

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**
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Perspective of an Owner

- 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

Perspective of an Owner

- 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

Construction and Performance Monitoring of Various Asphalt Mixes

- 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*