2015 NCAT/MnROAD Partnership
Track Research Sponsors

Private Sector Sponsors
- Cargill Deicing Technology
- FP2
- Kraton Polymers
- Modified Asphalt Solutions
- Oldcastle Materials
- Polycon Manufacturing
- Seneca Petroleum
- Shell Sulfur Solutions
- Trinidad Lake Asphalt

Pre-2012; 2012
2012 Track Research Sponsors

FHWA

Private Sector Sponsors
FP2
Kraton Polymers
Seneca Petroleum

(upper peninsula)
Content

- Partnership objective
- Focus areas
- Expected benefits
- Long-term vision.
Partnership Objective

To facilitate high value pavement research that addresses national needs using full-scale pavement testing facilities in both warm and cold climates on flexible, rigid, and composite pavement structures.
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Focus Areas

- Quantify benefits of pavement preservation
- Mix cracking test for all climates and materials.
Pavement Preservation

Graph showing the comparison of projected untreated and treated pavement preservation over time and traffic.

- Percent Area Cracked
- Time / Traffic

Lines indicate the decrease in percent area cracked with treated and untreated pavement, highlighting the benefits of treatment.
Cracking Performance

![Cracking Performance Graph](image-url)
Cracking Performance

![Graph showing cracking performance over time]

- **Micro Surface**
- **Micro Surface with Crack Sealing**
- **Double Layer Micro Surface**
- **Cape Seal**
- **Scrub Cape Seal**
- **FiberMat Cape Seal**

**Axes:**
- Y-axis: Treated Cracking / Untreated Cracking (%)
- X-axis: Time (Aug-12 to Oct-14)

**Legend:**
- Blue diamonds: Micro Surface
- Green triangles with cross: Micro Surface with Crack Sealing
- Red squares: Double Layer Micro Surface
- Black crosses: Cape Seal
- Blue crosses: Scrub Cape Seal
- Orange circles: FiberMat Cape Seal
Cracking Performance

Treated Cracking / Untreated Cracking (%)

Aug-12  Dec-12  Apr-13  Sep-13  Jan-14  May-14  Oct-14

54% Aged FRAP Binder Thinlay  19% Aged PCRAS Binder Thinlay  Thinlay
Thinlay Cape Seal  Polymer Thinlay  HiMA Thinlay
Rutting Performance

![Graph showing rutting performance with data for Pre Treatment, Post Treatment, and Post Traffic.]
Roughness Performance

Date

International Roughness Index (inches/mile)

Aug-12 Nov-12 Feb-13 May-13 Sep-13 Dec-13 Mar-14 Jul-14 Oct-14

Average Control
Chip Seal
Micro Surface with Crack Sealing
Thinlay
2015 Preservation Group (PG15)

MnROAD Cells (Past and Future) + Minnesota Offsite Sections (High and Low Volume)

NCAT Sections
+ Alabama Offsite Sections
+ Lee Road 159 (Low Volume)
+ US-280 (High Volume)
2015 Preservation Group (PG15)

- US-280 3 miles to east of Track
- 17,000 ADT, ≈9 year old surface
- Westbound outside lane
- ≥ MP 128.0 to MP 132.6

NCAT Track

Longitudinal  Transverse  Alligator  Total
2015 Cracking Group (CG)

- Top-down, reflection, low temperature
- Flexible, rigid, composite pavement structures
- Design approval and construction quality
- All mixes, regardless of RAP, RAS, GTR, etc.
2015 Cracking Group (CG)
2015 Cracking Group (CG)

- NCAT surface focus ("top-down" cracking)
- Mixes with a range of cracking susceptibilities
- 6 inch thickness design to yield rapid results (GG)
- Plant run mix subjected to battery of lab tests
- Same mix in base/binder layers reduces lab costs.
Benefits of Partnership

- Leverage strengths to optimize outcomes
  - Construction, data collection/management, etc.
- Relevance for both hot and cold climates
- Flexible, rigid, and composite pavements
- Improved implementation outcomes for both.
Log-Term Vision

- Launch partnership with 2015 NCAT pooled fund
- Startup costs recovered in 3-year project cycle
- Rapid implementation of cracking test results
- Long-term preservation performance expectation
- MnDOT hosted pooled fund beyond year 4
- Permanent relationship between facilities.
2012 Track Research Sponsors

FHWA
FP²
Kraton Polymers
Seneca Petroleum

National Center for Asphalt Technology at Auburn University
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.
End-of-Cycle Track Conference

- High RAP/RAS balanced mix designs
- Nationwide pavement preservation
- Preventing reflective distresses
- Optimized structural design
- Implementation

Pavement Test Track Conference
March 6-8, 2018

The Hotel at Auburn University
and Dixon Conference Center

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