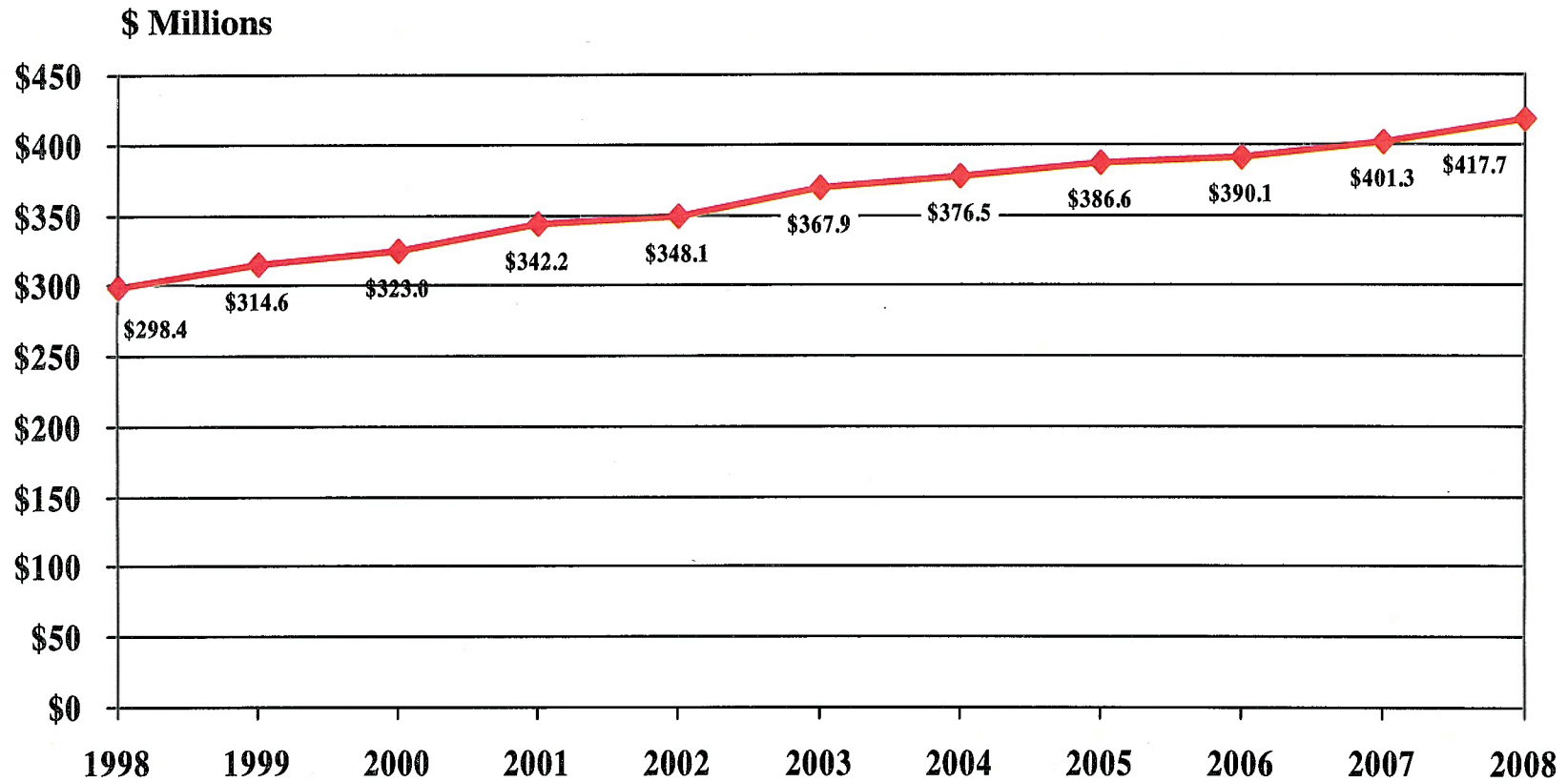


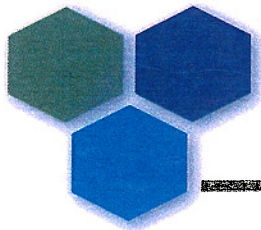
Active Members and Retired Members



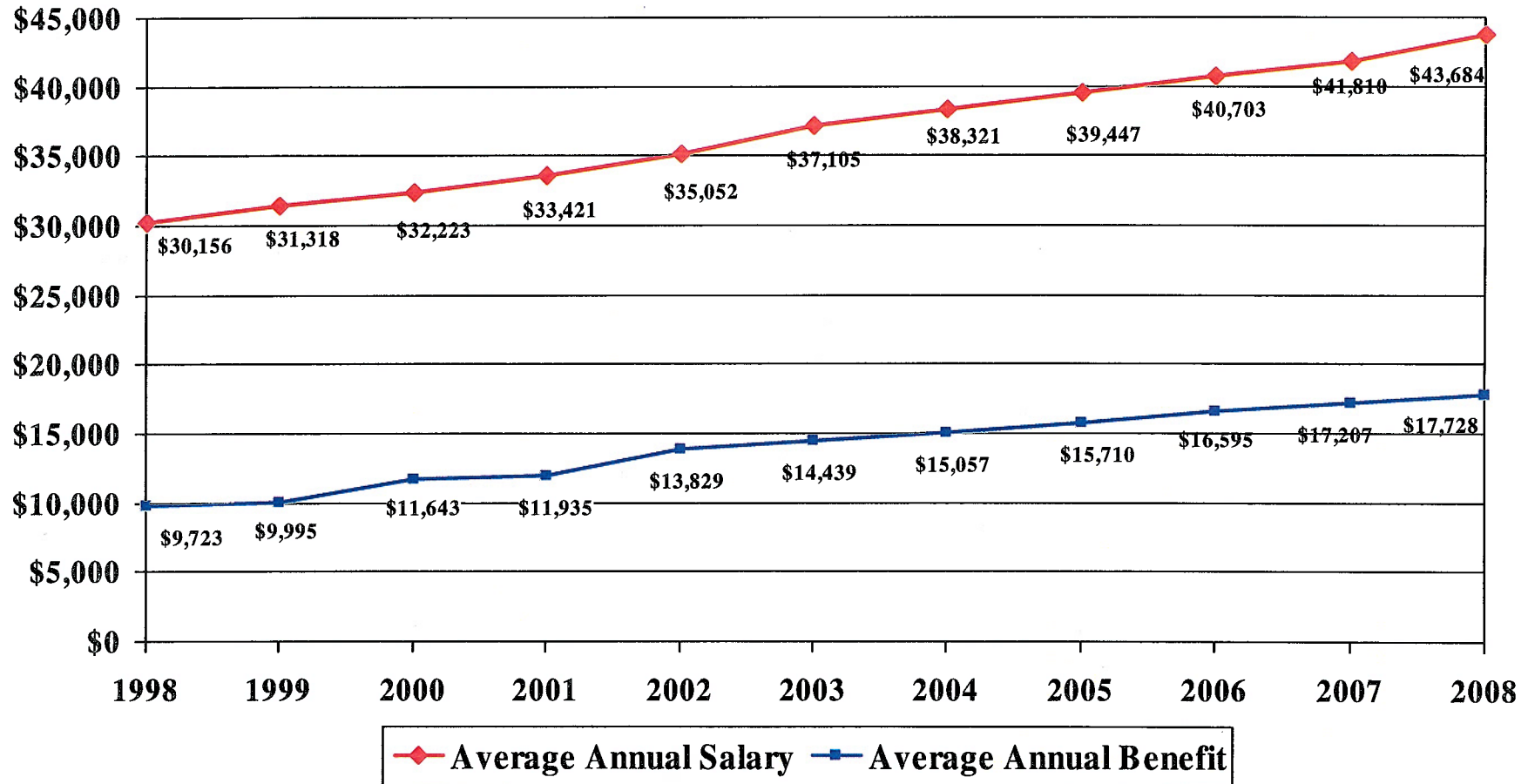


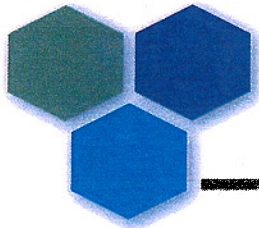
Active Payroll





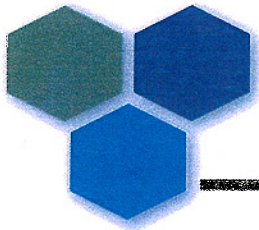
Average Salary and Average Benefit





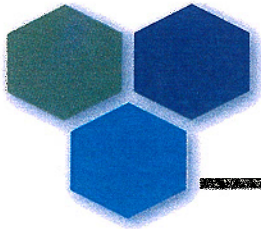
Assets

- ◆ Fair market value decreased from \$ 2,030 million (June 30, 2007) to \$1,846 million (June 30, 2008)
- ◆ Contributions in FY 2008
 - ▶ Member contributions = \$36.9 million, including service purchases
 - 7.75%
 - ▶ Employer contributions = \$33.7 million
 - 7.75%
- ◆ Total contributions of \$70.6 million, compared to \$66.4 million in FY 2007
- ◆ Employer contribution rate was 7.75% for FY 2008, then will increase to 8.25% for FY 2009



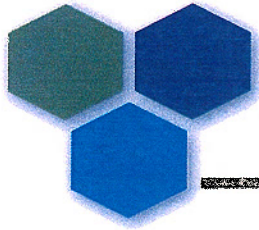
Assets

- ◆ Total distributions—benefit payments, refunds and administrative expenses—totaled \$113.6 million
- ◆ Therefore, net external cash flow (contributions less benefits and refunds) was -\$43.0 million, or -2.3% of market value of assets at end of year
 - ▶ Not currently a problem



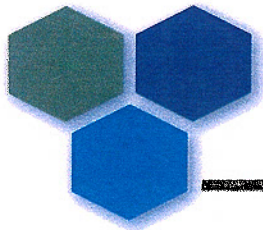
Assets

- ◆ Return on market of approximately -7.0% in FY 2008
 - ▶ It was 20.4% in FY 2007
 - ▶ Average return for last ten years was 6.4%
 - Below assumed 8.0% investment return assumption
 - ▶ 15-year average return was 8.3%



Assets

- ◆ First year below expected market return after four strong years
 - ▶ 6 years with returns greater than 8.00% (>11%)
 - ▶ 4 years with returns less than 8.00% (<3%)
 - ▶ Best year (2007) return of 20.4%, or 12.4% over 8.0%
 - ▶ Worst year (2002) return of -8.6%, or 16.6% below 8.0% assumption



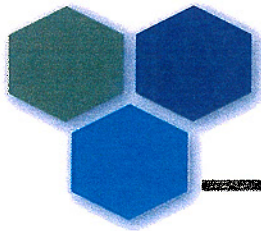
Assets

- ◆ All actuarial calculations are based on actuarial value of assets, not market value
- ◆ Actuarial value reflects 20% of the difference between last year's expected return on market and the actual return
 - ▶ 40% of FY 2007 difference, 60% of FY 2006 difference and 80% of FY 2005 difference
- ◆ Actuarial value is now \$1,909 million, vs. \$ 1,750 million last year

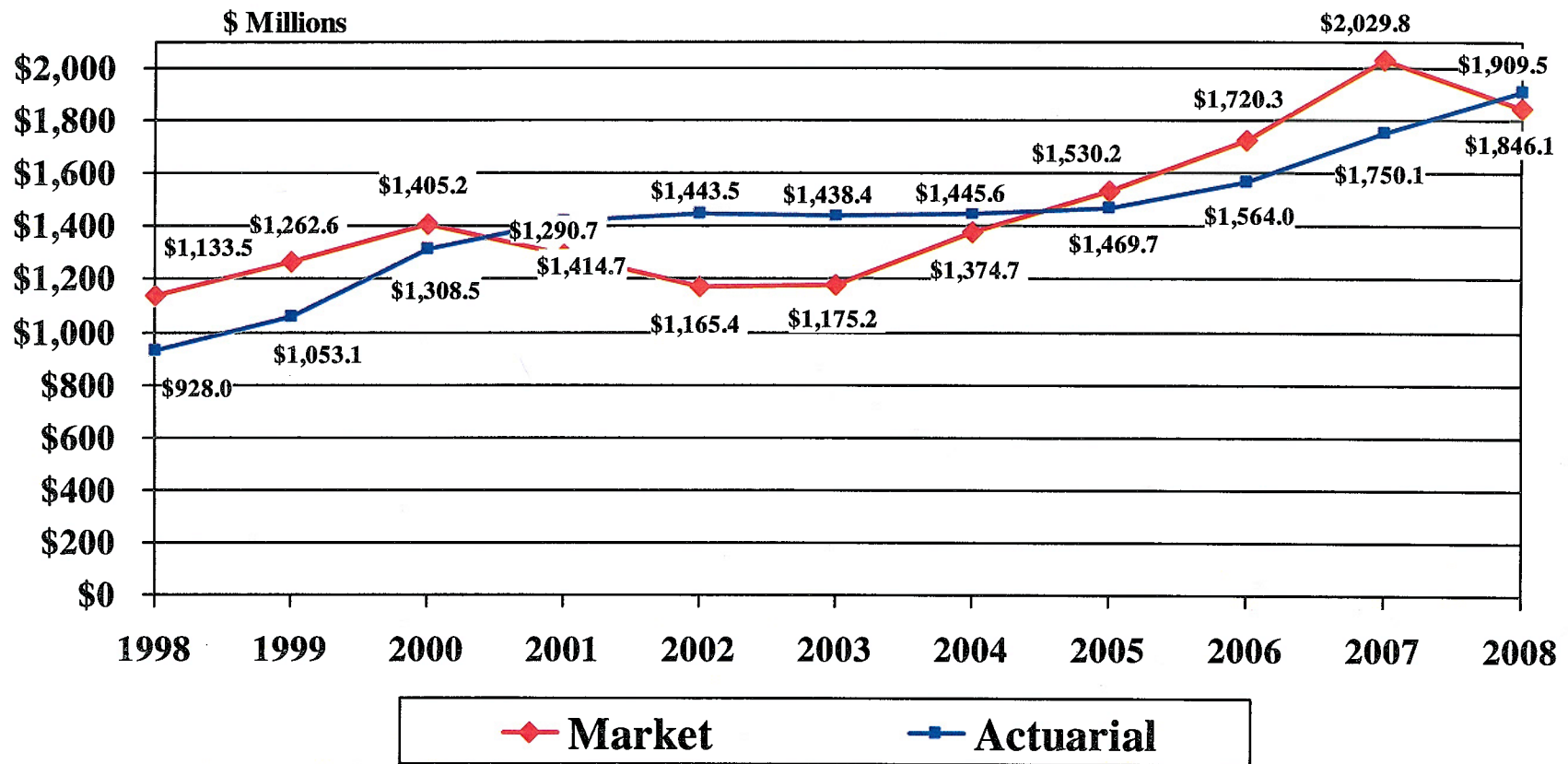


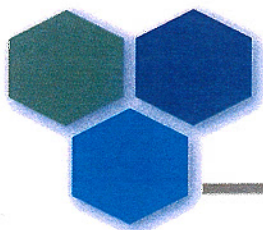
Assets

- ◆ Actuarial return was 11.6% in FY 2008, compared to -7.0% on market value basis
 - ▶ 7.7% average return on actuarial value over last ten years
- ◆ Actuarial value is 103% of fair market value (was 86% last year)
- ◆ \$63.4 million in deferred losses, not yet recognized

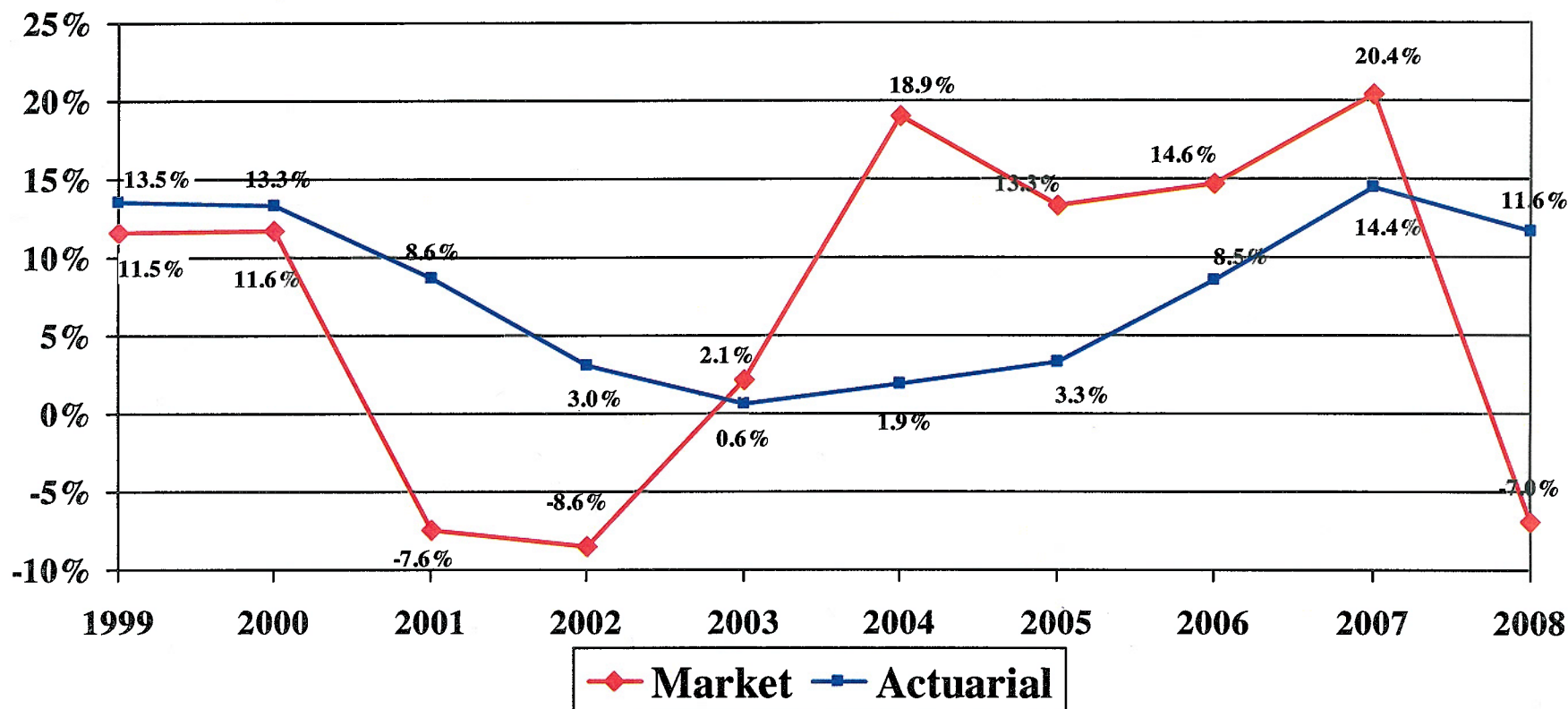


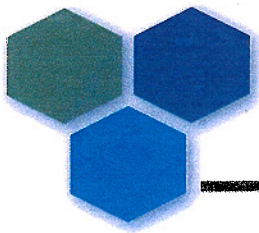
Market and Actuarial Values of Assets



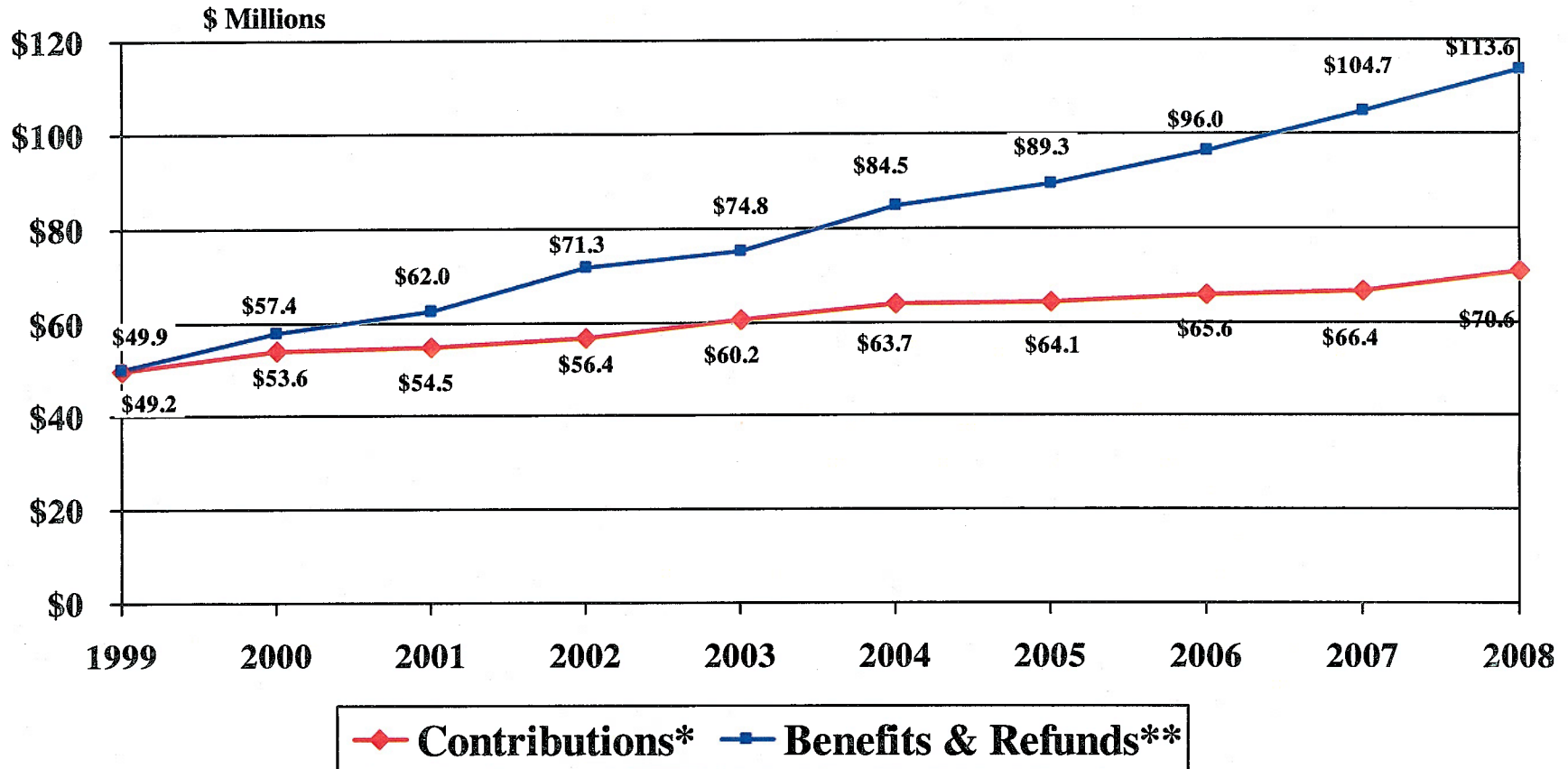


Estimated Returns on Actuarial and Market Value of Assets



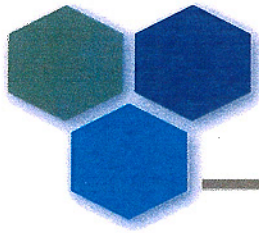


Contributions vs. Benefits and Refunds

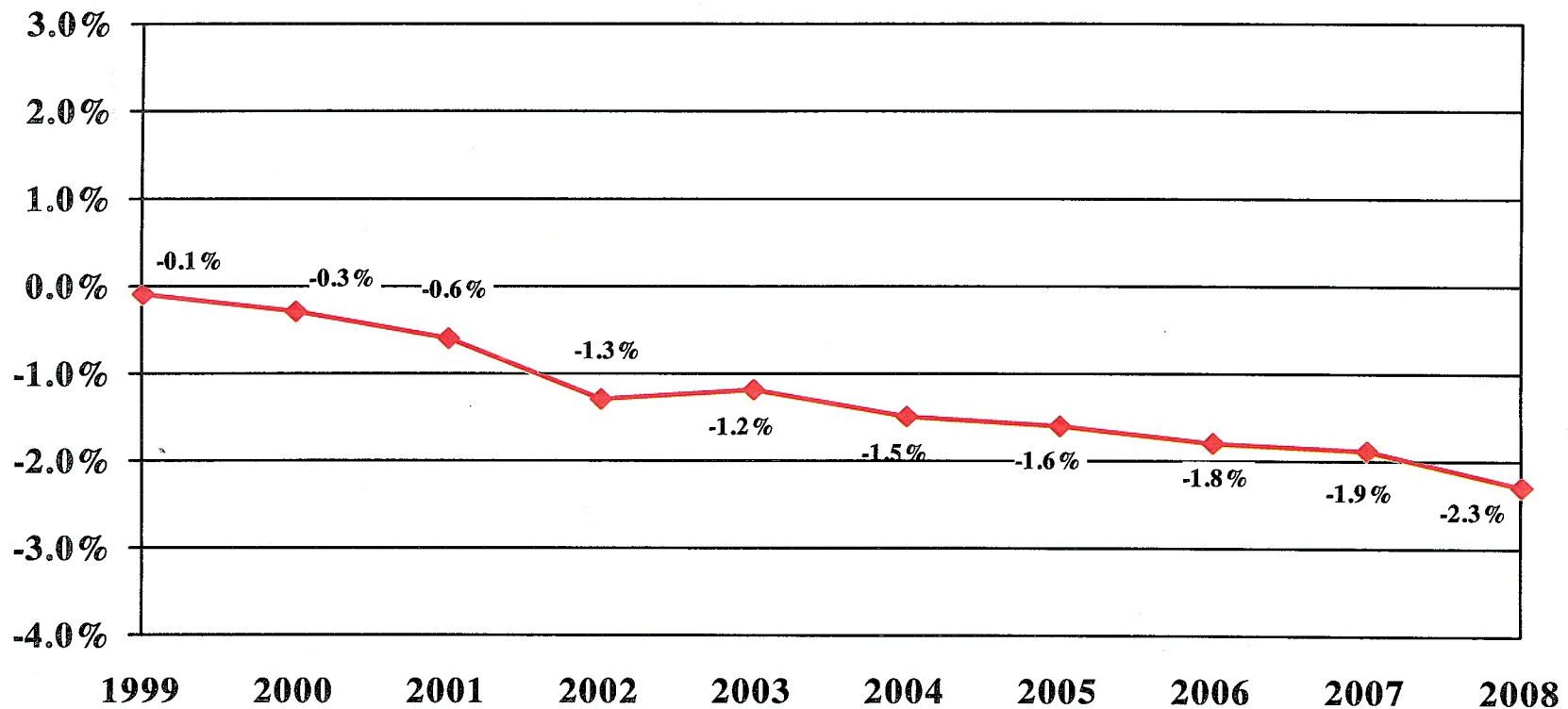


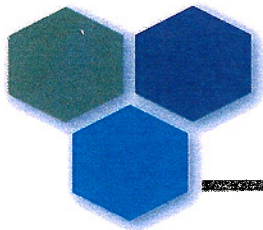
* Includes member and employer contributions, and service purchases

** Includes administrative expenses



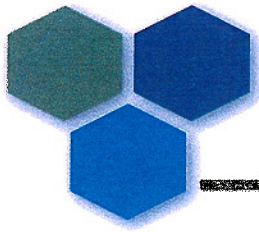
External Cash Flow As Percentage of Market Value





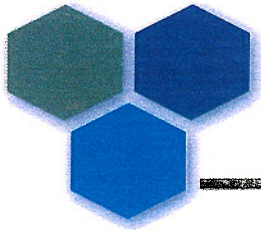
Actuarial Results

- ◆ Liability figures reflect effect of 2007 legislation
- ◆ Unfunded actuarial accrued liability (UAAL) decreased from \$ 459.2 million to \$421.2 million
- ◆ Funded ratio (actuarial assets divided by actuarial accrued liability) increased from 79.2% to 81.9%
 - ▶ Funded ratio using market value is 79.2%, down from 91.9 %
- ◆ UAAL is 100.8% of covered payroll, compared to 114.4% last year



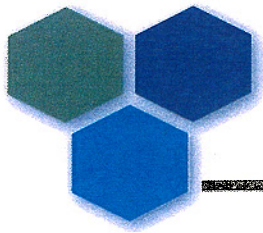
Actuarial Results

- ◆ Negative margin (shortfall) improved from -2.40% to -0.99%
 - ▶ 8.25% statutory – 9.24% GASB ARC (benchmark)
- ◆ 8.25% statutory rate composed of:
 - ▶ 2.51% employer normal cost
 - ▶ 5.74% paid toward funding of UAAL
- ◆ Funding period based on 8.25% employer rate is 57 years
 - ▶ 5.74% amortization payment not sufficient

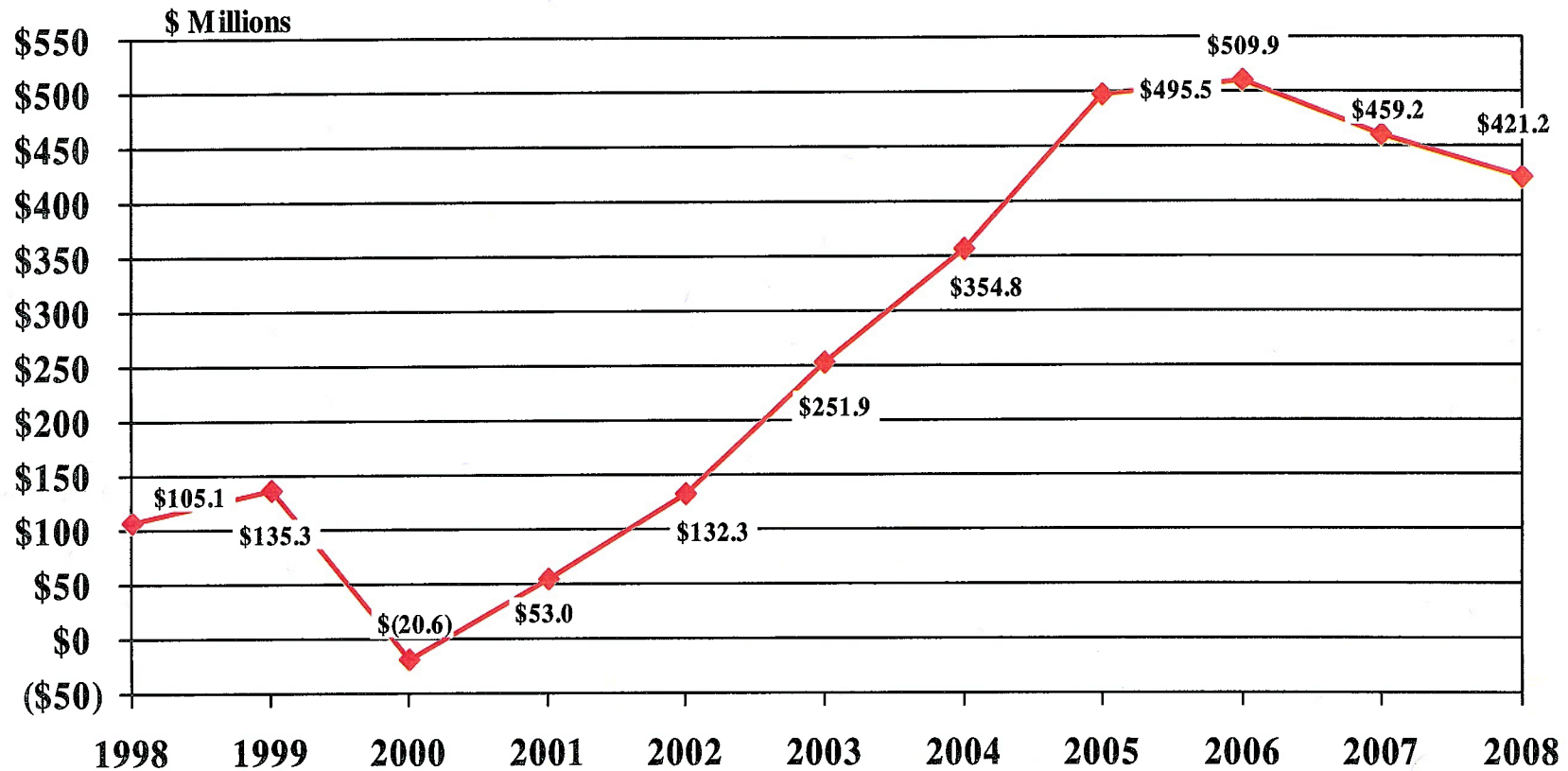


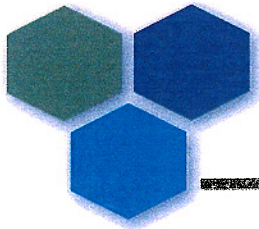
Actuarial Results

- ◆ Contribution for FY 2008 was 76.4% of GASB Annual Required Contribution (ARC)
 - ▶ $7.75\% \div 10.15\%$
- ◆ Contribution for FY 2009 will be 89.3% of ARC
 - ▶ $8.25\% \div 9.24\%$
- ◆ These are reported in TFFR's CAFR (Comprehensive Annual Financial Report)

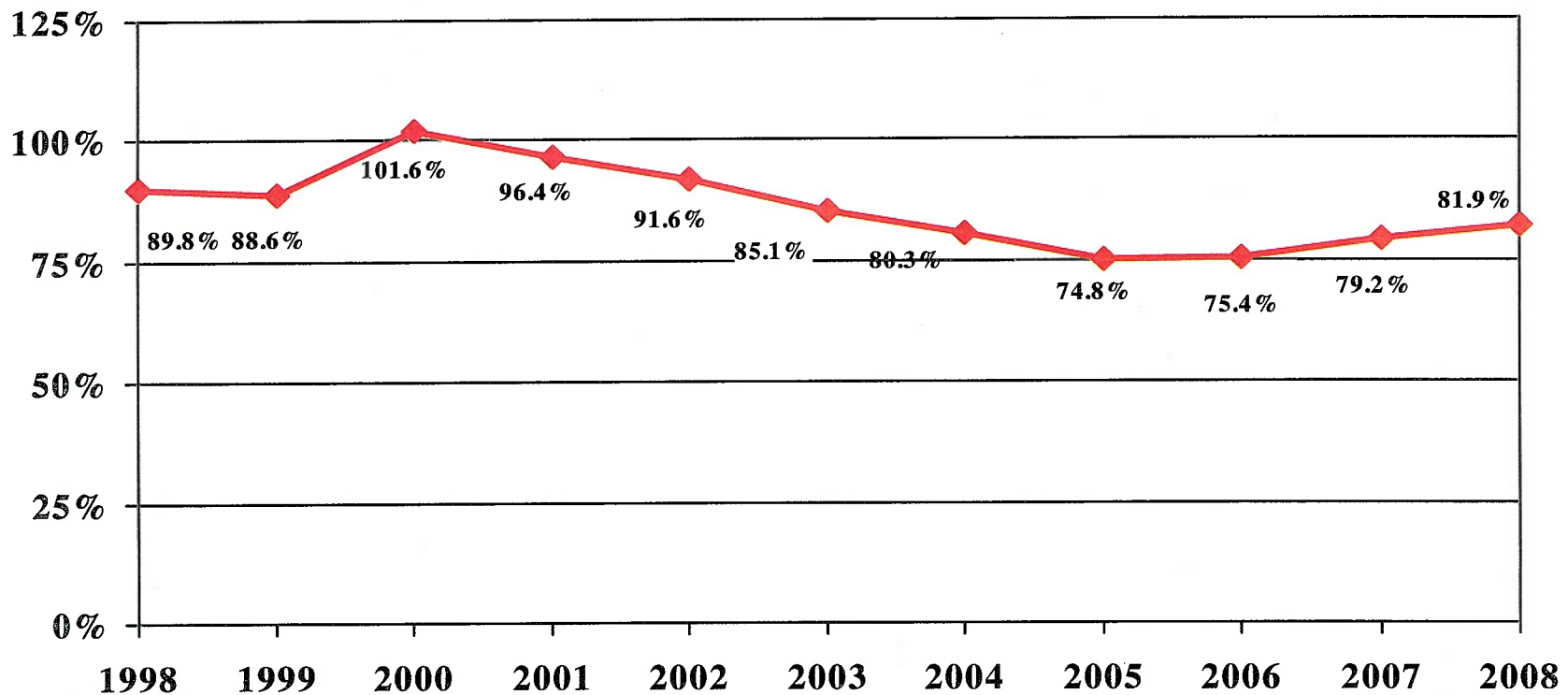


UAAL



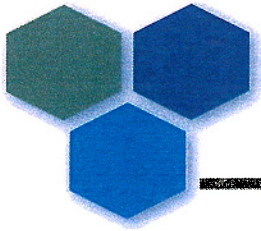


GASB #25 Funded Ratio (Actuarial Assets ÷ Actuarial Accrued Liabilities)

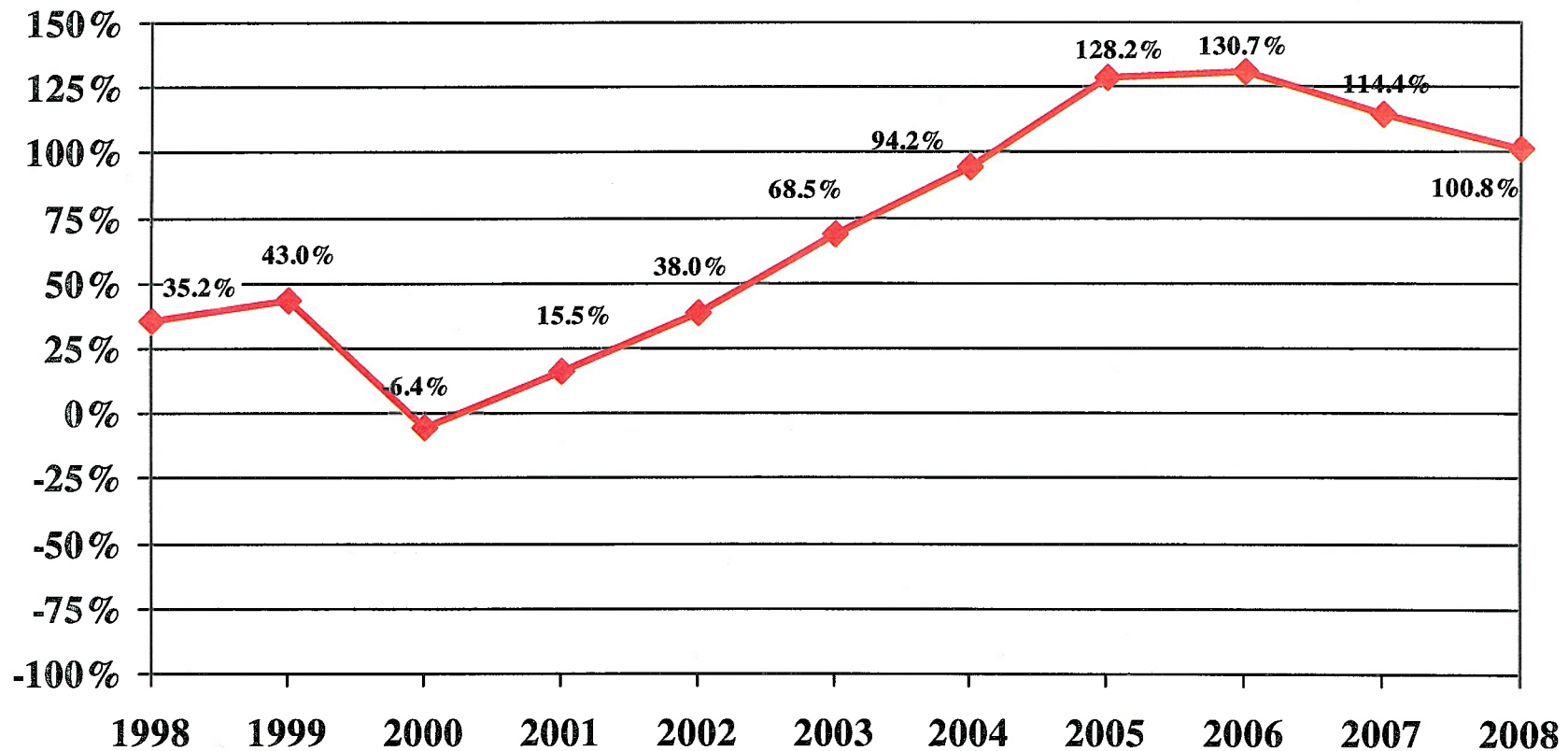


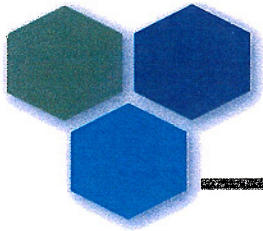
Benefit increases reflected in 1999 and 2001

Assumption changes reflected in 2000 and 2005

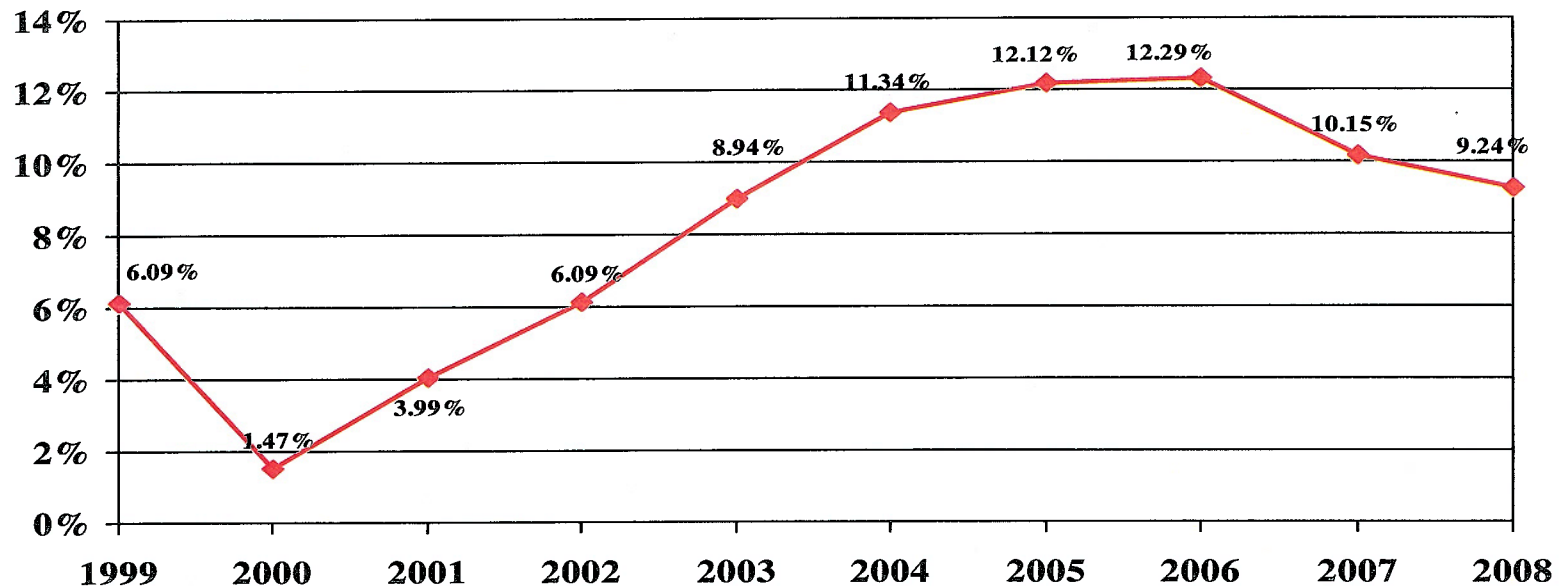


UAAL as Percentage of Payroll

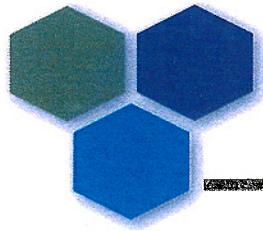




GASB 25 Annual Required Contribution (ARC)

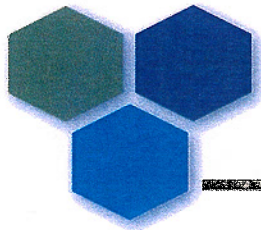


Calculation of ARC now based on 30-year level-percentage-of-payroll amortization of UAAL; before 2005, ARC reflected 20-year level-dollar amortization of UAAL



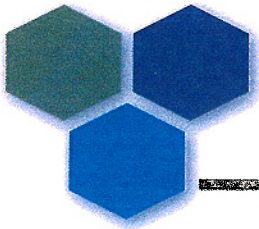
Change In UAAL for the Year (In \$ Millions)

	2007/08	2006/07
1. UAAL at beginning of year	\$459.2	\$509.9
2. Amortization payments	8.7	20.3
3. Asset experience	(62.4)	(99.2)
4. Liability experience	15.7	(7.8)
5. Assumption and method changes	--	--
6. Legislative changes	--	36.0
7. UAAL at end of year	\$421.2	\$459.2



Projections

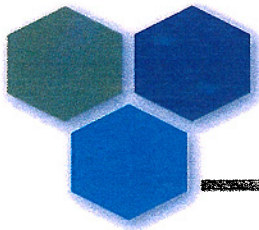
- ◆ 8.25% employer contribution rate continues for at least next 30 years
 - ▶ Last year's projections showed the additional 0.50% remaining in effect for only three years, then being sunset when the funded ratio reached 90%
- ◆ Margin never becomes positive
- ◆ UAAL continues to grow in the future
- ◆ Decreasing funded ratios over long term



Projected AVA Funded Ratios

Assumes Five Alternative Market Returns for FY2009; with a
8.00% Annual Market Return for FY2010 and Beyond;
 Assumes 0.5% Decrease in Active Membership

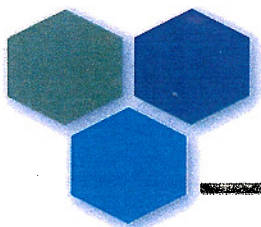
Valuation Year	8.00% for FY2009	4.00% for FY2009	0.00% for FY2009	-4.00% for FY2009	-8.00% for FY2009
2008	82%	82%	82%	82%	82%
2009	83%	82%	82%	81%	81%
2010	83%	82%	80%	79%	78%
2011	83%	80%	78%	76%	74%
2012	80%	78%	75%	72%	69%
2013	81%	77%	74%	70%	67%
2018	81%	76%	72%	67%	63%
2023	81%	75%	69%	63%	57%
2028	80%	73%	65%	58%	50%
2033	81%	71%	61%	51%	41%
2038	82%	69%	57%	44%	31%



Projected MVA Funded Ratios

Assumes Five Alternative Market Returns for FY2009; with a
8.00% Annual Market Return for FY2010 and Beyond;
 Assumes 0.5% Decrease in Active Membership

Valuation Year	8.00% for FY2009	4.00% for FY2009	0.00% for FY2009	-4.00% for FY2009	-8.00% for FY2009
2008	79%	79%	79%	79%	79%
2009	80%	77%	74%	71%	68%
2010	80%	77%	74%	71%	68%
2011	80%	77%	74%	71%	67%
2012	80%	77%	74%	70%	67%
2013	81%	77%	74%	70%	67%
2018	81%	76%	72%	67%	63%
2023	81%	75%	69%	63%	57%
2028	80%	73%	65%	58%	50%
2033	81%	71%	61%	51%	41%
2038	82%	69%	57%	44%	31%



Projected Margin

Assumes Five Alternative Market Returns for FY2009; with a
8.00% Annual Market Return for FY2010 and Beyond;
 Assumes 0.5% Decrease in Active Membership

Valuation Year	8.00% for FY2009	4.00% for FY2009	0.00% for FY2009	-4.00% for FY2009	-8.00% for FY2009
2008	-0.99%	-0.99%	-0.99%	-0.99%	-0.99%
2009	-0.88%	-1.11%	-1.34%	-1.57%	-1.80%
2010	-0.94%	-1.49%	-2.03%	-2.58%	-3.12%
2011	-1.29%	-2.14%	-3.00%	-3.85%	-4.70%
2012	-2.25%	-3.41%	-4.56%	-5.71%	-6.86%
2013	-2.27%	-3.71%	-5.16%	-6.60%	-8.04%
2018	-2.20%	-4.05%	-5.90%	-7.74%	-9.59%
2023	-1.96%	-4.29%	-6.61%	-8.94%	-11.26%
2028	-1.63%	-4.54%	-7.45%	-10.37%	-13.28%
2033	-1.17%	-4.79%	-8.41%	-12.03%	-15.65%
2038	-0.55%	-5.03%	-9.51%	-13.99%	-18.47%