NCAT Pavement Test Track

- Sustainable Technologies in Thin Overlays
Background

- Cost of mix materials continues to increase
- “Screenings” stockpiles are accumulating
- Smaller NMAS mixes used for light traffic

- Can “screenings” mixes support heavier traffic?
- Can “screenings” mix sustainability be improved?
2003 NCAT Pavement Test Track

- N4 – 9.5 mm NMA Grv/Lms/Sand
- W6 – 4.75 mm NMA Lms/Grv/Sand
- S5 – 12.5 mm NMA Grv/Lms/Sand
4.75 NMAS Mix in West Curve
Roughness

Traffic Accumulation (ESALs)

International Roughness Index (m/km)
Raveling

Mean Texture Depth (mm) vs Traffic Accumulation (ESALs)

- $y = 1E^{-08}x + 0.1908$
  - $R^2 = 0.8871$

- $y = 2E^{-08}x + 0.3174$
  - $R^2 = 0.8095$

- $y = 7E^{-09}x + 0.3731$
  - $R^2 = 0.6398$

Traffic Accumulation (ESALs)

- 4.75
- 9.5
- 12.5
9.5 mm NMAS Cracking
Thin-Lift Asphalt Pavement
Preservation Sections on Lee Road 159
Laboratory Rut Depths

![Bar chart showing rut depth at 20,000 passes for different treatments.](chart.png)

- **PG 67-22 Control**: High rut depth.
- **50% RAP** and **High Polymer**: Moderate rut depth.
- **5% RAS** and **Bonded Overlay**: Low rut depth.
- **PG 76-22 Control**: Moderate rut depth.

- **Note**: Only stripping in PG 67-22 Control with no failing tests. Average SIP 18,067 passes.
Rut Depths on Lee Road 159

Avg Rut Depth (mm)

Cape | Neat | Base | SBS | Bonded | RAP | RAS | HiMA

Test Section 18 19 20 21 22 23 24 25

Inbound  Outbound
Friction on Lee Road 159

Test Section Number on Lee Road 159

- Inbound
- Outbound

Wet Ribbed Friction in Each Section / Control Section Avg

1 to 25
Macrotexture Concerns
Conclusions & Recommendations

• Track Performance comparable to both 9.5 & 12.5
• Durability of 4.75 NMAS actually better than 9.5
• Passed ultimate torture test in winter 2013
• High volume road applications are possible
• Sustainability improved with neat AC, RAP, RAS
• Good thin overlay performance on Lee Road 159...
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

ESALs as of 2300 hours on
2015 Pavement Test Track Conference

March 3-5, 2015
The Hotel at Auburn University and Dixon Conference Center
Auburn, Alabama

- WMA & High RAP/RAS/GTR Mixes
- Optimized Structural Design
- Pavement Preservation
- Implementation

Official registration information will soon be available at www.ncat.us
Questions?

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