NCAT Preservation Findings
Adriana Vargas, Ph.D.

Outline
- Introduction
- PG Study overview
- Lee Road 159 update
- US 280 update

Life Cycle of a Pavement

PG Study
- GOAL: Develop independent life-extending benefit curves for a range of pavement preservation treatments, under varying traffic levels and climates

Low Traffic Volume
- Low ADT roadway
- Very high % trucks
- 14-year old 5½" pavement
- Diverse pavement condition
- Load data provided by quarry and asphalt plant

Higher ADT Preservation on US-280
- US-280 3 miles to east of Track
- 17,000 ADT, >9 year old surface
- Westbound truck lane (≈5k ADT)
- ± MP 125.0 to MP 132.6
- Tenth mile sections
- Repeat Lee Road 159 (F)
- Add CCRF, and CIRF
- Optimized WLT thin overlays
Treatments

- Control Sections
- Surface Treatments
  - Crack Sealing
  - Fog Seal
  - Chip Seals
  - Scrub Seals
  - Microsurfacing
  - Combinations (Cape Seals)

- Cold Recycling + 1” overlay
- Cold-in-place (CIR)
- Cold Central Plant Recycle (CCPR)
- Thin Overlays (3/4”)
  - Dense Graded (4.75 mm)
  - OGFC
  - UTBWC
  - Combinations

Monitoring Plan

- Parameter
- US-280
- Weekly
- Roughness
- Rutting
- Weekly
- Macrotexture
- Crack Mapping
- Weekly
- FWD
- Surface Friction
- Monthly
- Permeability
- Quarterly
- Noise
- Quarterly

CR-159 Low Traffic Preservation

- Test Sections

Where are we now?

- Sections are now 4 ½ years old
- Trends – Cracking more noticeable
  - Percentage of cracking in treated sections vs. cracking if sections were untreated (projection)
  - Subsections – allow studying effect of initial condition

Low Traffic Chip Seals to Date
Chip Seal

Chip Seal + Crack Seal

Low Traffic Micro Surfacing to Date

% of pavement with crack sealing

Low Traffic Thinlays to Date

% of pavement with cracked thinlays

Observations from Lee Road 159

- Crack sealing
  - Cost-effective
  - Significantly reduces cracks as standalone or in combination
- Multi-layer, cape seals
  - Improved life-extending benefit
- Thinlays
  - More cracking in 50% RAP & 5% RAS, but still good performance

US-280 High Traffic Preservation

Where are we now?

- Sections are now 1 ½ years old
- Overall, good performance
  - Some sections are starting to show surface distress
  - Not enough data yet to see trends
Untreated 128.0-128.5

Control sections with high and low levels of:
- Cracking
- Rutting
- IRI
- Texture

No Cracking in Virgin Thinlay 128.5

No Cracking in Virgin Thinlay 128.5

Control sections with high and low levels of:
- Cracking
- Rutting
- IRI
- Texture

Double Micro Cracks, No Pumping 128.6

No New Cracks in Crack Sealing 128.7

Cracking in Fiber Micro 128.8

Minor Cracks in HiMA Micro 128.9

No New Cracks in Crack Sealing 128.7
Rejuvenating Fog Seal
Cracking in Fog Seal
Chip Seal with Crack Sealing
Scrub Seal
Chip Seal Cracks, No Pumping
Cracks in Micro Surface
Cracks in Scrub Cape_{130.0}

Cracks in Micro Surface_{130.1}

Cracks, Healing FiberMat Chip Seal_{130.4}

Bleeding in Triple Chip Seal_{130.5}

No Cracks in OGFC_{130.9-131.4} or UTB_{132.4}

Minor Cracks in Thinlay Scrub Cape_{131.4}
Observations from US 280

- In general, good performance
- Some cracking, minor
- Bleeding in multi-layer chip seals
  - No friction problems
- More data needed to generate trends