HANDLING THE UNEXPECTED

SCDOT EXPERIENCES & LESSONS LEARNED

Laura C Kline, PE
Chemical Stabilization Engineer
SCDOT
Lessons Learned
Lessons Learned
SCDOT Reclamation History
Disclaimer
Staining Shrinkage Cracking

- Medium Traffic 2 Lane Primary Road
- CMRB Construction Occurred & Asphalt Overlay Placed
- Notified of Problem by District Several Months After Construction
Staining Shrinkage Cracking
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- Initial Concern Not Primary Issue
- Poor Pulverization / Mixing
- Issues Buried and Covered Up
- Crack Seal to Protect Unknown Issue
Staining Shrinkage Cracking
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- Patch Failures
- Plan for Additional Construction
Staining Shrinkage Cracking

Lesson Learned
Hydrophobic Material

- Low Traffic 2 Lane Road in Rural Area
- CMRB Construction Occurred
- Curing Treatment Placed, but Asphalt Placement Held Pending Investigation
- Notified of Problem by Managing Engineer After CMRB Construction
Hydrophobic Material
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Hydrophobic Material

- Poor Quality Work
- Time Sensitive Answer
- Proper Sampling & QA/QC Important
Hydrophobic Material

- Lesson Learned
Various Base Structure

- Heavy Traffic 5 Lane Primary Road
- Evaluated for CMRB Treatment
- 37,000 ADT & 13% Truck Traffic
Various Base Structure
Various Base Structure
Various Base Structure
Various Base Structure
Various Base Structure
Various Base Structure
Various Base Structure

- Not CMRB Candidate

- New Idea for High Traffic Area

- Deep Asphalt with Diamond Grinding at Surface
Various Base Structure

- Lesson Learned
Misalignment of Layers

- Low Traffic 2 Lane Road in Rural Area
- CMRB Construction Occurred
- Asphalt Surface Layer Placed
- Notified of Problem a Few Days After Paving
Misalignment of Layers
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Misalignment of Layers

- Contracted Width not Achieved
- CMRB Layer & Asphalt Layer Misaligned
- 6 Inch Patching for ½ Lane
- Full Lane Width Overlay
Misalignment of Layers

- Lesson Learned
Early Large/Wide Cracking

- Very Short, Low Traffic 2 Lane Road in Rural Area
- CMRB Construction Occurred & Asphalt Overlay Placed
- Notified of Problem by District a Few Weeks After Construction
Early Large/Wide Cracking
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Early Large/Wide Cracking
Early Large/Wide Cracking

- Inconsistent Results
- Evidence of Design Issues
- Evidence of Poor Quality Construction
- New Design Significantly Different
Early Large/Wide Cracking

- Lesson Learned
Against All Best Practices

- Low Traffic 2 Lane Road in Rural Area
- 12 Inch Reclamation, 1.67 Mile
- CMRB Construction In Process
- Contractor Called After a Few Days of Construction
Against All Best Practices
Against All Best Practices
Against All Best Practices
Against All Best Practices
Against All Best Practices
Against All Best Practices

- Poor Best Practices
- Inability to Achieve Specifications
- Failing Section
- Section Reconstructed
Against All Best Practices

- Lesson Learned
High Traffic Curb & Gutter

- High Traffic 4 Lane State Highway in Rural Area (Curb & Gutter)
- District Requested Pavement Design (Outside Lanes Only)
- Deteriorating Condition, Potential for CMRB Treatment
High Traffic Curb & Gutter
High Traffic Curb & Gutter
High Traffic Curb & Gutter
# High Traffic Curb & Gutter

## Table 1: Composition of Roadway

<table>
<thead>
<tr>
<th>Location Number</th>
<th>Distance from “0” (ft)</th>
<th>Composition of Roadway</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.056</td>
<td>6.0” Asphalt on Aggregate</td>
</tr>
<tr>
<td>2</td>
<td>3.057</td>
<td>6.0” Asphalt on Aggregate</td>
</tr>
<tr>
<td>3</td>
<td>5.055</td>
<td>5.0” Asphalt on Aggregate</td>
</tr>
<tr>
<td>4</td>
<td>7.042</td>
<td>7.0” Asphalt on Aggregate</td>
</tr>
<tr>
<td>5</td>
<td>10.117</td>
<td>6.5” Asphalt on Aggregate</td>
</tr>
<tr>
<td>6</td>
<td>13.156</td>
<td>6.5” Asphalt on Aggregate</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>6.2” Asphalt on Aggregate</td>
</tr>
</tbody>
</table>

## Table 2: Composition of Roadway

<table>
<thead>
<tr>
<th>Location Number</th>
<th>Distance from “0” (ft)</th>
<th>Composition of Roadway</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.030</td>
<td>5.5” Asphalt on Aggregate</td>
</tr>
<tr>
<td>2</td>
<td>5.082</td>
<td>6.5” Asphalt on Aggregate</td>
</tr>
<tr>
<td>3</td>
<td>9.092</td>
<td>5.0” Asphalt on Aggregate</td>
</tr>
<tr>
<td>4</td>
<td>13.029</td>
<td>6.0” Asphalt on Aggregate</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>5.75” Asphalt on Aggregate</td>
</tr>
</tbody>
</table>
High Traffic Curb & Gutter

- Highly Distressed Existing Asphalt
- Grade/Safety Concerns

Construction Sequencing:
- 2 Inch Mill
- 14 Inch CMRB
- 2 Inch Mill
- 2 Lifts Asphalt
High Traffic Curb & Gutter

- Lesson Learned
Final Lesson Learned
HANDLING THE UNEXPECTED

SCDOT EXPERIENCES & LESSONS LEARNED

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