Latest Developments in Pavement Preservation

James S. Moulthrop, P.E.
Executive Director
FP² Inc.

8th Annual Western Canada Pavement Workshop
February 4, 2015
Calgary, Alberta
Presentation Outline

- What is FP² Inc.?
  - Supporters
- NCAT 2012 PG experiment
- NCAT/MN Road collaboration
- Current research
- Emerging products/processes
- Emulsion Task Force
- Research needs
- Upcoming meetings
- Q/A
What is FP² Inc.

• FP² Inc.?
  ➢ An Industry supported trade association

• Purpose of FP² Inc?
  ➢ Promoting the importance of protecting and preserving the huge investment in our nation’s pavement infrastructure
Supporters

- Who supports FP\(^2\) Inc?
  - Associations
  - Contractors
  - Material Suppliers
  - Chemical suppliers
  - Equipment manufacturers
  - Consultants
What do we do?

• Purpose
  – Advocacy: educate public officials at all levels.
  – Promotion: sponsor key events, publish the Pavement Preservation Journal, distribute educational materials
  – Research: promote the U.S. Federal Highway Administration System (FHWA) Preservation Roadmap; serve on several Transportation Research Board (TRB) committees
NCAT 2012 Research Cycle

• 10,000,000 ESALS applied to the track by the end of October 2014
• Several preservation treatments on the track (fog seal, LWT aggregate chip seal, micro surfacing)
• 23 sections placed on Lee County Road 159 as part of the preservation group study
NCAT Pavement Test Track

Preservation Research Update
Preliminary Findings from 2012

- Crack sealing appears to be beneficial in all cases
- Differences between route/seal and blow/band
- Scrub seal appears to exhibit crack seal benefit
- Preservation treatments reduce subgrade moisture, but...
- Durability of micro surface in accelerated traffic
- Objective life extending benefit curves developing (!)
- Interim results presented at 2015 Track Conference March 3-5, 2015.
Preliminary Findings from 2012

Change in Gravimetric Moisture Relative to Control Sections (%)

Date Under Traffic from Quarry and Asphalt Plant

- Crack Seal Only
- Chip Seal
- Crack Seal then Chip Seal
- Scrub Seal
NCAT 2015 Preservation Group study

• Continue monitoring ‘12 sections (Track & 159)
• Capture life extending benefit curve data…
• Build new sections on higher ADT roadway
• Partnership with MN ROAD for nationwide scope.
Higher ADT Off-Track Preservation

- 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
- Tenth mile sections
- Repeat Lee Road 159 (±)
- Add CCPR, CIR, HIR, etc.
- High ABR thin overlays
- Connection to Cracking Group.
NCAT/MN Road Collaboration

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.
National Focus on Pavement Preservation

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

NCAT Sections + Lee Road 159 (Low Volume) + US-280 (High Volume)

Possible Site 57th Street
Sherburne County Landfill Roadway
NCAT/MN Road

- Partnership to Advance Research and Implementation
- National Effort to Validate Pavement Performance
- Knowledgeable Technical Staff
- Established Test Tracks
Current Research in the U.S.

- NCHRP 14-33, “Pavement Performance Measures that Consider the Contributions of Preservation Treatments”
- FHWA LTPP “Experiment Design for Pavement Preservation Treatments”
- On-Going NCAT Study on Lee Road 159
Emerging Products/Processes

- Flexible Micro surfacing
  - Fiber modified
  - Polymer modified
  - Applications in MN, PA, MA +
- Multiple Courses
  - Scrub seal with slurry or micro surfacing
  - Chip seal with AR slurry
  - Rejuvenating fog seal with AR slurry
Slurry over Scrub Seal

7+ years old
Emulsion Task Force

• Formed under the PP ETG to develop procedures in AASHTO format for preservation treatments and materials
  ➢ Emulsions
    ✓ Residue recovery
    ✓ Grading using PG system
  ➢ Specifications for chip seals, microsurfacing, slurry seals, fog seals
  ➢ Material requirements
  ➢ Best Practices
Research Needs

- Tests and protocols for slurry and micro surfacing design
- Performance tests for pavement preservation treatments
Upcoming Meetings of Interest

  Paris France Convention Center
  Sponsored by IBEF, AEMA, ARRA, ISSA, FP² Inc.
- 2nd National Pavement Preservation Conference, October 11-14, 2016
  Nashville, TN
Comments!!

Questions?
James S. Moulthrop, P.E. (PA, AZ)
Executive Director
FP², Inc.
8100 West Court
Austin, TX 78759

(512) 970-8865
(866) 862-4587
jimmoulthrop@gmail.com