NCHRP Asphalt Research

April 2015

WARM MIX ASPHALT

9-52: Short-Term Laboratory Conditioning of Asphalt Mixtures

- **Short-term laboratory conditioning that simulates plant mixing and processing to the point of loading in the transport truck and the initial 3 years of field performance.**
- **When does WMA = HMA_0? 2-3 months.**
- **R 30 long-term procedure yields average 2 years aging.**
- **Significant factors affecting aging: binder source and aggregate absorption.**

Texas A&M Transportation Institute (August 2015)

9-53: Properties of Foamed Asphalt for Warm Mix Asphalt Applications

- Determined key properties of foamed asphalt binders that significantly influence the performance of asphalt mixtures: ER, k-value, FI, SAI.
- Mix design method determines optimum water content and checks workability (SGC) and coatability.
- Best coatability and workability at 1-2% water content in lab and field.
- NCHRP Report 807—anticipated June 2015.

Texas A&M Transportation Institute (Completed)

9-54: Long-Term Aging of Asphalt Mixtures for Performance Testing and Prediction

- **Laboratory procedure to simulate long-term aging of asphalt mixtures for performance testing and prediction.**
- **Experiment design correlates rheology and kinetics of binders aged in the laboratory and long term in the field, including ARC, MnRoad, FHWA-ALF, WesTrack, and LTPP SPS-1 and SPS-8**
- **Preliminary results support 9-52 finding on R 30.**

North Carolina State University (May 2016)

9-55: Recycled Asphalt Shingles in Asphalt Mixtures with Warm Mix Asphalt Technologies

- **Develop a design and evaluation procedure for acceptable performance of asphalt mixtures incorporating WMA technologies and RAS, with and without RAP, for project-specific service conditions.**
- **New field projects: WI, AL, TN completed.**
- **Existing field projects: IL (2), TX (2).**

National Center for Asphalt Technology (Sept 2016)

9-59: *Relating Asphalt Binder Fatigue Properties to Asphalt Mixture Fatigue Performance*

- **Determine asphalt binder properties that are significant indicators of the fatigue performance of asphalt mixtures and validate them with field data.**
- **Identify or develop a practical, implementable binder test to measure properties that are significant indicators of mixture fatigue performance for use in a performance-related binder purchase specification.**

Advanced Asphalt Technologies, LLC

MATERIALS AND MIX DESIGN

1-55: Performance-Based Mix Design for Porous Friction Courses

- **Based on use of SGC.**
- **Consider rutting, raveling, cracking, moisture susceptibility, permeability, noise reduction, and friction.**
- **Balance durability and functionality.**

National Center for Asphalt Technology (July 2016)

9-48: Field versus Laboratory Volumetrics and Mechanical Properties

- Determine sources of variability for volumetric and mechanical properties of asphalt mixtures among LMLC, PMLC, and PMFC specimens.
- Meta-analysis of literature data sets inconclusive.
- Significant differences in properties and predicted performance between PMFC and LMLC or PMLC.
- Key factors: baghouse fines, aggregate absorption and hardness, stockpile moisture.

Louisiana Transportation Research Center (June 2015)

9-56: Minimizing the Variability of Ignition Furnace Correction Factors

- **What factors affect the variability of asphalt and aggregate correction factors?**
- **Develop a correction factor verification procedure to troubleshoot non-comparing results of AASHTO T 308.**

National Center for Asphalt Technology

(October 2016)

9-58: The Effects of Recycling Agents on Asphalt Mixtures with High RAS and RAP Binder Ratios

- **Evaluate the effectiveness of recycling agents in asphalt mixtures with high RAS, RAP, or combined RAS/RAP binder ratios.**
- **High binder ratios = 0.3 to 0.5.**
- **Laboratory and field experimental program.**

Texas A&M Transportation Institute (October 2017)

PAVEMENTS

1-54: Guidelines for Limiting Damage to Flexible and Composite Pavements Due to the Presence of Water

- **For the practicing engineer.**
- **Considers pavement structure, roadway geometry, regional climate, materials, construction and maintenance practices.**

Applied Pavement Technology, Inc. (August 2016)

9-51: Material Properties of CIR and FDR Asphalt Concrete for Pavement Design

- **Propose material properties, test methods, and distress models for including the performance of pavement layers prepared with CIR and FDR AC in Pavement ME Design.**
- **Evaluating materials and data from 19+ field projects in U.S. and Canada.**

University of Maryland (June 2015)

20-07/Task 339: Best Practices for Crack Sealing and Crack Filling of Asphalt Pavements

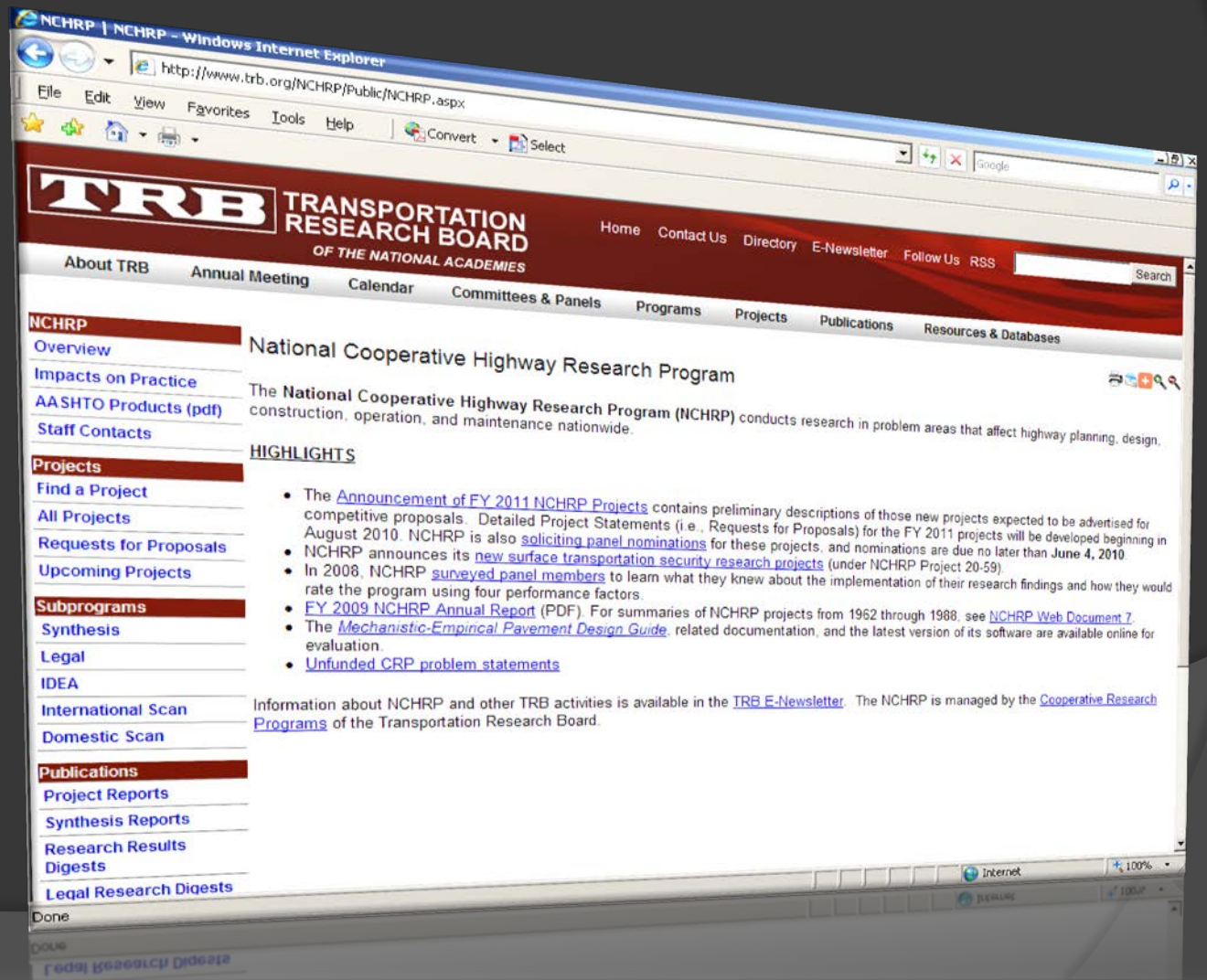
- **Literature review and survey of agencies and industry.**
- **Describes current state of the art and state of the practice.**
- **Selected best practices.**
- **NCHRP Report 784.**

Dale S. Decker, LLC

FY 2016 PROJECTS

- **D-04: The Impacts on Pavement Performance of Changes in Asphalt Production ($1,000,000)**
- **D-08: Guide Specifications for Pavement Preservation Treatments: Chip Seals and Microsurfacing ($300,000)**
- **F-01: Triggers and Timings for the Placement of Pavement Preservation Treatments for Asphalt Pavements ($350,000)**

http://www.trb.org/NCHRP



Thanks!