Preservation of Rigid Pavement
- Full-Depth & Partial-Depth Repairs, Overlays -

Southeast Pavement Preservation Partnership
May 29 - 31, 20013

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Texas Tech University
Acknowledgements

- TxDOT Research Committee Members
- TxDOT District pavement engineers
- TxDOT District project inspectors
- Texas Tech students and researchers
Outline

- Background and Objectives
- Full-Depth Repairs (FDRs)
- Partial-Depth Repairs (PDRs)
- Overlays
- Summary
“Good” or Better Distress Scores
(PMIS Distress Score 80 or above)

<table>
<thead>
<tr>
<th>Pavement Type</th>
<th>Percentage of Lane Miles</th>
<th>FY 2009</th>
<th>FY 2010</th>
<th>FY 2011</th>
<th>FY 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>80%</td>
<td>90%</td>
<td>85%</td>
<td>88%</td>
<td>92%</td>
</tr>
<tr>
<td>ACP 91.19% of Lane Miles</td>
<td>80%</td>
<td>90%</td>
<td>85%</td>
<td>88%</td>
<td>92%</td>
</tr>
<tr>
<td>CRCP 6.80% of Lane Miles</td>
<td>80%</td>
<td>90%</td>
<td>85%</td>
<td>88%</td>
<td>92%</td>
</tr>
<tr>
<td>JCP 2.01% of Lane Miles</td>
<td>70%</td>
<td>80%</td>
<td>75%</td>
<td>78%</td>
<td>82%</td>
</tr>
</tbody>
</table>

TxDOT PMIS
Background and Objectives

• Overall, excellent performance of rigid pavements in Texas
• Many miles of 50+ years still in service
• Preservation becoming a key to TxDOT
• Identify best preservation practices.
Large Surface Defects: 46.6%
True Punchouts: 14.2%
Construction Joints: 20.7%
Repair Joints: 18.5%
Causes of Poor Performance of FDRs

• Field testing
• Laboratory investigations
Field Testing

- Deflection Testing with FWD
Outside Lane

12 ft

Wide crack

28 ft

Point #

Deflection [mil]

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10

Deflection [mil]
Outside Lane

Half moon crack

Point #

Deflection [mil]
Laboratory Investigations
Epoxy Injection Method

- Specification
- Non-compliance
361.3. Construction.
tiebars as shown on the plans. Epoxy-grout all tiebars for at least a 12-in.
embedment into existing concrete. Completely fill the tiebar hole with
Type III, Class A or Class C epoxy before inserting the tiebar into the hole.
Epoxy injecting method
Specification Method

Non-Compliance #1

Non-Compliance #2
Partial-Depth Repairs

- Many CRCP distresses are not full-depth failures. Distresses are confined to the top half of the slab.
- Partial-depth repairs are better repair methods for those distresses.
Bonded Concrete Overlay on Deteriorated Jointed Concrete Pavement
Pilot Implementation of CRCP Overlay Limits
Cold Milling
Rebar Installation
Transition Area
Surface Cleaning
Concrete Placement
Curing
Completed CRCP BCO
Summary

• Overall, excellent performance of rigid pavements in Texas

• Proper repairs of distresses in rigid pavement should be an essential component of rigid pavement preservation strategy.

• CRCP bonded overlay could be an effective preservation strategy for jointed pavements.
Thanks!