2012 NCAT Pavement Test Track

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- Research Overview

Content

- Significant Track findings
- Virginia's 2012 test sections
- Thinner pavement designs
- Thinlays for preventive maintenance
- UltraFuse versus NovaBond
- 2015 NCAT Pavement Test Track

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Significant Track Findings

- Mix designs
- Aggregate characteristics
- Binder characteristics
- Structural design (E & M-E)
- Tire-pavement interaction
- Predictive testing

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Virginia's Track Research

- W10, S1, S12, N3, and N4
- "Minimizing Road Noise Using Pavement Type Selection and GTR in Sections W10, S1, and S12 "
- "Overlay Thickness of Conventional Asphalt Mixes on 100 Percent Foamed Recycle Mix in Sections N3 and N4"
- "Full Depth Reclamation versus Conventional Base and Subgrade Construction in Sections S12 and N3"

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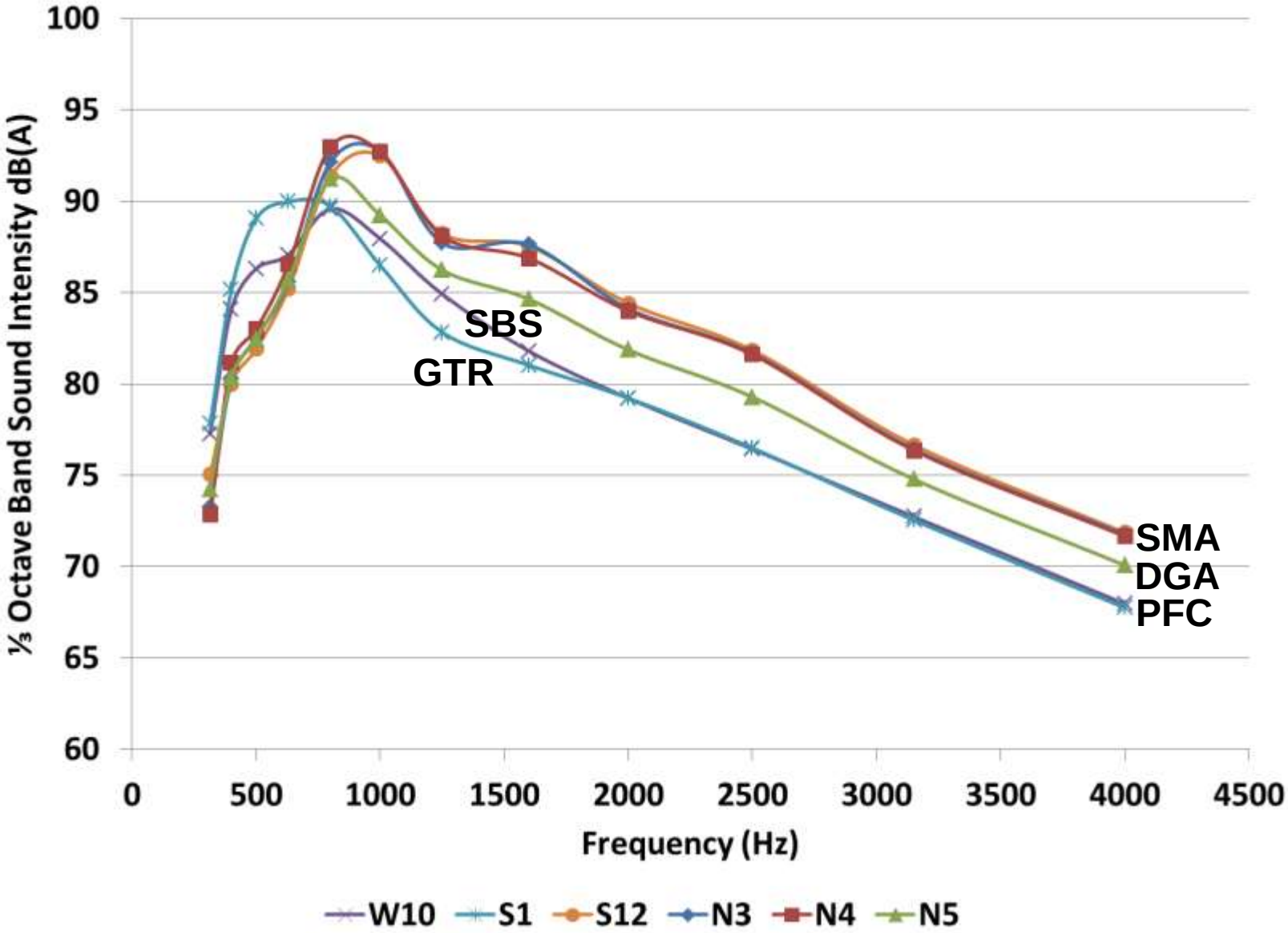
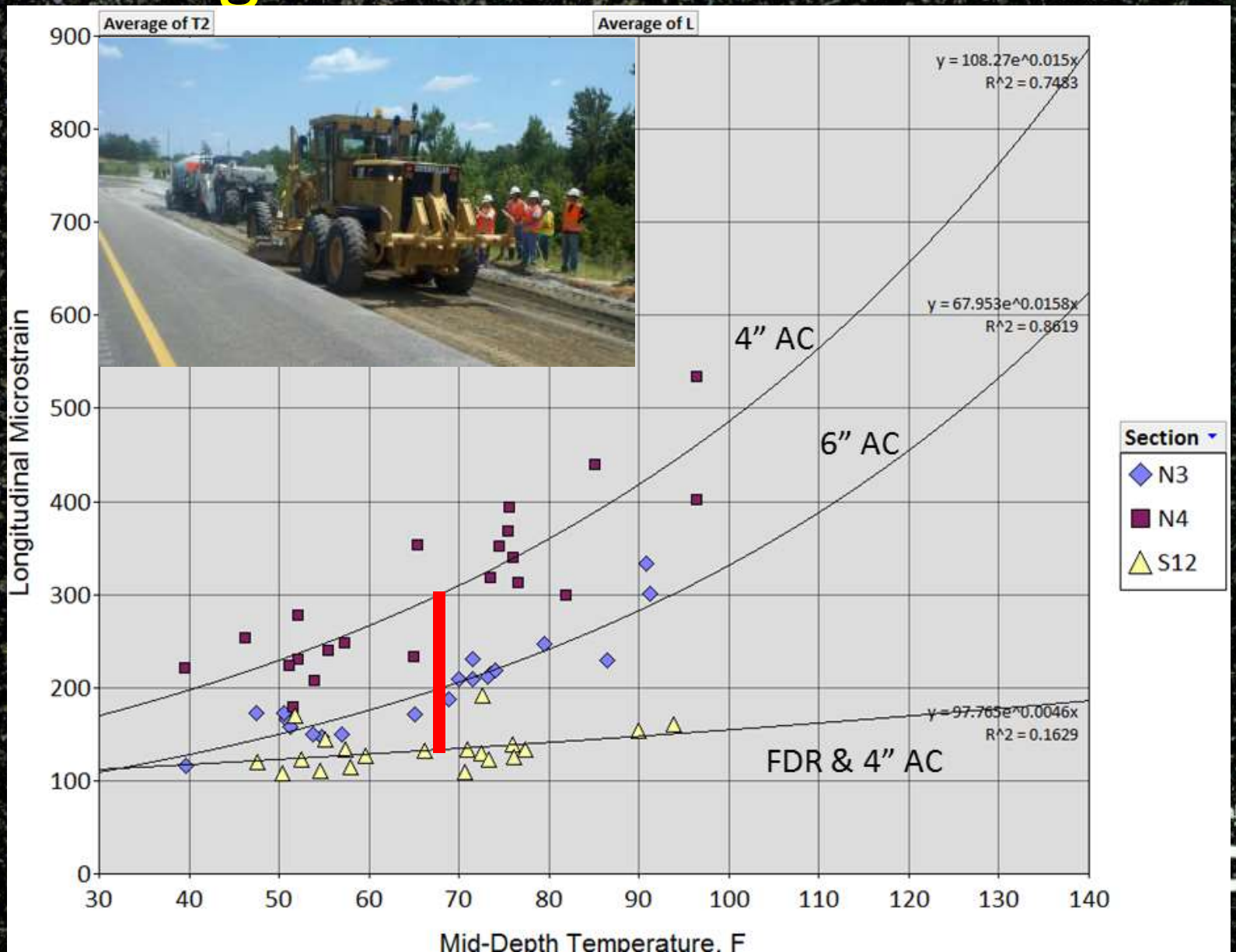
Virginia Noise Research



Virginia Structural Research



Thinner Pavements

- Stiff subgrade & dense crushed granite base
  - 9 inch perpetual versus 24 inch '93 AASHTO design
- Soft subgrade with shallow lime modification
  - 10 inch failure versus 14 inch proven perpetual
- Highly polymer modified mix (HiPM)
  - 5¾ inch perpetual (?) via high fatigue tolerance
  - 10 inch on soft subgrade mill/inlay perpetual (???)
- Pre-ME AASHTO layer coefficient 0.44 $\Rightarrow$ 0.54
  - ≥ 0.15 for Open Graded Surface Courses

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Pavement Preservation Research

Thinlay Mix Design

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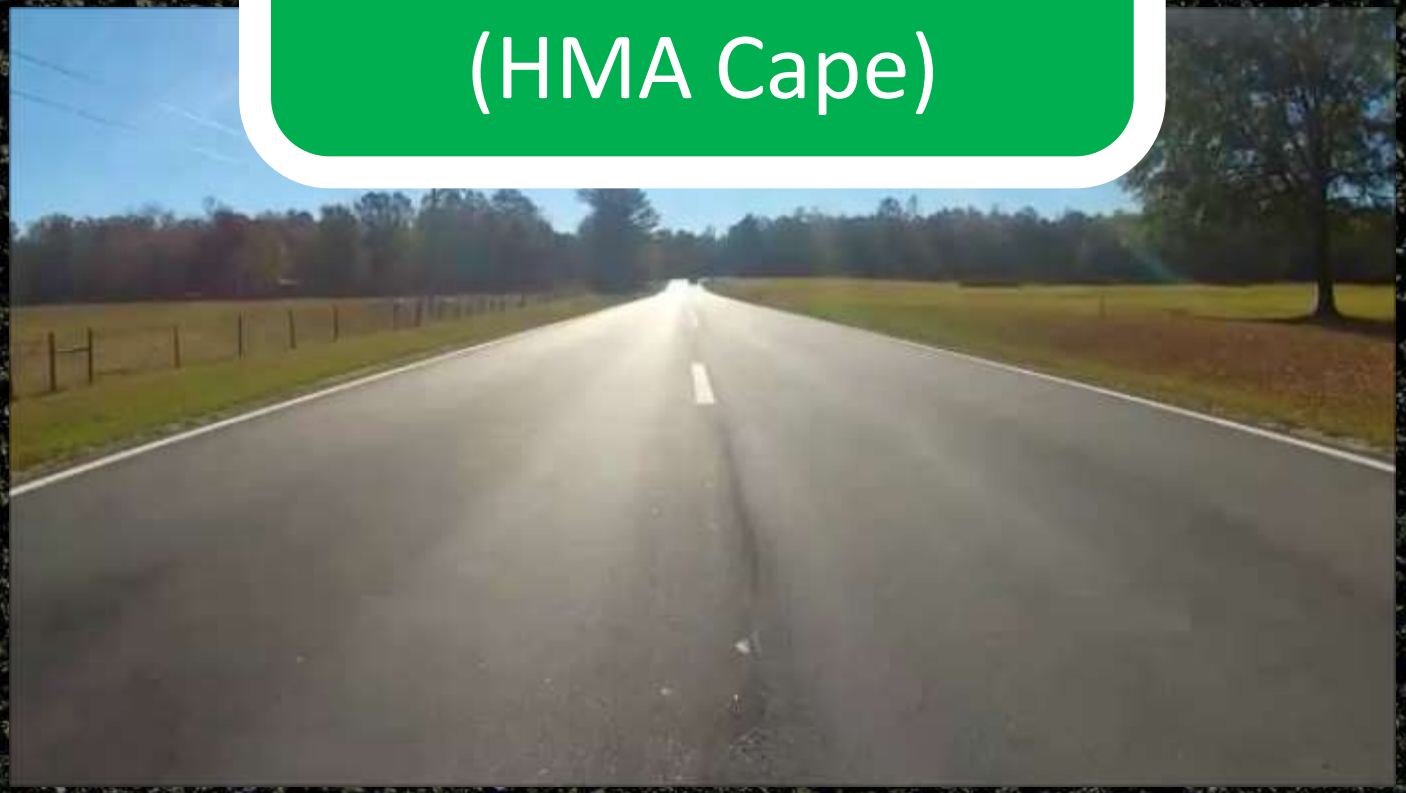
L18 – Thin HMA Overlay on FiberMat (HMA Cape)



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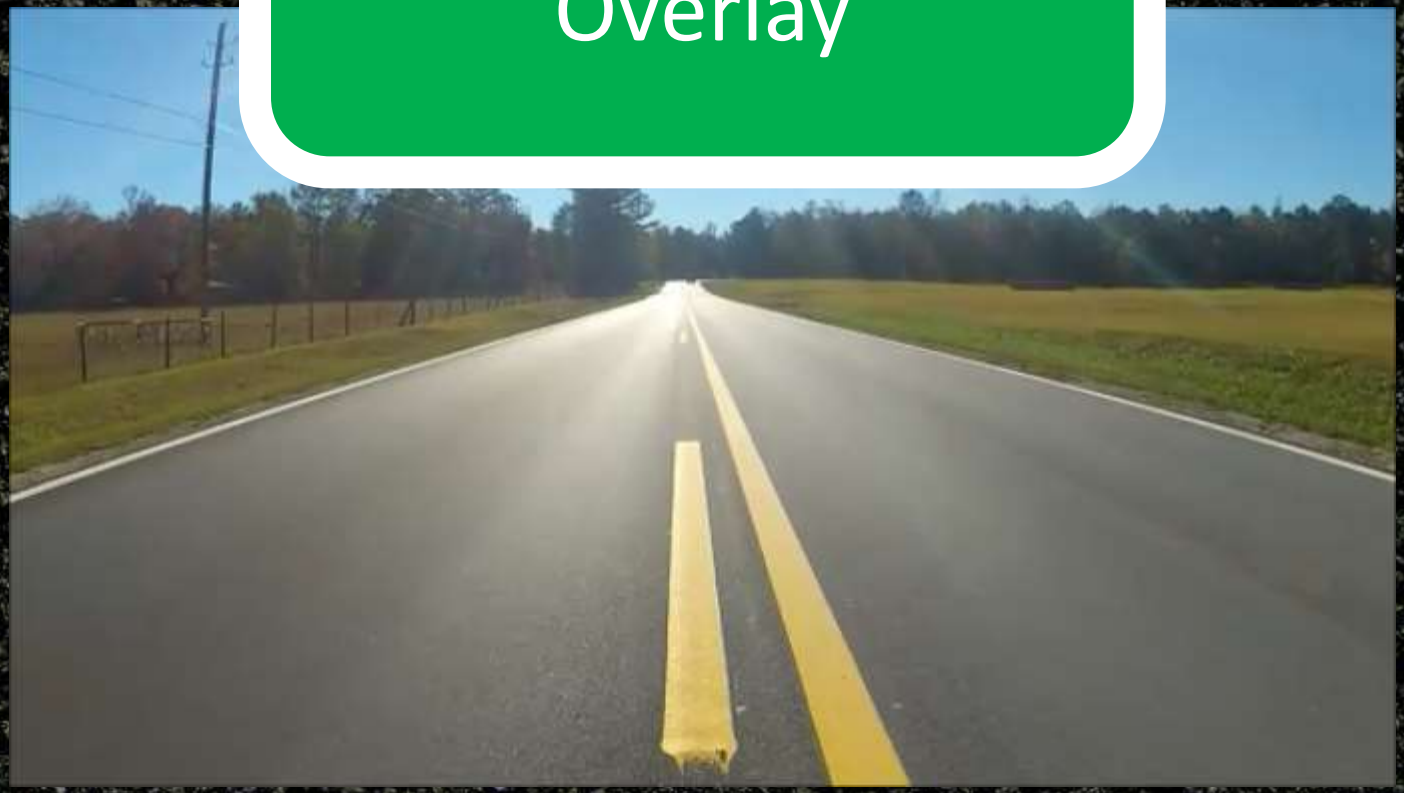
L19 – Thin HMA Overlay



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L20 – Thin HMA Overlay on 100% RAP Mix Base

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L21 – Polymer Thin HMA Overlay

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L22 – Bonded Thin HMA Overlay

L23 – 50% RAP
Thin HMA Overlay

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L24 – 5% RAS
Thin HMA Overlay

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L25 – HiMA
Thin HMA Overlay

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Enhanced Pavement Interlayers

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Enhanced Pavement Interlayers

⇐N1A eTac 0.10/0.06

⇐N1B UltraFuse 0.15/0.15

⇐N2 Trackless 0.05/0.03

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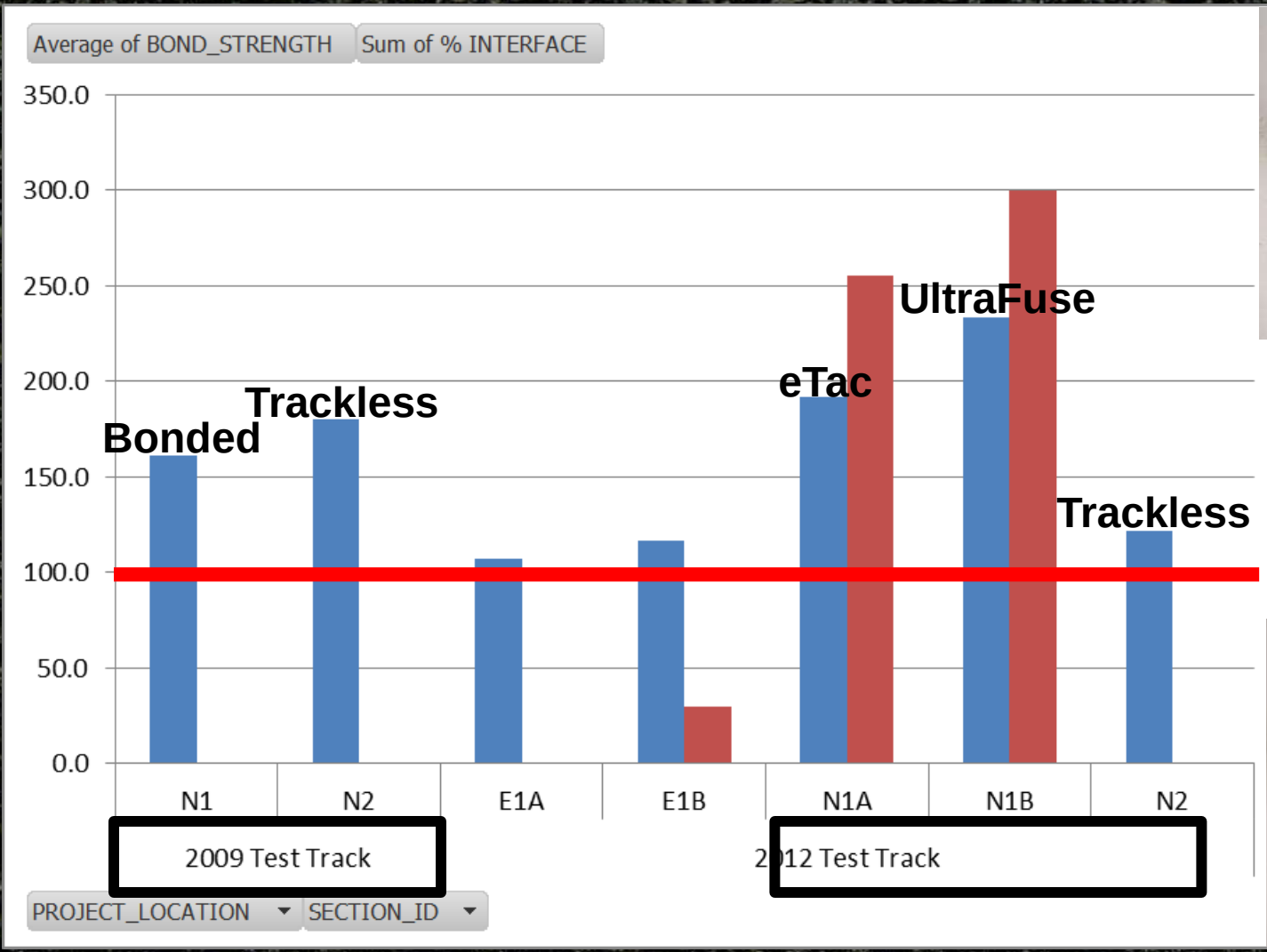
Enhanced Pavement Interlayers



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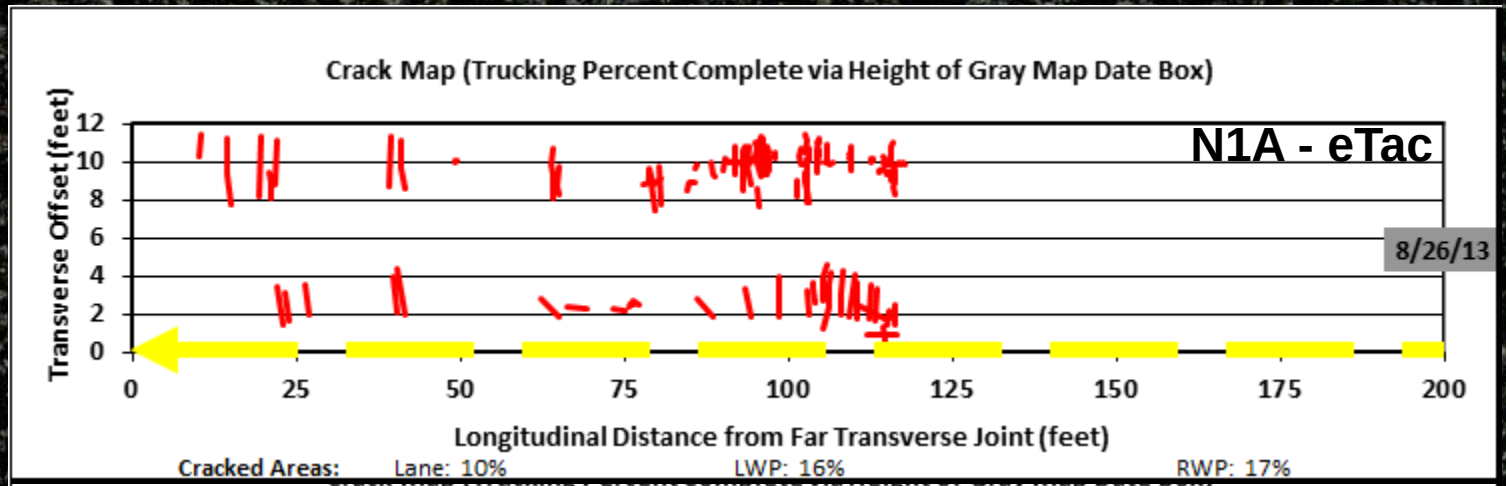
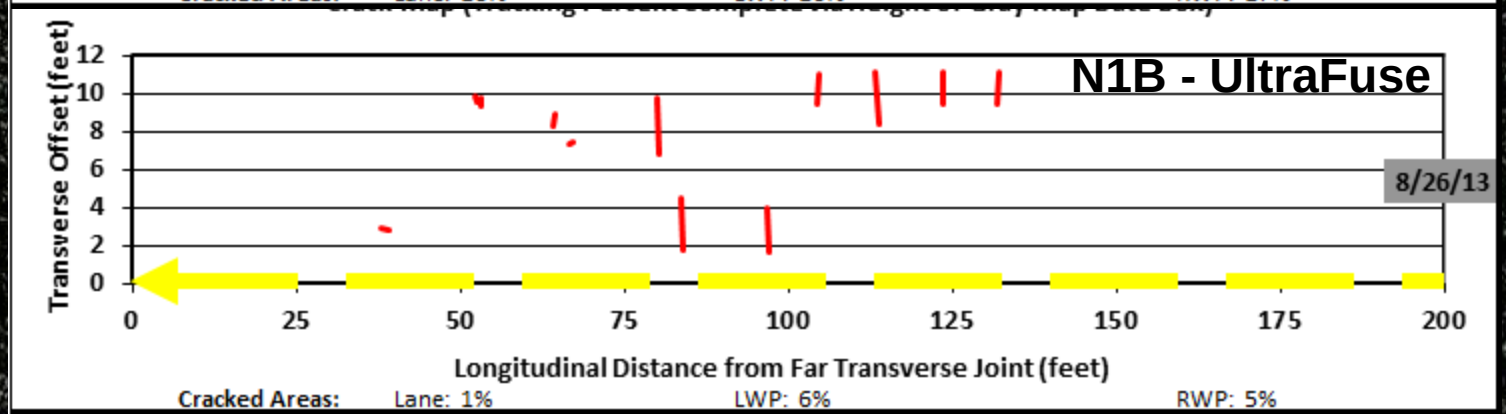
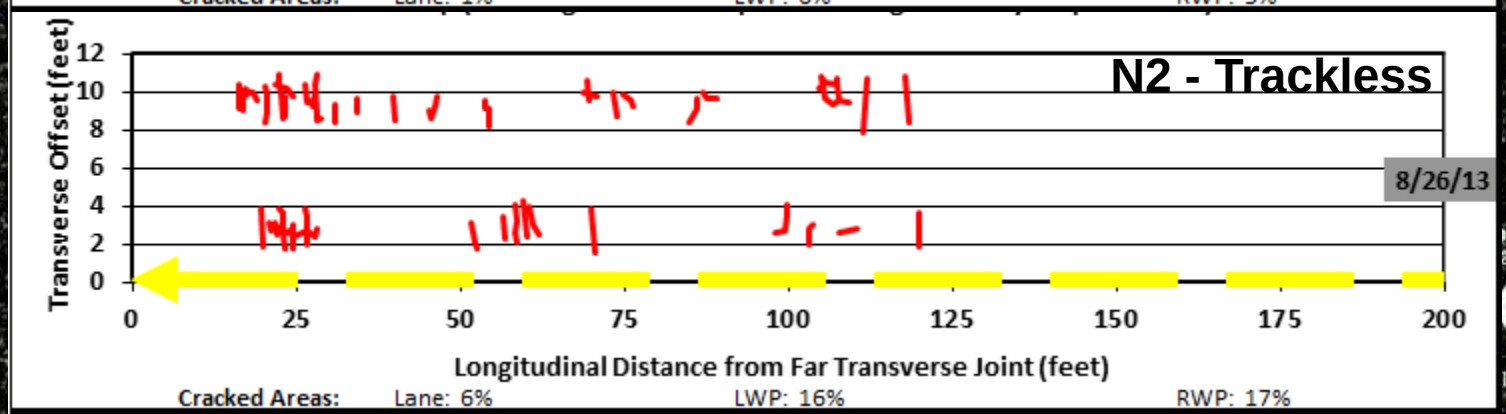
Enhanced Pavement Interlayers







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NCAT Pavement Test Track

Performance

PAVE

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Click here for the official NCAT web site, Tracks in US, or Tracks Worldwide

Performance data for each section will soon be available for viewing 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 2012 performance reports will be a fully integrated and active part of the web presentation.

HOTLINKS to download PAVE reports, review upcoming NCAT training courses, query historical weather data, view current color radar or preview local forecast

1,725,738 ESALs on the Track as of 2300 hours on March 9, 2013 (17% of the 10,000,000 ESAL goal). Rut depths recently averaged 4 mm, while roughness

- Click here for a recent rutting bar graph with ESAL update !
- Click the layout below for information specific to each section

- 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
- Black=2000, Blue=2003, Red=2006, Yellow=2009, Green=2012
- Off-Track test sections on Lee Road 159 shown below

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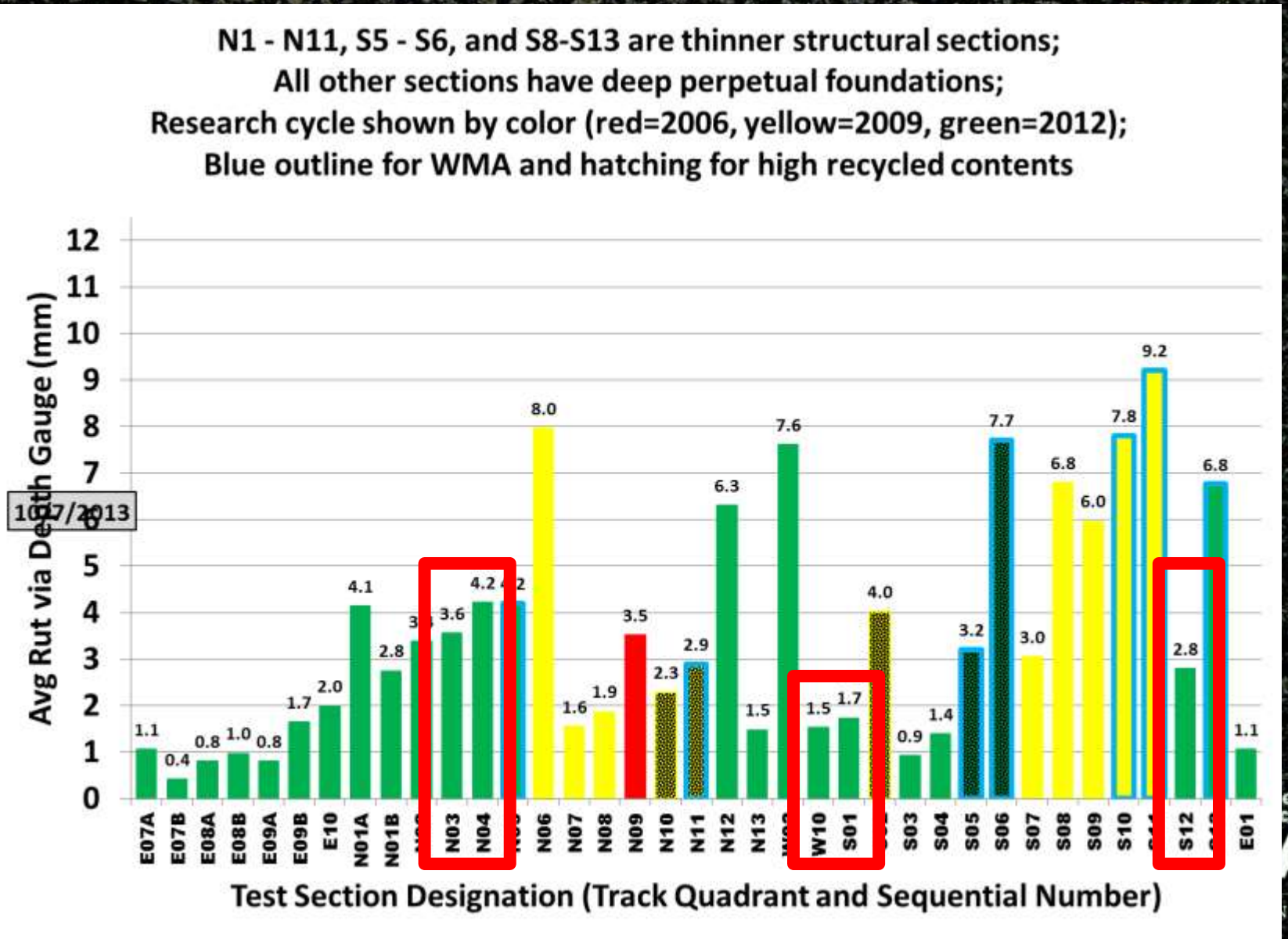
Enhanced Pavement Interlayers



End-of-Cycle Track Conference

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

Pavement Test Track Conference

February, 2015

The Hotel at Auburn University
and Dixon Conference Center

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2015 Research Cycle

- Traffic continuation
- Mill/Inlay
- Structural
- Pavement preservation

- True innovation
- Product/process evaluations
- Cracking test study

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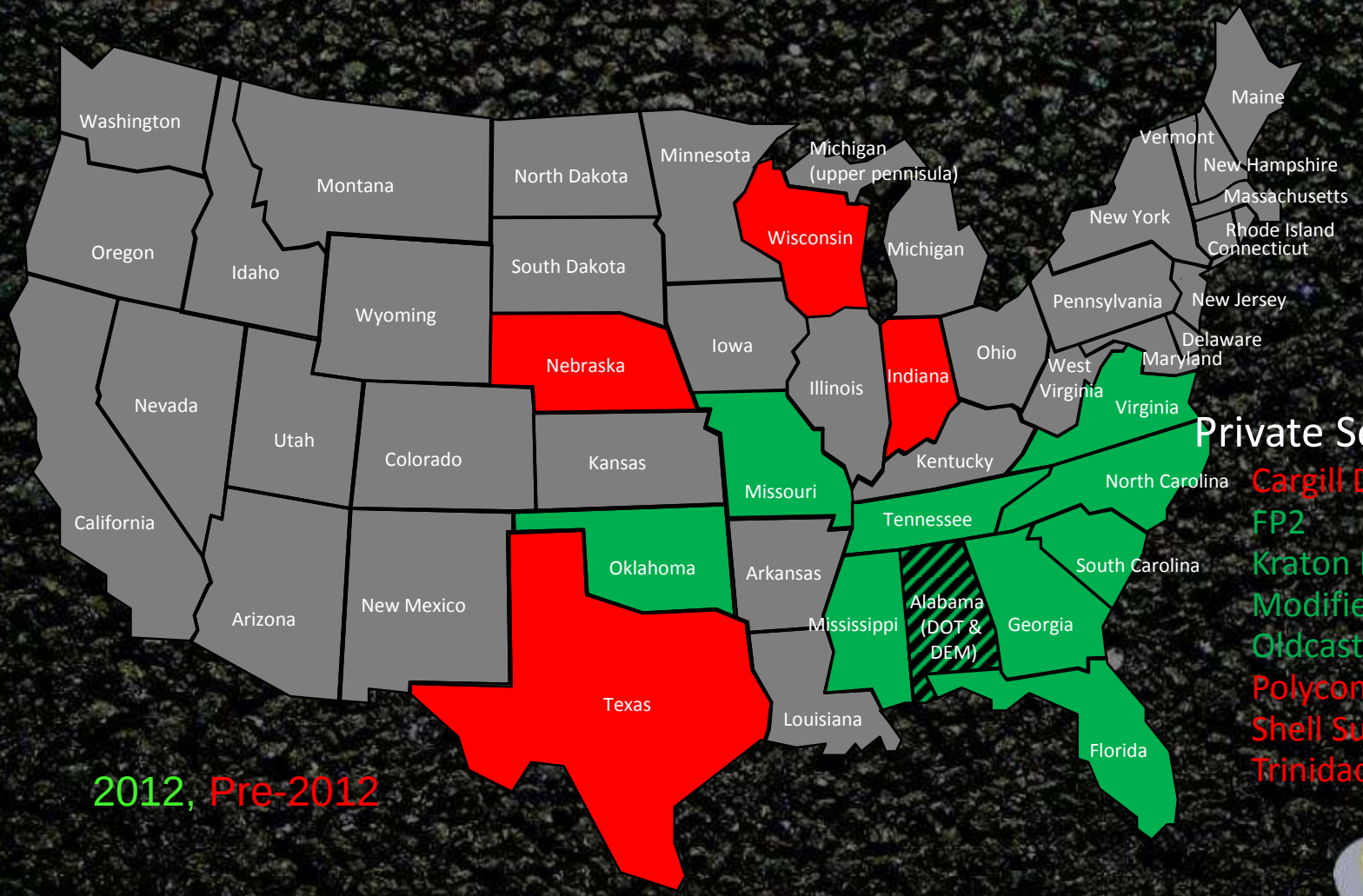
Track Research Sponsors



2012, Pre-2012

FHWA

Private Sector Sponsors

- Cargill Deicing Technology
- FP2
- Kraton Polymers
- Modified Asphalt Solutions
- Oldcastle Materials
- Polycon Manufacturing
- Shell Sulfur Solutions
- Trinidad Lake Asphalt

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Questions ?

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