In-Place Recycling Research

Dr. R. Buzz Powell, P.E.
• CR mix in 2012 on Track and Lee Road 159
• Ongoing CR mix laboratory research at NCAT
• Plan to expand 159 research in 2015
• National preservation experiment initiative
CR Mix on Track & Lee Road 159

- 3.66 miles on I-81 in Augusta County, VA in 2011
- Post-mill FDR in right lane due to deterioration
- CCPR base mix placed with 4 inch asphalt overlay
- Need to quantify CR structural contribution.
“Full Depth Reclamation”
100% RAP Foamed CR Base Mix

- Overlay thickness for 6” interstate CR base mix?
  - 200 uƐ with 6” overlay, 300 uƐ with 4” overlay

- Benefit of subgrade+base cement stabilization?
  - 150 uƐ with 4” overlay (half base/subgrade value)
100% RAP Foamed CR Base Mix
100% RAP Foamed CR Base Mix
Lee Road 159
Milling for CR Base Mix in Section L20
L20 – Thin HMA Overlay on 100% RAP Mix Base
Subgrade Moisture Contents

![Graph showing moisture contents over time for different treatments: Controls, Thinlay, and Thinlay with CCPR Base.](image-url)
Preservation on Lee Road 159

- Chip Seal x 7
- Control x 2
- Crack Seal x 1
- Fog Seal x 1
- Micro Surface x 6
- Thin Overlay x 8
- 25 Sections
Preservation on Lee Road 159

Pavement Condition

Prevention
Rehabilitation
Reconstruction

Time / Traffic

Life Extending Benefit
Preservation on Lee Road 159
NCAT’s CR Research Efforts

• Mix design methodologies
• Structural contribution (E, M-E)
• QC/QA practices for DOTs
• Training and implementation.
Plan to Expand 159 Research in 2015

- Continue to monitor/maintain Track and 159
- Higher ADT roadway, longer sections, similar age
- Better quantify condition improving benefit
- Expand scope to add more recycling mixes.
Preservation on Lee Road 159

Pavement Condition

- Prevention
- Rehabilitation
- Reconstruction

Time / Traffic

Life Extending Benefit
Condition Improving Benefit
Higher ADT Off-Track Preservation

- US-280 3 miles to east
- 17,000 ADT, >10 years old
- Westbound outside lane
- Tenth mile sections
- Duplicate Lee Road 159
- CCPR\textsubscript{F,E}, CIR\textsubscript{F,E}, and HIR
- High BR thin overlays
National Preservation Experiment

- Low temperature effects outside NCAT scope
- New MnRoad experiment also to be built soon
- NCAT treatments in extreme northern climate
- Opportunity for rigid pavement test sections
- National scope appeal to FHWA / more states.
Performance data for each section can be viewed by positioning your mouse over the section in question and left clicking. Based on feedback from our research sponsors, the performance reports have been revised to include crack maps. The 2009 performance reports are now a fully integrated and active part of the web presentation.
2015 Pavement Test Track Conference

March 3-5, 2015
The Hotel at Auburn University and Dixon Conference Center
Auburn, Alabama

- WMA & High RAP/RAS/GTR Mixes
- Optimized Structural Design
- Pavement Preservation
- Implementation

Official registration information will soon be available at www.ncat.us
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