BETTER QUALITY PAVEMENTS USING SHRP2 TECHNOLOGIES

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SHRP2 – MoDOT Implementation Efforts

- Implementing Eco-Logical (C06) – User Incentive
- Tools to Organize for Reliability (L01/L06) – Lead Adopter
- Innovative Bridge Designs for Rapid Renewal (R04) – Lead Adopter
- Guidelines for the Preservation of High-Traffic-Volume Roadways (R26) – Lead Adopter
- Performance Specifications for Rapid Renewal (R07)
- GeoTechTools (R02) -- User Incentive
- Nondestructive Testing for Concrete Bridge Decks (R06A)
- Technologies to Enhance Quality Control on Asphalt Pavements (R06C)
The Unseen Enemy

Thermal Segregation

- Mix cools unevenly during transport
- If not sufficiently remixed, erratic temperatures occur in the Mat
- Temperature differences are not visible to the laydown crew
Pave IR - Infrared Scanner

A system used to map the temperature profile of freshly placed hot asphalt pavement directly behind paver
MoDOT History with Scanner

- Demonstrated unit in conjunction with the IC Proof of Concept study on US 63 South of Columbia with APAC in 2014

- Earlier this year MoDOT acquired a unit through the SHPR2 Implementation Program

2014, US 63

2015, I-29
How it Works
- A map of the temperatures as they exist on the surface of the fresh asphalt

- Coloring the temperatures provides an excellent visualization of the temperature differentials
Field Demo

- Part of the R06C Implementation Assistance Program
- Density readings taken at both hot and cold spots in the Mat
- Field cores taken to correlate with non-nuclear density measurements

Route: I-29
Project: J1I2213
Contract: 141121-A01
Contractor: Herzog Contracting Corp.
Real-Time Information at the Plant or Anywhere

- Thermal profile available in real-time on site to facilitate trouble shooting
- Automatically detects problems with thermal segregation in real time
- Easily Locates Areas of Concern
- Provides information on paver speed and position to make corrections in real-time
Benefits of Obtaining IR Data

Owner (MoDOT)
- Ability to identify and quantify thermal segregation
- Confirm placement temperatures within acceptable tolerances
- Provides a valuable QC Tool to facilitate the laydown operation and improve both density and smoothness.

Contactor
- Real-time monitoring to placement operations
  - Paver Location
  - Travel Rate
  - Pavement Temperature
- Record of production process
- Effective day or night
• Hosting a showcase planned for Industry in St. Joseph, Mo on June 1, 2016

• Includes Field Visit to City Project with Missouri Contractor

• MoDOT letting a Project next month with both IC and IR for an Incentive/Disincentive in Missouri Job Special Specification
Thank You,
Ed Hassinger, Chief Engineer, MoDOT

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R06C Product Page:
http://www.fhwa.dot.gov/goshrp2/Solutions/Renewal/R06C/Technologies_to_Enhance_Quality_Control_on_Asphalt_Pavements

R07 Product Page:
http://shrp2.transportation.org/Pages/R07_PerformanceSpecificationsforRapidRenewal.aspx