Pavement Preservation

“A program employing a network level, long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extend pavement life, improve safety and meet motorist expectations”

- FHWA Pavement Preservation Expert Task Group
Pavement Preservation

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2012 Preservation Group (PG) Study

- Quantify life extending benefit of study treatments
  - Time/traffic to return to pretreatment condition(s)
  - Test sections on the Track and Lee Road 159

- Sampling/testing for construction quality
Preservation Group (PG) Experiment

- 25 sections on local county road (Lee Road 159)
  - ≈5½” thick paved access road to quarry/asphalt plant
  - 2 control, 22 sections with treatments/combinations, 1 demonstration section
  - Pretreatment condition varied by WP and direction

- 14 sections on the NCAT Pavement Test Track
  - 7” pavements placed in the summer of 2009
  - PFC sections, DGA sections (virgin, high RAP)
  - >10 million ESALs
• Low ADT roadway
• Very high % trucks
• Load data provided by quarry and asphalt plant
• No traffic control needed for data collection
Lee Road 159
Pavement Preservation Experiment
to Reduce the Cost to Maintain Your Roads

Funding Provided by:
Alabama, Mississippi, Missouri, North Carolina,
Oklahoma, South Carolina, Tennessee, and FP2 via
Auburn University and the Lee County Commission
Lee Road 159

- Preventive maintenance
- Routine maintenance
- Minor rehabilitation
Final Layout

1. Rejuvenating Fog Seal
2. Fibermat
3. Control
4. Control
5. Crack Seal (CS)
6. Single Layer Chip Seal
7. CS + Single Layer Chip Seal
8. Triple Layer Chip Seal
9. Double Layer Chip Seal
10. Microsurfacing + Single Chip (Cape)
11. Microsurfacing
12. CS + Microsurfacing
13. Double Layer Microsurfacing
14. Fibermat + Microsurfacing (Cape)
15. Scrub Seal + Microsurfacing (Cape)
16. Scrub Seal
17. Distress Demo Section
18. Fibermat + HMA thinlay (HMA Cape)
19. HMA Thinlay (PG 67-22)
20. HMA + 100% Foamed Recycle Inlay
21. HMA Thinlay (PG 76-22)
22. Ultra Thin Bonded Wearing Course
23. HMA Thinlay (50% RAP)
24. HMA Thinlay (5% PCRAS)
25. HMA Thinlay (High Polymer)
Rates Checked Prior to Placement
Actual Rates Verified During Placement
Plastic for Startup
LR 159 Testing Overview

• Weekly
  – ARAN Van (roughness, texture)
  – Visual inspections with notes/pictures

• Monthly
  – Video for crack mapping
  – Rut depth
  – Wet ribbed surface friction
  – Subgrade moisture readings
  – Falling weight deflectometer (FWD)

• Other
  – Ground penetrating radar (GPR)
ARAN Van for Roughness/Texture
Falling Weight Deflectometer
Nuclear Moisture Measurements
Recessed to Prevent Tire Damage
Crack Maps
Where We Are Going....

LIFE EXTENDING BENEFITS
L17 – Subsection
Distress Demo
Development of Curves
At time 1 ($t_1$) and time 2 ($t_2$)

At time 3 ($t_3$)

At time 4 ($t_4$)

At time 5 ($t_5$)

Distance from Start of Section (ft)

Percent Area Cracked

Time / Traffic

Control
Cell 1
Series 3

National Center for Asphalt Technology
at Auburn University
Life Extension = fn(Pretreatment Condition & Treatment Type)
Preservation Summary

- Crack sealing appears to be beneficial in all cases
- Preservation treatments reduce subgrade moisture
- Objective life extending benefit curves expected
- Expect extension of project in 2015 research cycle
- “Final” results presented at 2015 Track Conference
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.

- N1 - N11, S5 – S6, and S8 – S13 are structural sections
- All other sections have deep perpetual foundations
- Research cycle of surface placement shown by color
- Off-Track sections on Lee Road 159 shown below
Pavement Preservation Treatment(s): Control with More Cracking

<table>
<thead>
<tr>
<th>Inbound (Northbound) Lane</th>
<th>Outbound (Southbound) Lane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crack Sealing Method:</td>
<td>N/A</td>
</tr>
<tr>
<td>1st Treatment Applied:</td>
<td>NA</td>
</tr>
<tr>
<td>2nd Treatment Applied:</td>
<td>NA</td>
</tr>
<tr>
<td>3rd Treatment Applied:</td>
<td>NA</td>
</tr>
</tbody>
</table>

Graph showing average mean pavement depth over time.

Graph showing crack map with some areas labeled as under construction.

General Notes:
1) Sections 5, 7, & 12 were the only ones to be crack sealed. Crack sealing was the only treatment in section 5; and
2) All performance information is in draft form until reviewed and approved by Track research sponsors.
End-of-Cycle Track Conference

- WMA & high RAP/RAS/GTR mixes
- Optimized structural design
- Pavement preservation
- Implementation

Pavement Test Track Conference

March 3-5, 2015

The Hotel at Auburn University
and Dixon Conference Center

www.ncat.us
Questions?

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