Next Steps: NCRS Asset Liability Study

September 18, 2013

Goals for IAC Asset Liability Study Process

- September 18, 2013 IAC Meeting
  - Provide the IAC with an overview of assumptions, methodology, and expected focus of final analysis and recommendations
  - Obtain feedback on assumptions, risk appetite, and member special topics and supplemental analysis for presentation at November meeting

- November 13, 2013 IAC Meeting
  - Provide the IAC with recommended final strategic asset allocation changes, transitional approach, and total plan risk management strategies (e.g., hedging)
  - Recommend updated Investment Policy Statement, including performance benchmarks

IAC Feedback on Modeling Assumptions

- We do not recommend adjusting actuarial demographic assumptions

- With respect to investments, the equity risk premium is the price of risk and is the key assumption in an asset liability study

2013 Consultant Estimates of Equity Risk Premium

	Equity Risk Premium
Consultant #1	5.10%
Consultant #2	5.15%
Consultant #3	4.50%
Consultant #4	4.30%
Consultant #5	2.57%
Consultant #6	5.57%
Average	**4.53%**
Buck	5.65%

Investment Objectives and Risk Appetite

- The current NCRS investment objectives are numerous:
  - Primary focus on principal protection through diversification
  - Stability and consistency of returns is paramount; avoid extreme portfolio losses
  - Determine an appropriate level of risk for Fund investments
  - Maximize Fund investment returns for the stated level of risk
  - Ensure returns meet or exceed the actuarial assumption over a long time horizon
  - Exceed composite benchmark return for the total Fund and individual asset classes
  - Ensure sufficient liquidity to meet the Fund's obligations
  - Comply with all governing statutes
- Which should be emphasized in the asset liability study?
- What are acceptable trade-offs?

Investment Objectives and Risk Appetite (Cont.)

- The subset of objectives that are most relevant to the asset liability study:
  - Primary focus on principal protection through diversification
  - Stability and consistency of returns is paramount; avoid extreme portfolio losses
  - Ensure returns meet or exceed the actuarial assumption over a long time horizon
- Some common objectives used by other pension plans:
  - Maximize long-term expected return of the portfolio
  - Protect/Improve funded ratio over a 15 year horizon
  - Maximize the probability of achieving the actuarial rate of return (7.25%)
  - Maximize risk-adjusted returns
  - Minimize the potential for a loss greater than 20% in a single year
  - Beat peers

Potential New NCRS Investment Objectives

- Suggest consideration of alternative objectives more focused on the sustainability of the pension plan:
  - Provide investment returns sufficient for the Fund to be maintained in a manner that ensures the timely payment of promised benefits to current and future members and keeps the Fund contribution cost at a reasonable level
  - To achieve this, a long-term real return approximating X% per annum (compounded and net of investment expenses) should be pursued, consistent with the actuarial investment return assumption
  - Additionally, excessive volatility in Fund contribution cost trends should be avoided through broad and prudent diversification across investments in light of their sensitivity to economic and financial environments and the evolution of benefit obligations
  - Exceed composite benchmark return for the total Fund and individual asset classes
  - Ensure sufficient liquidity to meet the Fund's obligations
  - Comply with all governing statutes

Potential Risk Sensitivities

- Funding ratio declining below 90% for intermediate periods of time?
- Total Fund investment performance lagging the actuarial return assumption for intermediate periods of time?
- Negative short-term total Fund investment performance?
- Total Fund lagging peers' performance?
- Individual asset classes and/or strategies providing weak returns for intermediate periods of time?
- Increasing fees and complexity of investment program compared to historical experience?
- Missing high risk-adjusted return opportunities when markets dislocate?

Tentative Investment Strategy & Policy Modeling

- Diversified Growth-Oriented Investments
  - Global equity (long-only) and hedged global equity (long/short)
  - Private equity
  - Investment grade credit (TBD)
  - Public/Private high yield credit (distressed, mezzanine, and long/short)
  - Non-core real estate (TBD)
- Rates and Liquidity
  - Treasury and agency bonds (Investment grade bonds TBD)
  - Cash/short duration
- Inflation Sensitive and Diversifiers
  - Short duration TIPS and/or global ILB
  - Core real estate (Non-core real estate TBD) and infrastructure
  - Public/Private commodities and natural resources (timberland, agriculture, etc.)
- Multi-Asset Class and Flexible Strategies
  - Multi-strategy, global macro, and global tactical asset allocation
  - Risk hedges and overlays

Tentative November IAC Meeting Deliverables

- Update assumptions consistent with the September IAC feedback

- Model the expected structure of the asset classes, key sub-asset class strategies, and potential total fund strategies, e.g.,
  - Timberland, infrastructure, private debt, equity long/short, commodity long/short, etc.
  - Multi-strategy hedge funds, global macro, global TAA, tail-risk funds, etc.

- Model trade-offs related to strategies addressing duration risk, e.g.,
  - Restructuring asset class to Barclays Intermediate Aggregate Index or Barclays Aggregate Index
  - Adding Opportunistic Non-Core allocation
  - Building out Credit Strategies
  - Building cash/short duration asset class at total fund level
  - Hedging duration or duration tail risk from top-down

November IAC Meeting Deliverables (Cont.)

- Model new strategic asset allocation alternatives with diagnostics on:
  - Scenario analysis
  - Stress testing
  - Liquidity analysis/scoring
- Recommend performance benchmarks for asset classes and total fund
- Recommend amended Investment Policy Statement

IAC Questions and Requests for Further Analysis?