PAVEMENT PRESERVATION

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Partnering for a Better Future

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Thanks to

- Vince Allison – Staff Pavement Engineer
- Travis Walbeck, PE – State Pavement Engineer for Division of Highways
- Technical experts in Pavement Preservation for the Division of Highways
FHWA Pavement Preservation

Pavement Preservation is

“...a long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extend pavement life, improve safety and meet motorist expectations."

Source: FHWA Pavement Preservation Expert Task Group
Pavement Preservation
FHWA Every Day Counts
Innovation Area

EDC is a State-based model that identifies and rapidly deploys proven, yet underutilized innovations to shorten the project delivery process, enhance roadway safety, reduce traffic congestion, and improve environmental sustainability.
Definitions

- preserve
  - *verb*
    - maintain (something) in its original or existing state.
Why Pavement Preservation?

- Preserved the structure
- Touch more miles
- Increase pavement life
- Save $$$ in the long run
What leads to distresses?

- **Design**
  - Structure adequate for actual traffic
  - Drainage
  - Subgrade

- **Construction**
  - Density
  - Bonding

- **Maintenance**

- **Load Factors**
  - Trucks

- **Environmental Factors**
  - Freeze/Thaw
  - Oxidation. Asphalt “dries up”.
Traditional threshold for selecting projects

Worse First
Point where rapid deterioration starts
Do something!
Reconstruction Needed
One WVDOH District preserved 27 miles of road in one year with $1.6 million
How do we know what the condition is?
State agencies have
  - Pavement Management Systems
Rating System

- Where do the numbers come from?
  - Pavement Surface Rating (PSR)

In WV we supplement this with manual surveys
Asphalt Pavement Distress

- Transverse Cracking
- Edge Cracking
- Alligator Cracking – Fatigue
- Block Cracking
- Longitudinal Cracking
- Longitudinal Joint Deterioration
- Raveling
- Patching
- Rutting
- Base Failure
- Oxidation
- Reflective Cracking
- Micro Cracking
- Tearing
Pavement Distresses
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Pavement Distresses
Structural vs Environmental Distresses

- Environmental Distresses can be mitigated by preservation treatments

- Structural distresses are not repaired by preservation treatments

However!
  - Structural distresses that affect a limited area can be repaired
  - Then a preservation treatment can be applied.
PRESERVATION
Pavement Preservation

Apply treatment while the pavement is structurally sound
Pavement Preservation is "...a long-term strategy"
Current Asphalt Preservation Options

- Fog Seal
- Crack Sealing
- Chip Seal
- Micro Surfacing
- Cape Seal
- SAMI Seal
- Interlayers
- Scrub Seal
- Shoulder Sealing
Preservation

“The **RIGHT** Treatment, on the **RIGHT** Surface, at the **RIGHT** Time”

Larry Galehouse, Director
National Center for Pavement Preservation
Michigan State University
Preservation Treatments

- Crack Sealing
Preservation Treatments

- Too much crack seal
Preservation Treatments

- Mastic One
  - Crack Sealant with Aggregate
Preservation Treatments

- Fog Seal
Preservation Treatments

- Surface Treatment
  - Chip Seal / Tar and Chip
Preservation Treatments

- MicroSurfacing
Preservation Treatments

- Shoulder Treatment
  - Asphalt Emulsion Mineral Bond
Preservation Treatments

3 ft MicroSurfacing
Preservation Treatments

- Cape Seal

Surface microsurfacing or hot mix asphalt

http://www.co.saint-marys.md.us/dpw/Modifiedtreatment.asp
Preservation Treatments

- Ultra Thin Overlay
  - Sand mix (W3 or 4.75mm)
Preservation Treatments

- High Performance Thin Overlay (HPTO)
  - Sand Mix
  - PG 76–22
  - Non-Tracking Tack
  - Materials Transfer
Preservation Treatments

- Scrub Seal
1. Best Fit?

- Oxidized
- Low severity mat cracks
- Minor ruts
2. Best Fit?

- 3–4 years old
- Oxidizing
- Center raveling/splitting
  - Likely poor construction practices
3. Best Fit?
4. Best Fit?

- Oxidized
- Weathered
- Only a few slight cracks
5. Best Fit?

- Severely cracked up
- Years of patching
- Full depth asphalt
Thank you!