Pavement Design Breakout Session Overview

"Long Life Pavements with Asphalt"
Dr. Marshall Thompson—University of Illinois

- **Long Life Philosophy**
  - Very Low Probability of HMA Fatigue
  - Mill and Fill Rehab
  - Surface Weathering
  - Top-Down Cracking
- **Do Your Homework on Materials**
- **There is No Unique HMA Fatigue Relationship**
- **Fatigue Endurance Limit**
  - Damage and Healing Concepts and Test Data Support a Strain Limit Below Which Damage Does Not Accumulate
  - Limit for Different Mixes and Binders
- **Mechanistic Design Requirements**

“Long Life Pavements with Portland Cement Concrete” Jerry Voight, ACPA

- **Long-life Pavement Perspective**
  - How Long is Long Life
  - How is it Measured
  - What Must be Done
- **Where to make biggest improvements?**
  - Concrete Durability -- Paste and Aggregates
  - Joints -- Dimensions and Dowels
  - Subgrade/Subbase
  - Specifications/Process Control not Strength-Based
- **Long-life has different meanings**
- **Getting there requires improving design, materials and construction**

"Development & Implementation of Long Life Pavement Design"
Rich May—KOCH Materials

- **Why This Project?**
- **Not Design-Build >>> Design, Low Bid, Build**
  - Professional Services Contract with Warranty
    - created uncertainty and apprehension
- **"X-Y-Z" Warranty Terms**
  - X Years (20)
  - Y Traffic (4 million ESAL)
  - Z Total Expenditures ($110 million)
- **Address each specific problem at the most effective location in the system.**
- **Materials and Specifications Overview**
- **Bidding/Re-Engineering Process -- 7 packages to 3 packages**
- **Public Relations**

"Missouri's Experience with Developing a Pavement Type Selection Process"
Dave Nichols, Missouri DOT

- **Why Now!**
  - Funding
  - Change in Department Emphasis (Expansion to R & R)
- **Process Review Team**
  - Provide Public Best Product Available
  - Develop a Clear Process that is Understandable to all Stakeholders
- **Decision Milestones**
  - Mechanistic Design
  - Will include FHWA LCCA Methodology
  - Moving Toward Alternate Bids as Standard
- **Remaining Challenges**
  - Delivery of NCHRP 1-37A
  - Determination of Predicted Treatment Intervals

"Overview of Pavement Warranty Applications"

Brian McWaters—KOCH Materials

- **What is a Long-Term Warranty**
  - A change in the business model/change in the project delivery system
- **What is the Agency Need**
  - May not be for Everyone
- **Design Build Warrant/Design Bid Build Warrant**
- **Agency Expectations, Commitment and Resources**
- **Warranty Must Be Specific -- Terms Thresholds, Etc.**
- **Bottom Line**
  - Allow for innovation
  - Be specific about performance expectations
  - Transfer risk
  - Define limits and scope of the warranty
- **Three Legged Stool -- Cost - Quality- Time**

"Kentucky's Experience with Pavement Warranties, Bidding Alternate Pavement Design and Long Life Pavements, Past, Present, and Future"

Clark Graves and Paul Looney—UK & KYTC

- **Kentucky's Warranty Experience**
  - Optional Warranty Period
  - Why Warranties
- **Contract Incentive/Disincentive Innovations**
  - A+B -- $/day or $/hr
  - Fixed Completion Date
- **Alternate Pavement Type Bidding**
- **Long Life Pavement Concepts**
  - Limiting Strain
  - Construction and Materials
  - Functional vs. Structural Life