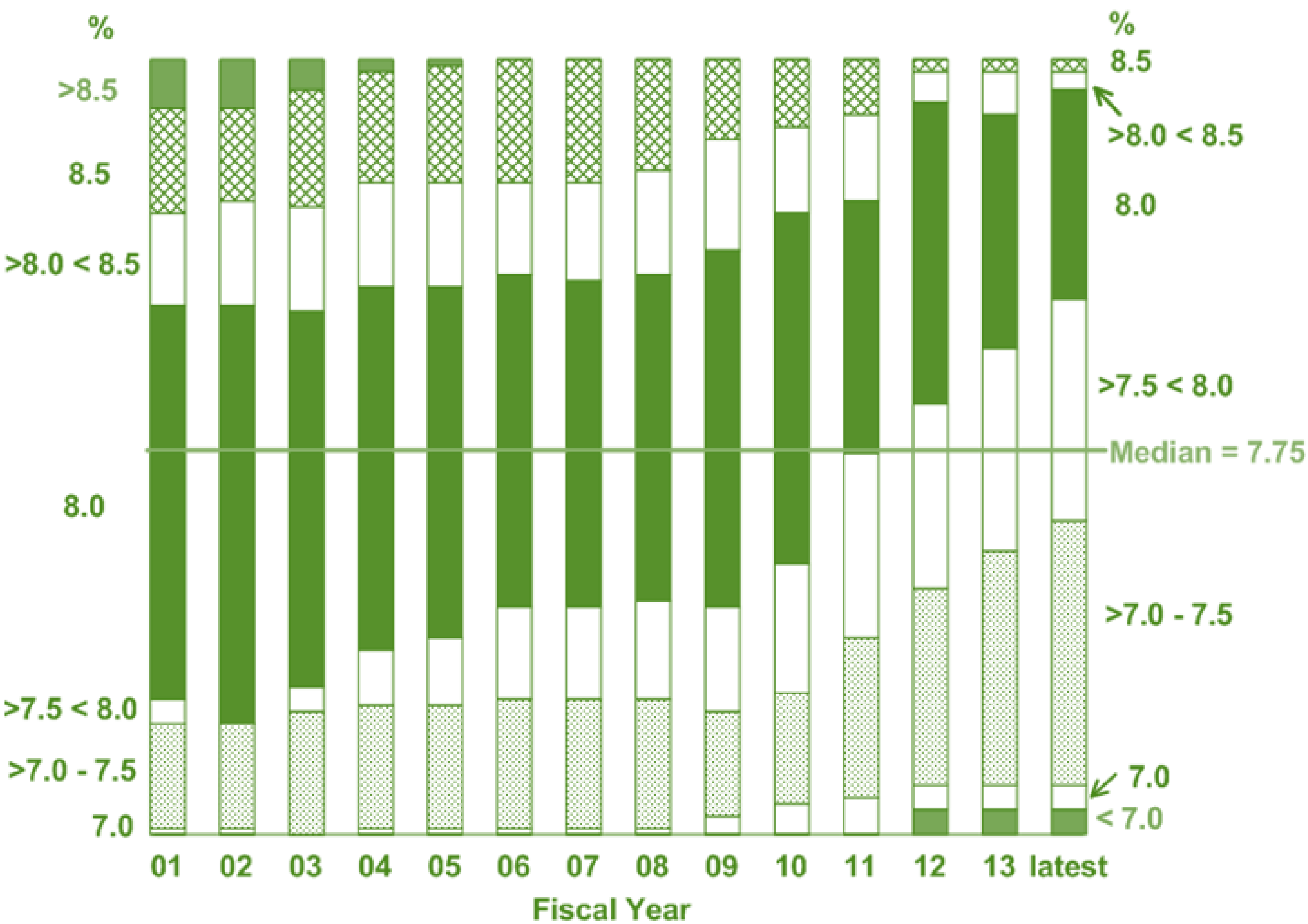
Investment Return Assumption - Considerations

- Use Expected Rates of Return by Asset Class Based Upon Accepted Industry Practice
- Determine Aggregate Real Return for Board's Target Asset Allocation Policy
- Recent investment performance is driven by economic and capital market factors that may or may not persist over the longer term over different economic and capital market cycles
- Actuarial Standards of Practice allow for the inclusion of a margin of conservatism
  - All else being equal, a lower return assumption is easier to achieve and has a higher likelihood of securing the benefits by increasing future contributions
  - Historically North Carolina Retirement Systems has been on lower end of the range of assumptions selected by state retirement systems

Investment Return

Change in distribution of public pension investment return assumptions, FY 01 through May 2015, compiled by NASRA based on Public Fund Survey.



As seen in this survey, the trend in public pension plan investment return assumptions has been a steady decrease over the past 15 years. At 7.25%, North Carolina Retirement Systems continues to be well below the median rates shown in the survey.

Investment Return

Asset Class	Allocation
Fixed Income – Investment Grade	28.00%
Cash	1.00%
Public Equity	42.00%
Private equity	6.00%
Non-Core Real Estate	3.00%
Fixed Income – Opportunistic	7.00%
Inflation Sensitive	6.00%
Core Real Estate	5.00%
Multi-Strategy	2.00%
	100.00%

The assumed rate of return is based on the target asset allocation and the expectation of future asset returns for each asset class. The current return assumption of 7.25% was last reviewed and adopted at the July, 2010 Board of Trustees meeting in conjunction with all economic assumptions.

On the next slide we have estimated nominal and real returns over various time periods based on this allocation and Buck's current return expectations.

Nominal and Real Returns - Buck Estimate

Compound (Geometric) Returns over Projected Periods

	1-Year	5-Year	10-Year	15-Year	20-Year	25-Year	30-Year
Nominal							
75th Percentile	10.25%	8.79%	9.00%	9.38%	9.65%	9.84%	9.89%
60th Percentile	7.51%	7.14%	7.66%	8.18%	8.41%	8.85%	8.95%
50th Percentile	5.85%	6.06%	6.88%	7.48%	7.85%	8.23%	8.43%
40th Percentile	3.96%	5.04%	6.15%	6.78%	7.29%	7.62%	7.87%
25th Percentile	0.98%	3.11%	4.81%	5.74%	6.37%	6.65%	6.96%
Real							
75th Percentile	8.28%	6.87%	6.77%	6.71%	6.77%	6.84%	6.89%
60th Percentile	5.62%	5.14%	5.44%	5.69%	5.77%	5.91%	6.00%
50th Percentile	3.72%	4.02%	4.57%	4.97%	5.16%	5.35%	5.58%
40th Percentile	1.85%	2.80%	3.74%	4.23%	4.54%	4.81%	4.98%
25th Percentile	-1.20%	0.87%	2.29%	3.11%	3.56%	3.82%	3.96%

Based on 2015 assumptions. Amounts shown are net of investment expenses.

The current assumption of 7.25% is expected to be achieved on average at least 60% of the time over time horizons of 20 years and beyond. In the next 20 years, earning 7.25% is less likely to occur.

Current standards of practice suggest the use of an assumption that falls within the 40th and 50th percentile of projected returns based on the long term asset allocation. This is a change from the last time we reviewed the assumed rate of return, where the Actuarial Standards of Practice defined the range as between the 25th and 75th percentiles. Under the previous guidelines, Buck restricted the range to returns that were between the 25th and 50th percentiles.

Based on the above, the 7.25% investment return assumption can be maintained.

As an indication of the sensitivity of contributions to changes in the assumption, a 7.00% assumed investment return would increase the TSERS annual required contributions by 2.38% of payroll.