Local Calibration of the MEPDG Using Pavement Management Systems

Project Update
Presentation Topics

- Project Overview
- Accomplishments to Date
- Next Steps
- Observations From State Visits
Project Team

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Project Objectives

• Establish a framework for collecting and storing data needed for calibration
• Demonstrate the application of the framework in one state highway agency
• Document the framework
• Develop outreach tools to disseminate research results
Project Approach – Phase 1

- A: Literature Review
- B: Three State Selection
- C: Preliminary Framework Development
- D: Single State Selection
- E: Final Framework Development
- F: Verification
- G: Workplan Implementation
- H: Draft & Final Report
Project Approach – Phase 2

- A: Webinar
- B: Workshop
Accomplishments to Date

- A: Literature Review
  - Essentially complete

- B: Three State Selection
  - Developed selection criteria
    - Level of commitment
    - Availability of data
    - Required level of effort
    - Data quality
  - Evaluated the 8 states investigated in the 2006 FHWA study conducted by TRDI
Accomplishments to Date

• C: Preliminary Framework
  – Steps
    ➢ Identify the availability and location of various inputs
    ➢ Analyze and implement the data storage and backup methodology
    ➢ Link the MEPDG database with existing pavement management database
    ➢ Link the MEPDG database with other existing SHA databases
    ➢ Make a plan for obtaining missing data
### General Database Structure

- **Traffic (9)**
  - Design Properties
  - Traffic Volume
  - Adjustment Factors
  - Axle Load Distribution Factors
  - General Traffic Inputs

- **Environment/Climate (2)**
  - Design Properties

- **Materials (17)**
  - HMA Layer Properties
  - PCC Layer Properties
  - Stabilized Layer Properties
  - Unbound Layer Properties
  - Bedrock Layer Properties

- **Project Summary (Master Table)**
  - Design Properties
  - Site/Project ID
  - Analysis Parameters

- **Pavement Structure**
  - Structural Properties

- **Performance (6)**
  - IRI
  - Distress Information
Availability of Inputs in PMS

- Typical data not available in pavement management databases
  - Some distress information (e.g. surface down cracking)
  - Traffic characterization
  - Environmental/climatic data
  - Some structural properties (e.g. layer thickness)
  - Material properties
Accomplishments to Date

• D: Single State Selection
  – Visited three states (MN, NC, MS)
  – Submitted a recommendation to FHWA
  – Final selection is in progress

• E: Final Framework Development
  – Begins when the single state selection has been finalized
Next Steps

- Finalize the state selection
- Tailor the framework based on state data availability
- Work with the state to implement the framework
- Use the data to calibrate the models
Observations From State Visits

- The availability and format of traffic data are challenges in each state
- The format of PMS data is generally inconsistent with MEPDG requirements
- Limited availability of staff hinders MEPDG data collection efforts
- Traditional organizational structures do not lend themselves to the MEPDG requirements
Observations From State Visits

• States reported delays in the implementation process due to changes in the MEPDG software over time

• Each of the states is progressing with material characterization and the development of catalogs
Summary

• Top priority is finalizing the single state selection
• Stay tuned…..