VDOT'S PREVENTIVE MAINTENANCE
TECHNIQUES & EXPECTATIONS

Todd Rorrer
Regional Field Engineer
CO Asphalt Programs

2017 Asphalt Regional Seminars
• Thin Hot Mix Asphalt Concrete Overlay (THMACO)
• Surface Treatments/ Seal Coats
• Slurry Surfacing and Micro Surfacing
• Cape Seal (Surface Treatment and Slurry Combined)
• SM-4.75
Thin Hot Mix Asphalt Concrete Overlay
Thin Hot Mix Asphalt Concrete Overlay

Preventative Maintenance Overlay and Bonding Agent for Composite Pavement Rehab

• Requires a specialized spray-bar paver or hot applied polymer modified tack
• Tack application rate is .25 +/- (0.03) Gal/sq yd
• Delivery temperature is 315°F +/- 15°F measured in the paver hopper
• Base Temperature 50°F or higher
• Accepted based on Visual Inspection
• Rejection requires remove and replace
• No Price Adjustments
• New for 2017 PG Binder has been corrected to PG 64V-28
• One year warranty against raveling and delamination
• By Special provisions – Not in Standard Specification at this time
VDOT

THMACO
Laydown and Paver
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THMACO:
Proper mat with proper overspray
THMACO

Potential Issues
Bleed off:
High tack application and overspray can bleed with heavy rains following laydown
Delamination:

Delamination can occur with stuck nozzles on paver

Patching or milling may be appropriate
Raveling and Segregation

Delivery Temperature is critical
Raveling and segregation will occur
Reflective crack and spall, with 2 weeks of traffic

Pavement cracks or joints ¼ inch or more in width shall be cleaned and filled with a sealant material conforming to the Special Provision For Sealing Cracks in Asphalt Concrete Pavements or Hydraulic Cement Concrete Pavement. Quantities and payment will be according to the Special Provision For Sealing Cracks in Asphalt Concrete Pavements or Hydraulic Cement Concrete Pavement.
Generically known as Chip Seals

Cross-section of a one-size seal coat aggregate

Double Seal (2 layers of binder and aggregate)
VDOT Surface Treatments

Seal Treatment:
One Application of liquid asphalt and one application of cover aggregate

Modified Single Seal:
Two applications of liquid asphalt one application of cover and one application of blot fine aggregate

Modified Double Seal:
Three applications of liquid asphalt, two applications of cover and one application of blot fine aggregate
Surface Treatments

- Appropriate uniformity
- No streaks
- Appropriate amount of cover loss with traffic
Proper Surface Texture After Traffic
Surface Treatment

Potential Issues
Delamination:

- Surface preparation
- Emulsion Application Rate
- Ensure aggregate compatibility
Streaking

Emulsion application rate

Calibrate the Distributor

Calibrate the chip spreader

Ensure aggregate compatibility
Distributor Calibration

Emulsion application rate

Spray bar height

Speed

Required by specification to be performed in front of the Engineer per project
Once height is established, verify the application rate with plate test
Required by specification to be performed in front of the Engineer per project
Slurry Seals and Micro Surfacing
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Slurry Seals and Micro Surfacing

- Mixture of emulsified asphalt and fine aggregate

- Placed in thin lifts to protect and seal current riding surface

- Micro Surfacing is a slurry seal using Latex Modified emulsions and additional lab design requirements
Placed in thin lifts to protect and seal current riding surface
Slurry Seals and Micro Surfacing

Delamination:

Poor surface preparation

Gradation and AC content too tight
Combination of a Surface Treatment and Slurry Seal

- Surface treatment is placed first
- Allowed to cure for at two weeks by specification
- Surface cleaned and Slurry applied
Cape Seals

Combination of a Surface Treatment and Slurry Seal

Suburban Secondary in Chesterfield County, VA

Completed Summer of 2016

Current Condition: February 2017
Cape Seals

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Suburban Secondary in Chesterfield County, VA
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SM-4.75
Preventative Maintenance Overlay
Finer Superpave Mix placed at .75 to 1.25 inches

• Used with A, D and E mixes
• Minimum of three breakdown passes
• Density based on roller pattern and control strip, however CS cores are not taken
• Material temperatures are critical, best practices are to work hot to warm in the field

• May be rejected based on visual inspection
• Platform is critical
Last Paragraph of Section VII:

The minimum laydown temperatures:
• for SM-4.75A and SM-4.75D shall not be less than 270° F.
• For SM-4.75E, the minimum laydown temperature shall not be less than 290° F.

VIII. Weather Restrictions
SM-4.75 mixture shall be placed only when the ambient and surface temperature are 50 degree F or above. The Contractor shall employ a Material Transfer Vehicle (MTV) during the placement of SM-4.75 mixtures for the ambient and/or surface temperature between 50-60 degree F.
Smooth uniform surface that protects the underlying pavement
Platform is critical:

Curb and gutter sections need full width milling
Edge Milling, can lead to issues...
Edge Milling, can lead to issues...
It is much better to plane the entire platform....
Patch out weak spots
Patch out weak spots
Watch out for over-runs

Get a feel for quantities