

# 2012 NCAT Pavement Test Track Pavement Preservation Study



at AUBURN UNIVERSITY

NE Pavement Preservation Partnership

April 7, 2014

Burlington, VT

Mary Robbins



# 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*



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- *FHWA Pavement Preservation Expert Task Group*



# 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)
  - $\approx 5\frac{1}{2}$ " 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



# PG Sections on Lee Road 159

Martin Marietta Quarry

Asphalt Plant

Lee Road 159

- Low ADT roadway
- Very high % trucks
- Load data provided by quarry and asphalt plant
- No traffic control needed for data collection



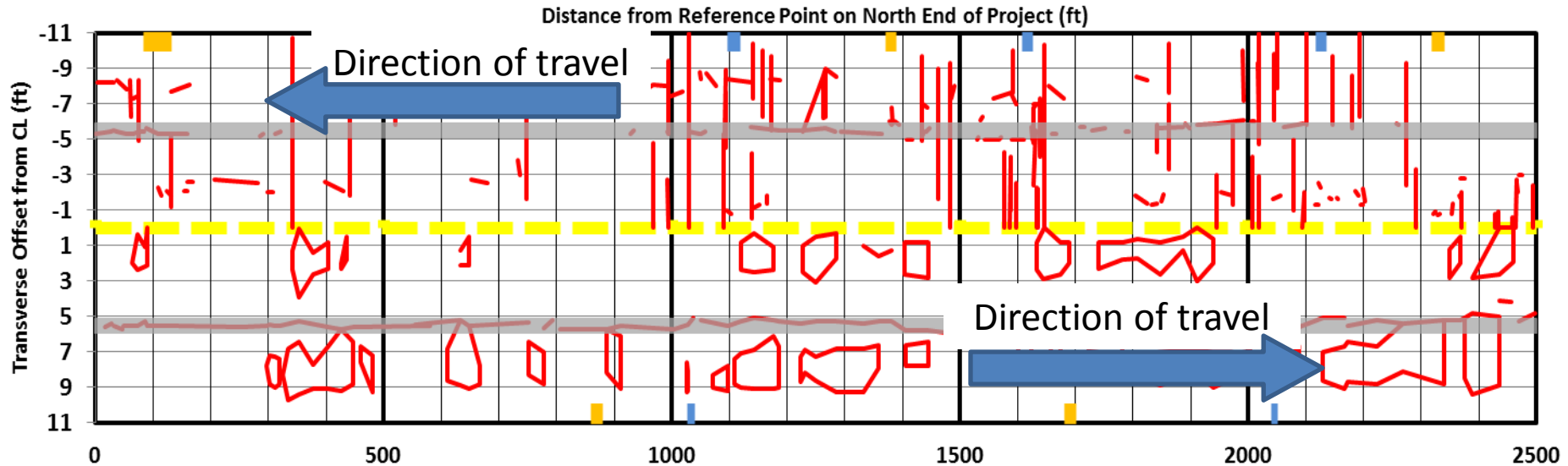
## Lee Road 159

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

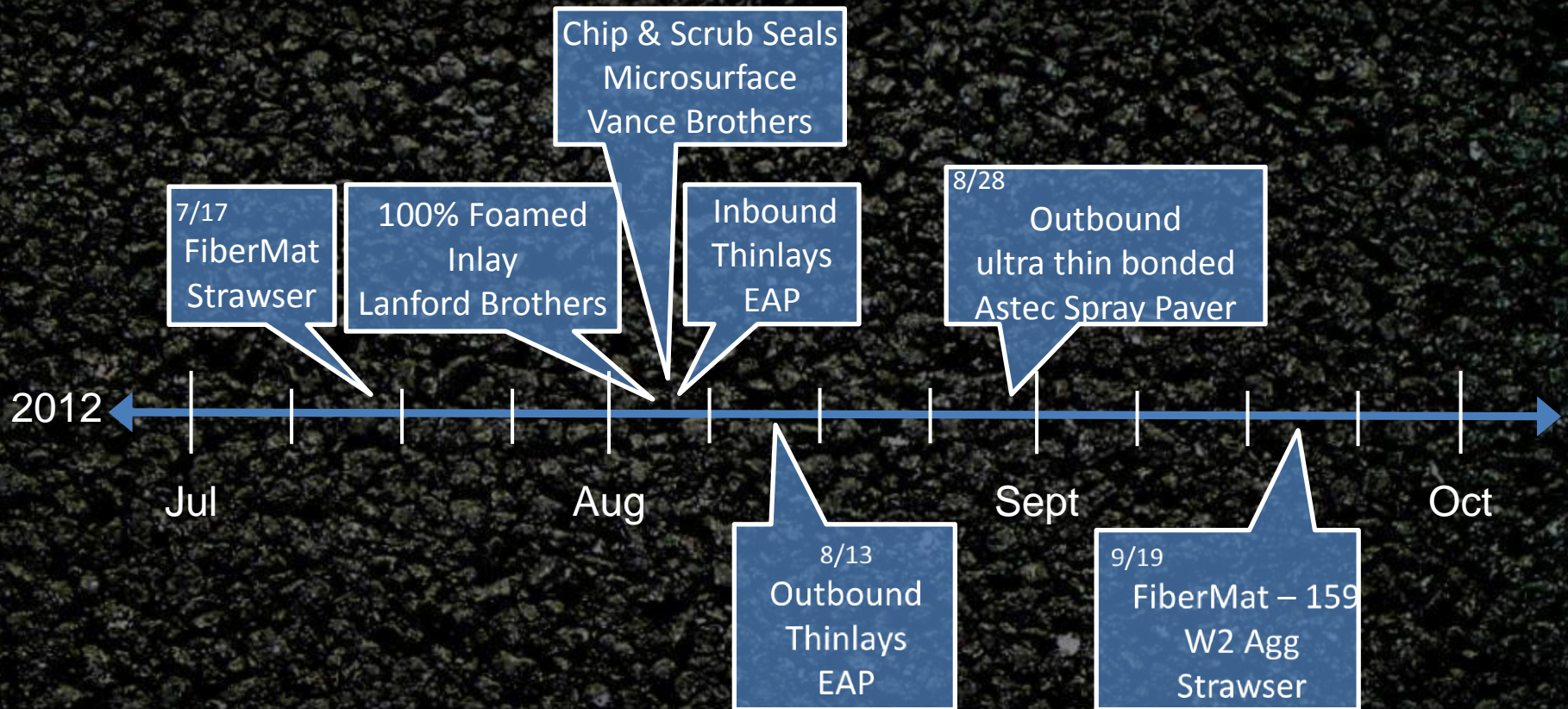


# Final Layout

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)



# Lee Road 159 Construction





# Rates Checked Prior to Placement





# Actual Rates Verified During Placement





# Plastic with Sample Pans





# 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



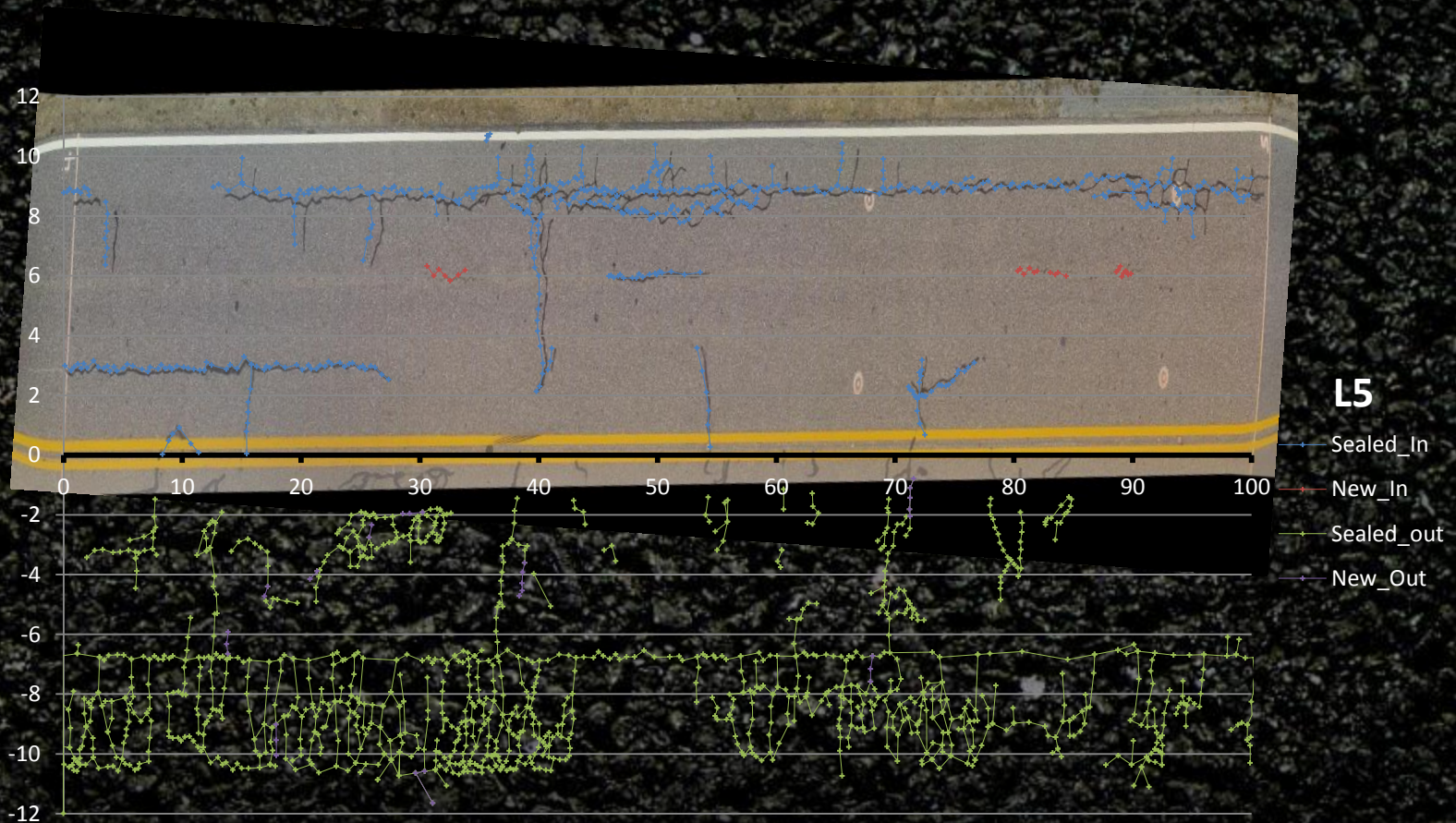


# Recessed to Prevent Tire Damage





# Crack Maps



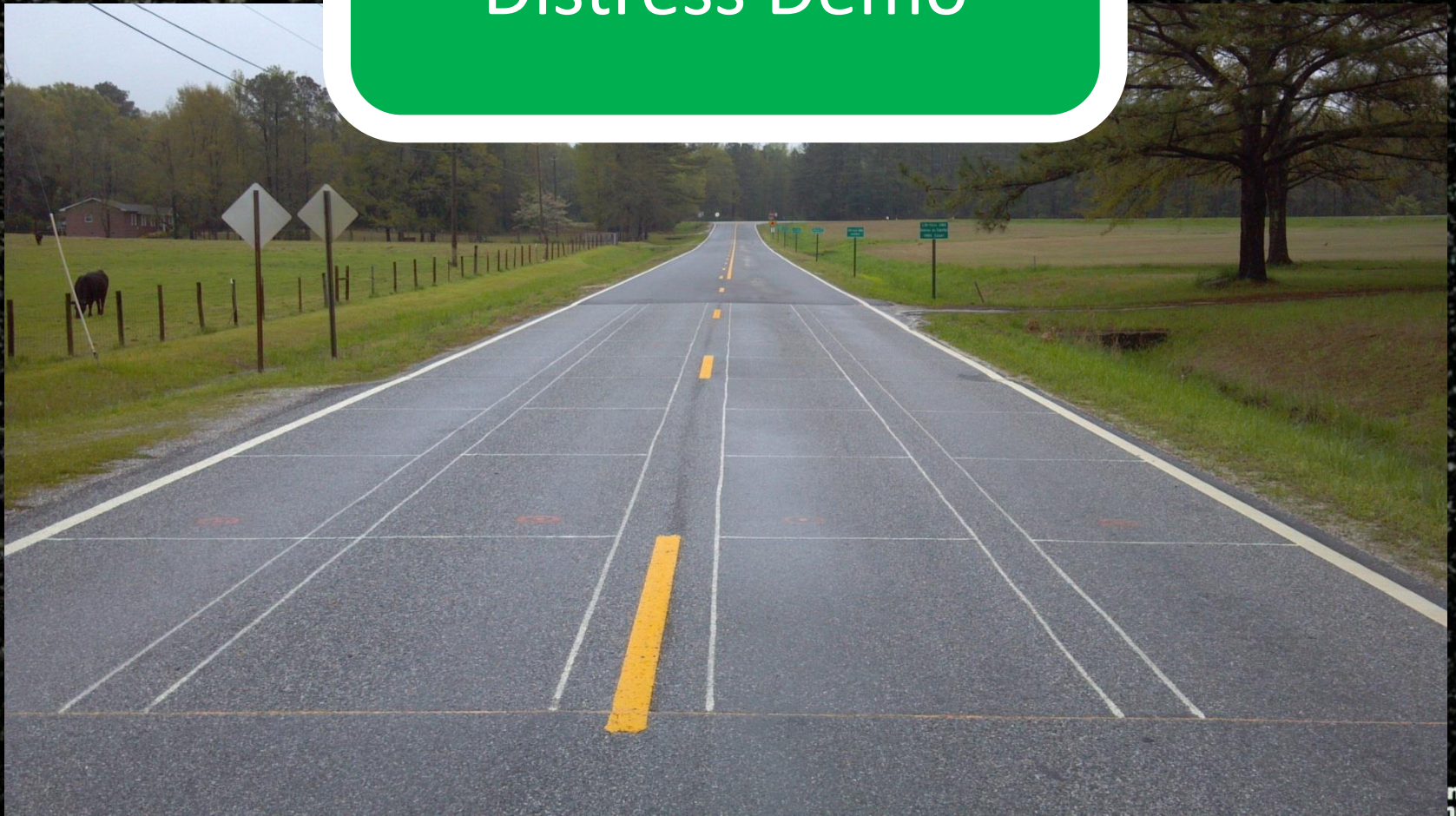


Where We Are Going....

**LIFE EXTENDING BENEFITS**

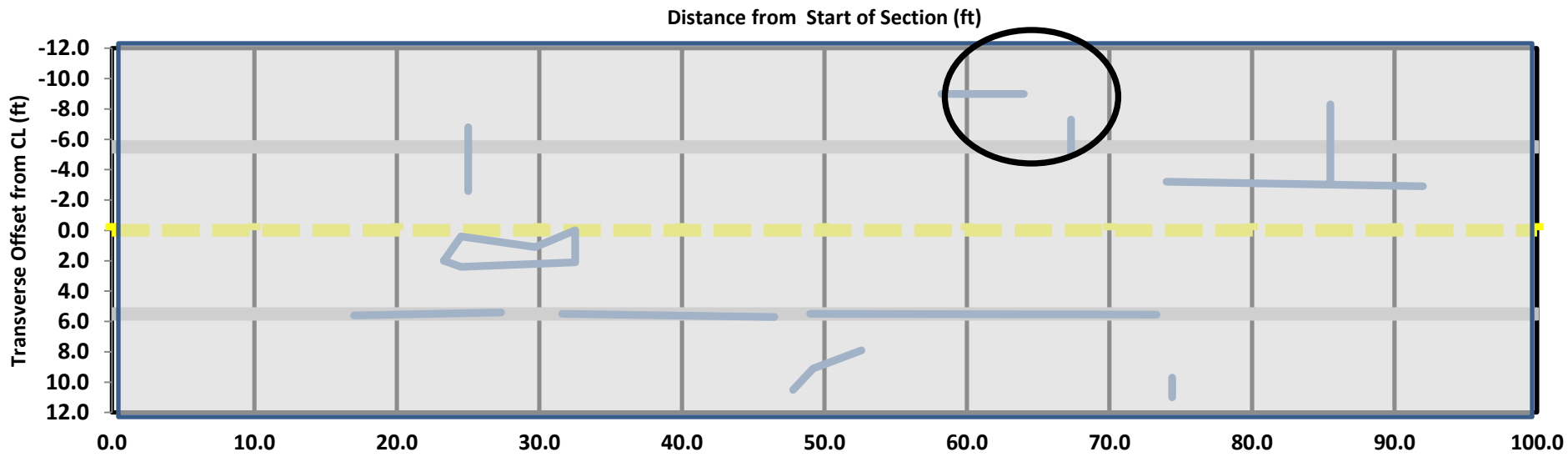


# L17 – Subsection Distress Demo

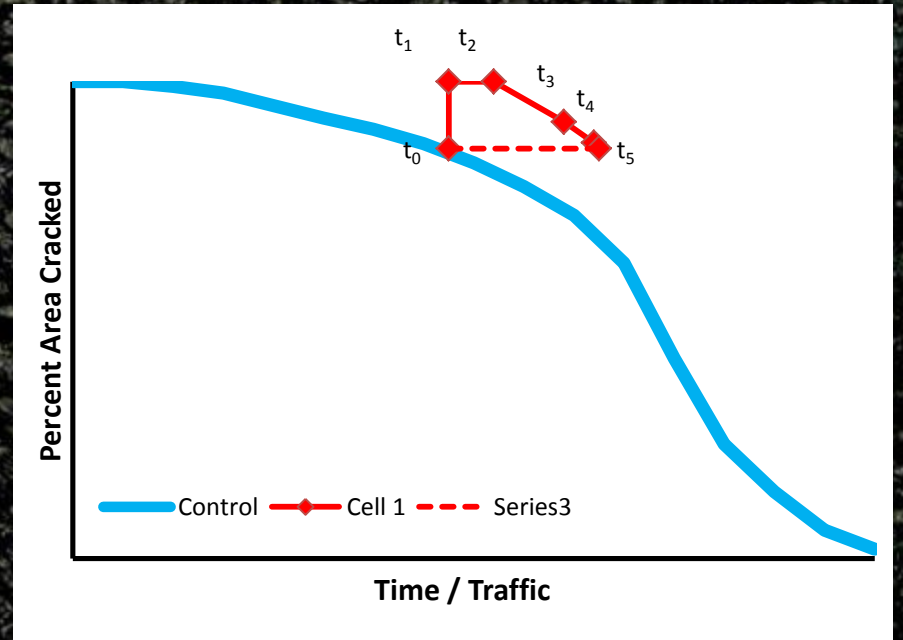
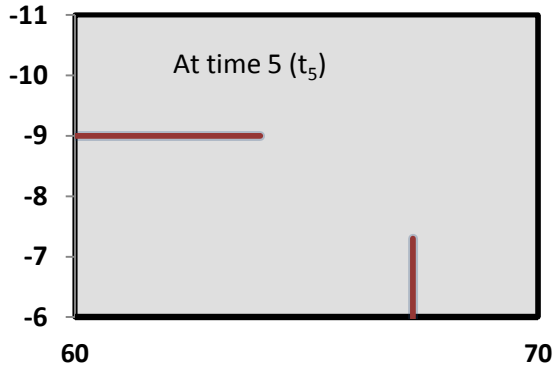
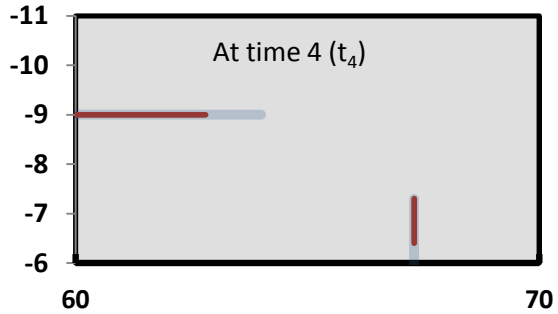
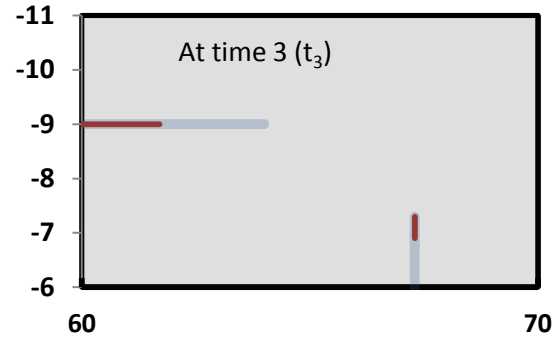
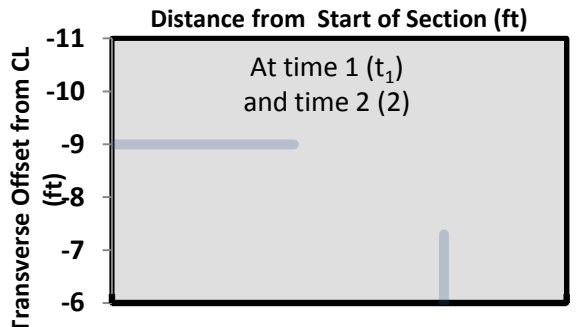




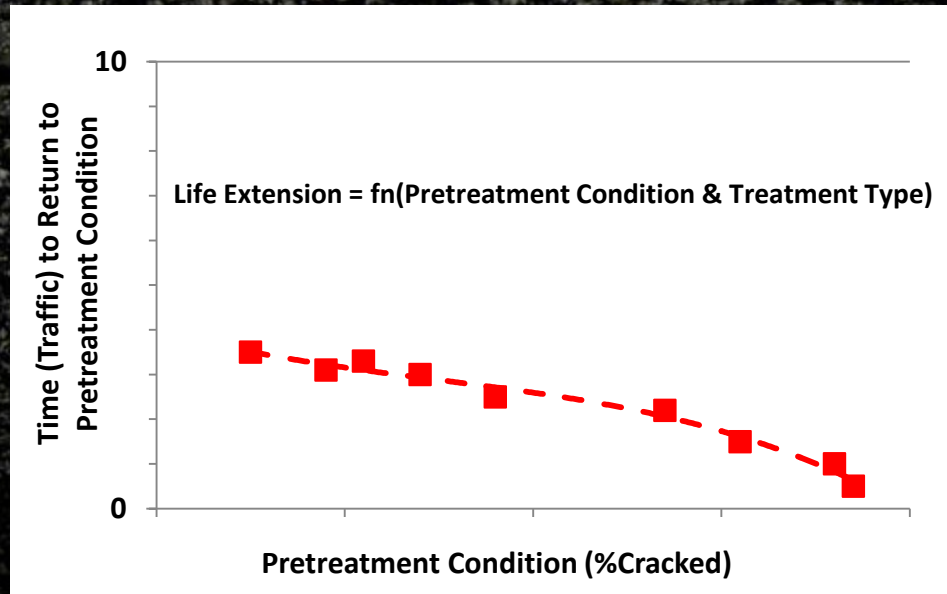
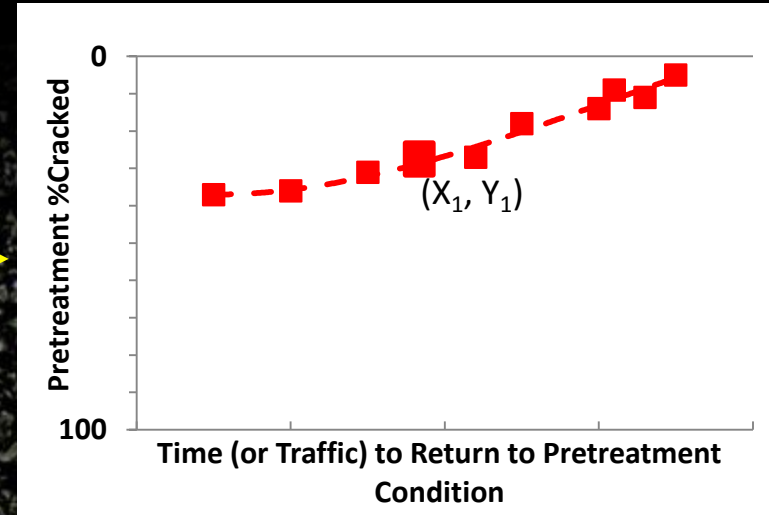
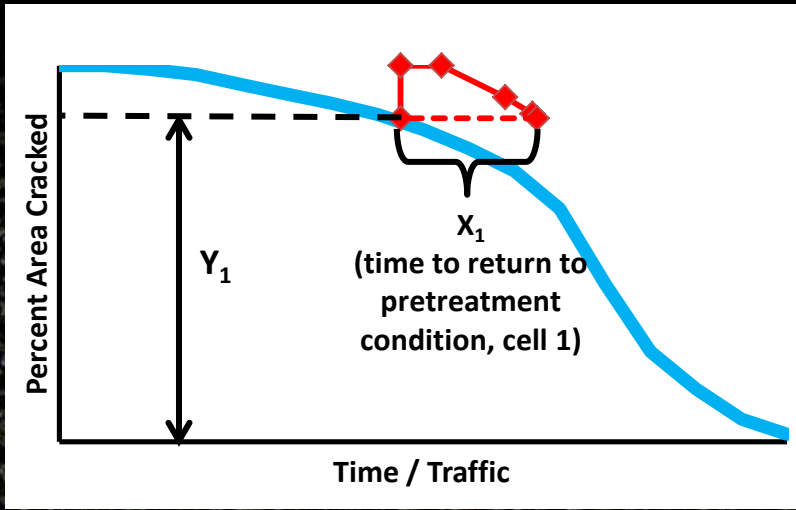
# Development of Curves













# 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



# www.pavetrack.com



## Performance



- Home
- Sponsors
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- Performance

Click here for [the official NCAT web site](#), [Tracks in US](#), or [Tracks Worldwide](#)

Opelika, AL  
Get the 10 day forecast

**61°F**  
Cloudy

Feels Like: 61°F  
Humidity: 81%  
Wind: SE at 8 mph

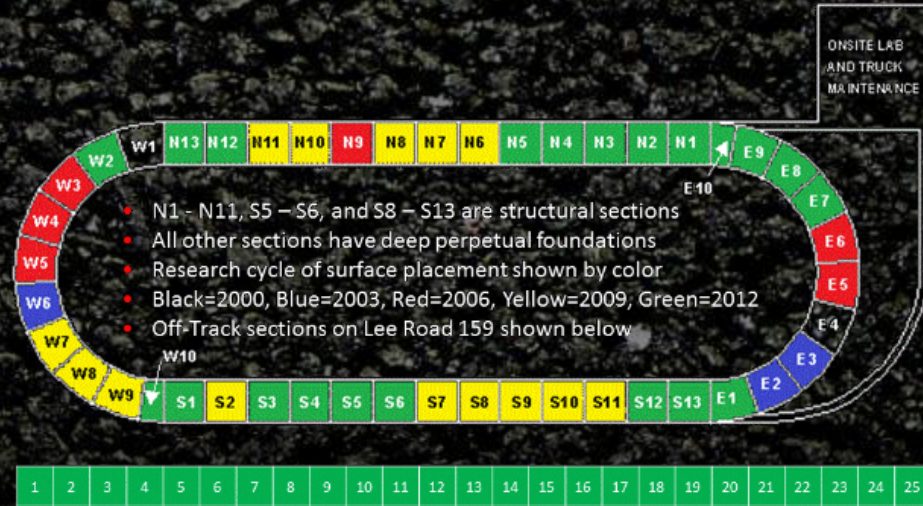
Enter city/zip **GO!**

The Weather Channel  
Hit the Road  
weather.com  
Travel Top 10s  
Weather at 30,000 feet

**HOTLINKS** to [download PAVE reports](#), [review upcoming NCAT training courses](#), [query historical weather data](#), [view current color radar](#) or [preview local forecast](#).

0. ESALs as of 2300 hours on

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.





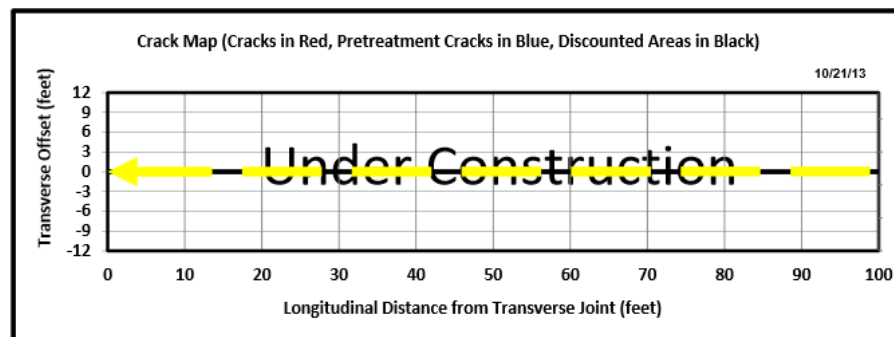
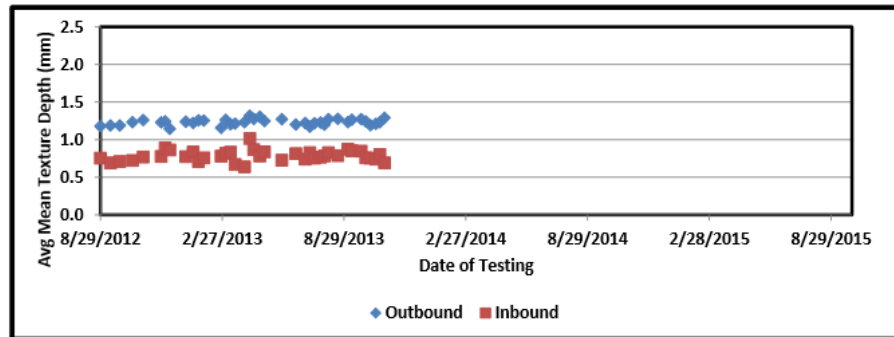
Pavement Preservation Treatment(s): Control with More Cracking

Inbound (Northbound) Lane

Outbound (Southbound) Lane

Crack Sealing Method: N/A  
 1st Treatment Applied: NA  
 2nd Treatment Applied: NA  
 3rd Treatment Applied: NA

Crack Sealing Method: N/A  
 1st Treatment Applied: NA  
 2nd Treatment Applied: NA  
 3rd Treatment Applied: NA



**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](http://www.ncat.us)





# Questions ?



[www.ncat.us](http://www.ncat.us)

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