A Synopsis of HMA Activities by the Illinois Department of Transportation

2015 Joint Bituminous Paving/NCAUPG Conf

Matt Mueller
Engineer of Tests, BMPR
An Incomplete Synopsis of HMA Activities by the Illinois Department of Transportation

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A Desirable Paving Material Will Provide a:

- Safe Surface for Motorists
- Long Life
- Low Life Cycle Cost
- Low First Cost
- Use of Readily Available Local Materials
Challenges to Success Have Been From:

- Rutting
- Pot Holing
- Inconsistent Performance
- Increased Binder Costs
- Friction Requirements
Challenges to Success

- Rutting:
  - Implementation of Hamburg Wheel Mix Performance Test
Challenges to Success

- Pot Holing:
  - Ongoing Implementation of New Tack Coat Specification
Challenges to Success

- Inconsistent Performance:
  - Adoption of Finer Graded Mixes
  - Specifying a Material Transfer Device
  - Enforcement of Paver Segregation Kits
  - Adoption of New Acceptance Methods
    - PFP
    - QCP
Challenges to Success

- Increased Binder Costs:
  - Use of Higher Amounts of Recycled Materials
    - RAP, FRAP
    - RAS
Challenges to Success

- Friction Requirements:
  - Allowing Blends of Coarse Aggregates
Additional, On-going Efforts

- In-house Research
- Membership to NCHRP Panels and Pooled Fund Studies
- Collaboration with Industry
- Formal Research with ICT
Development of Improved Overlay Thickness Design for Locals

- R27-130
- Chair – Scott Lackey
- PI – Erol Tutumluer
- Educational Activities, Update Chapter 46 of the BLRS Manual
Implementation of AIMS in Measuring Aggregate Resistance to Polishing

- R27-129, R27-SP27
- Chair – Sheila Beshears
- PI – Enad Mahmoud
- Replacement of Unique VST Device Using Existing Micro-Deval Equipment and New AIMS to Rapidly Assess New Aggregate Sources
Test Protocols to Ensure Performance of High Asphalt Binder Replacement Mixes

- R27-128
- Chair – Matt Mueller
- PI – Imad Al-Qadi, Hasan Ozer
- Develop a Test Protocol to Determine a Mix’s Resistance to Cracking
Mechanistic-Empirical (M-E) Design Implementation

- R27-149
- Chair – Charles Wienrank
- PI – Marshall Thompson
- Technical Support in Implementing and Adjusting the Flexible Pavement Design Methods
The Thermodynamics of Production of High RAP/RAS Mixes

- R27-SP29
- Chair – Matt Mueller
- PI – Mohammad Hossain
- Determining the Temperatures Required During Phases of Production of High Recycle Mixes
Chemical and Compositional Characterization of Recycled Binders

- R27-162
- Chair – Matt Mueller
- PI – B.K. Sharma
- Examine Virgin and Recycled Binders’ Chemical Properties and How That Affects Their Physical Properties as it Relates to Blending
R27-161
Chair – Jim Trepanier
PI – Imad Al-Qadi
Evaluate the Field and Lab Performance of a Variety of Mixes Incorporating Varying Proportions of Recycled Materials and Differing Virgin Asphalt Grades
Evaluation of PG Graded Asphalts with a Low Level of ReOB

- R27-SP28
- Chair – Vickie Prill
- PI – Hasan Ozer
- Laboratory Evaluation of Recycled Engine Oil Bottoms (ReOB) as a Modifier in Performance Graded Asphalts
All HMA Mixes
No Rut
No Cracks
Sweet Spot