Thin Asphalt Overlays
Topics

• Project Selection
• Materials Selection and Mix Design
• Construction and Quality Control
• Performance
• Conclusions
Project Selection

Avoid Projects Needing Structural Rehabilitation!! Not a cure all!
Why Thin Asphalt Overlays?

- Shift from new construction to renewal and preservation
- Functional improvements for safety and smoothness needed more than structural improvements
- Perpetual Pavement fit
- Material improvements
  - Better Binders and Mix design
  - SMA, OGFC and Dense-Graded options
  - Warm Mix
  - Reclaimed Asphalt Pavement (RAP)
How do we know if Thinlay’s are a fit?

- Visual Survey
- Structural Assessment
  - No structural improvement required
- Drainage Evaluation
  - What changes are needed
- Functional Evaluation
  - Ride quality
  - Skid resistance
- Discussion with Maintenance Personnel
Types of Distress

- Raveling
- Longitudinal Cracking (not in wheel path)
- Longitudinal Cracking (in wheel path)
- Transverse Cracking
- Alligator Cracking
- Rutting

Hwy 80 Grant County, Wisconsin
Materials Selection - Aggregate

• Thin overlays need small NMAS
  – Thin overlays ≤ 1.5 inches thick
  – Aggregate size between 4.75mm and 9.5mm NMAS (5 & 6)
  – Ratio of lift thickness to NMAS range 3:1 to 5:1

• Mix Designs (Typical)
  – 3/8” Chip
  – Washed Man. Sand
  – Natural Sand
  – RAP and/or RAS
  – 5.8% - 6.6% Total AC
  – Fibers (Cuba City 2016)
Construction – Paving Surface Preparation

• Milling
  – Remove defects
  – Roughen surface
  – Improve smoothness
  – Provide RAP

• Patching – required for localized, deep distresses

• Tack
  – Emulsion
  – Be sure to attain even coverage
Construction – Paving and Compacting

• Paving
  – Best to move continuously
  – MTV or windrow can help
  – Cooling can be an issue
    • 1” cools 2X faster than 1.5”
  – Warm mix

• Compaction
  – Seal voids & increase stability
  – Low permeability
  – No vibratory on < 1”
Thinlay Mix Project

Durable designed 4.75-9.5 MM Mix placed ¾” - 1½”, mainly used as a maintenance treatment.

- Polymer PG Grade
- Project Selection KEY!
- 10-12 year life
Questions?