Illinois DOT Update

Successes and Future Directions

Midwestern Pavement Preservation Partnership
September 3, 2014
Successes

• Districts recognizing limitations on treatments.
• Use of micro-surfacing on centerline and edgeline to counteract spalling due to low density at the joint.
• Use of ultra-thin bonded wearing course (UTBWC) on bare concrete for high-volume roadways.
Ultra-Thin Bonded Wearing Course

• First project on bridge deck in District 3 during reconstruction efforts.
• District 3 then used on I-80 to hold pavement together as a stop-gap measure.
• District 8 used on high-volume roadway to slow PCC distresses and give surface uniform appearance (UTBWC & Micro).
District 3, I-80

• Originally constructed in 1993
  – Open-graded drainage layer (OGDL) for subbase
  – Lime-modified subgrade
  – Separation layer removed during design phase
  – Concrete material quality issues

• During first year, soil subgrade infiltrated open-graded drainage layer

• Longitudinal cracking developed from uneven support
District 3, I-80

- Filled OGDL with grout to create support
  - Slowed distress development
  - Inadvertently filled underdrains
  - Long wave-lengths induced in pavement
- Placed UTBWC to hold surface together as stop-gap
- Eastbound in 2008, Westbound in 2009
- High traffic volume
  - ADT = 30,200
  - HCV = 41.39%
District 3, I-80, Eastbound

2008 - Just Before
District 3, I-80, Eastbound

2009 - 1 Year After
District 3, I-80, Eastbound

2014 – Today
# District 3, I-80, Condition

<table>
<thead>
<tr>
<th>Year</th>
<th>CRS</th>
<th>IRI, in./mi</th>
<th>Rut Depth, in.</th>
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<tr>
<td>2006</td>
<td>7.0</td>
<td>93</td>
<td>0.0</td>
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<tr>
<td>2008</td>
<td>No rating, predicted value Low – Mid 6’s</td>
<td>89</td>
<td>0.0</td>
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<tr>
<td>2010</td>
<td>8.0</td>
<td>65</td>
<td>0.1</td>
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<tr>
<td>2012</td>
<td>7.4</td>
<td>68</td>
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<tr>
<td>2014</td>
<td>Not rated yet</td>
<td>67</td>
<td>0.1</td>
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District 8, I-270

• Originally constructed in 1963 with four lanes
• Overlays placed throughout the years
• Added a PCC median lane for each direction in late 1980s
• Slow PCC cracking and create uniform appearance, micro-surfacing on HMA lanes and UTBWC on PCC lane
• Eastbound – 2.08 miles, Westbound – 2.04 miles
• High traffic volume
  – ADT = 53,300
  – HCV = 18.57%
District 8, I-270, Westbound

2013 – Before
District 8, I-270, Westbound

2014 – Today
District 8, I-270, Westbound

2013 – Before
District 8, I-270, Westbound

2014 – Today
Future Directions

• Monitor performance of micro-surfacing and UTBWC on I-270.
• Increase use of pavement preservation on high-volume roadways.
• Improved performance models of pavement preservation treatments.