Outline

• What is pavement recycling?
• Benefits of recycling
• Design inputs
• Performance examples
• Next steps
What is Pavement Recycling

• A series of processes where existing paving materials can be reused in a new or rehabilitated pavement structure
  – Full-depth reclamation
  – Cold in-place recycling
  – Cold central-plant recycling
Pavement Recycling Benefits

• 30 to 50 percent cost savings
• >50 percent less greenhouse gases emitted
• Fix deterioration causes rather than symptoms
• Can be quicker than full reconstruction
Pavement Recycling Needs

• Design
  – Familiarity with processes
  – M-E material property inputs

• Construction
  – Rapid quality assessment
  – Long-term performance assessment
M-E Material Property Inputs

• NCHRP 9-51
  – University of Maryland, Virginia Transportation Research Council, Wirtgen GmbH, Colas Solutions

• Characterization
  – Stiffness, dynamic modulus
  – Rutting, repeated load-permanent deformation
Virginia Performance Examples

• Interstate 81
  – Constructed 2011
  – 24,000 AADT w/ 28% trucks

• National Center for Asphalt Technology Track
  – Constructed 2012
  – 10 million ESALs per cycle
Virginia I-81

• Right lane
  – FDR, CCPR, asphalt surface

• Summer 2016
  – 10 million ESALs
  – 0.10 inches rutting
  – IRI 44 inches per mile

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<th>4 &amp; 6-in AC</th>
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<tr>
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<td>12-in FDR</td>
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NCAT Test Track

• August 2016
  – 14 million ESALs
  – 0.15 – 0.25 inches rutting
  – no cracking
NCAT Test Track

- Perpetual recycled design?
  - Average 81% recycled content

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<tr>
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Interstate 64 Lane Widening

- Add 2 lanes to inside
- Reconstruct existing 2 lanes
- Design-build
- 7.08 miles (56 lane miles)
- Awarded January 2016
34% savings

90% reduction
Using Virginia’s Existing RAP

• 4.7+ million tons statewide
Using Virginia’s Existing RAP

With CCPR, we could pave a 12-foot wide lane 6 inches thick for about 2,100 miles from Charlottesville to Salt Lake City.
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