Highly Polymer Modified Binder
Ben Bowers

• Polymer modified binder increases elasticity and performance
• Traditionally allow up to 2.5-3.5% polymer by weight
• New polymer allows for 7.5% polymer by weight, increasing elasticity
• May help performance
  – Reflective crack mitigation
  – Rutting resistance
  – Thin-lift applications
  – Longer lasting pavement

10/9/2014
Highly Polymer Modified Binder

• 7.5% being polymer asphalt mixture was placed in Northern Virginia District on 8/28/2014
• No major changes to construction process
• Lab testing being conducted at VCTIR
  – Preliminary test results are promising
• Already looking at two future projects

10/9/2014
Material Properties of CIR and FDR for Pavement Design

Partners
- University of MD, VDOT, Colas Solutions, Wirtgen

Project locations (22)
- California, Colorado, Delaware, Edmonton, Georgia, Illinois, Kansas, New York, Ontario, Utah, Washington, West Virginia
Example Results

Average Dynamic Modulus at 21°C and 10Hz, psi

Project Type

CCPR - Emulsion  CIR - Emulsion  CIR - Foam  FDR - Foam  I-81 CIR - Foam  I-81 CCPR - Foam

Values: 1, 7, 3, 2
Influence of Aggregate Morphology & Grading on Performance of Small-Size SMA Mixtures

Steve Lane, Hari Nair, Linbing Wang

• Goal: Examine grading specs for the design of small-size SMA mixtures and the impact of aggregate morphology on the structural stability of the mixture

• Characterize aggregate particle shape, angularity, and surface texture
  – Apply LADAR (laser-based imaging) system
  – Comparison with conventional methods

• Mixture stability evaluation
  – Model-mobile loading simulator (MMLS3), fatigue testing, dynamic modulus and flow number
Aggregate Morphology/Grading – “Small-Size” SMA
Quiet(er) Pavements
(Code of Virginia § 33.1-223.2:21)

Kevin McGhee
Demonstration Projects 2011/12

1. SR 7 By-Pass in Leesburg (A)
2. SR199 west of Williamsburg (A)
3. SR 288 near Chester (A)
4. I-64 Virginia Beach (C)
5. SR 76 Richmond (C)
6. Fairfax County Parkway near Chantilly (A)
7. US 17 Near Marshall (A)
8. NCAT
Tire/Pavement Noise

• Difference between lowest-noise QP and control surfaces:
  – After first winter tire-pavement noise levels were readily noticeable (≥ 5dB); asphalt & concrete

• Over past two winters, noise intensity levels have:
  – decreased slightly for concrete technologies
  – increased slightly for asphalt technologies
Quiet Pavement – Winter

Quiet Pavement

Feb 2014
Quiet Pavement – Wet Weather

SMA

May 2014
Final Report – June 2015

• To include (Virginia Code):
  – “…a plan for routine implementation of quiet pavement…”

• To include (Objective Evaluation):
  – Expected performance – noise reduction and its duration, friction, etc.
  – Expected costs – material, maintenance (winter & other), and safety
  – Recommended use and other considerations
Support for AQTF

Title:

AN ASSESSMENT OF INCENTIVE-ONLY RIDE SPECIFICATION FOR ASPHALT PAVEMENTS

Research Team:

Harikrishnan Nair, Kevin K. McGhee, and Affan Habib

Objective:

Document and critically review the pilot application of the incentive only provision for rideability on selected asphalt resurfacing schedules for the 2013 construction season.
Asphalt Pavement Research Program

Thank You

Questions