Thin Asphalt Overlays

2017 Roundtables
Gloria Burke
Field Engr., Asphalt Technology Division
Thin Asphalt Overlays

- What are Thin Asphalt Overlays?
- Why use the Thin Overlays?
- When in the pavement life are we using them?
- Where will they be used? (Locations)
Thin Asphalt Overlays.....

are a routine maintenance/pavement preservation tool that can provide good life cycle performance when placed on structurally sound pavements. Extends available funds in order to pave more miles.
Not a good candidate for UTBWC: Deep rutting
Not a good candidate for UTBWC: Severe Cracking
MD’s Current Thin Asphalt Overlay Alternatives:

- Ultra Thin Bonded Wearing Course
- Micro Surfacing
- Chip Seal
- Open-Graded Friction Course
Thin Asphalt Overlay Options:

- Developing a work plan to add to our Thin Overlay toolbox:
  - 1” 9.5mm, PG64E-22, L1, HDFV
  - ¾” – 4.75mm, PG64E-11, L1, HDFV
- Open-Graded Friction Course (OGFC)
- High Performance Thin Overlay (HPTO)
- Ultra-thin Bonded Wearing Course (UTBWC) 5/8” - 3/4”
Benefits of Thin Asphalt Overlays

Long life and low life-cycle cost!

- For roads that have reached their maintenance interval while exhibiting low levels of distress.
- 6 – 12 year life extension

Safety For User

- Minimize traffic delays
- Staged construction
- Smooth surface
- Restore skid resistance
- Lower noise

Structural Advantages

- Maintain grade & slope
- Withstands heavy traffic
- Easy to maintain
Cons of Thin Asphalt Overlays: UTBWC, MicroSurfaceacing, Chip Seals

- Specialized equipment needed
- Low supply of vendors to provide current resurfacing alternatives
- Handwork sometimes needed
- Must be placed at 50° and rising
National Survey Results: Use/Thickness

2014 NCHRP Survey:

Survey results from 47 of 52 US jurisdictions and 8 private companies.

Lift thickness varies by state. Alaska uses 2” as their thin lift; others use ¾”. Maryland: 1” or less.

(Source: NCHRP Synthesis 464, Thin Asphalt Concrete Overlays, 2014)
RESPONSE TO SURVEY QUESTION ON THICKNESS: Thin Asphalt Overlays

<table>
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<tr>
<th>Definition of Thin Overlay (Thickness, in.)</th>
<th>Number of Responses</th>
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<tr>
<td>&gt;2.0</td>
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<tr>
<td>1.5-2.0</td>
<td>7</td>
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<tr>
<td>1.0-1.5</td>
<td>15</td>
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<tr>
<td>0.75-1.5</td>
<td>16</td>
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<tr>
<td>≤1.0</td>
<td>28%</td>
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<tr>
<td>≤0.75</td>
<td>9%</td>
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- 2% for >2.0 in.
- 7% for 1.5-2.0 in.
- 15% for 1.0-1.5 in.
- 16% for 0.75-1.5 in.
- 28% for ≤1.0 in.
- 9% for ≤0.75 in.
Maryland’s Plan for Thin Overlays

- Use for roads that have reached their maintenance interval while exhibiting low levels of distress.

- Currently use Microsurfacing and Ultra-Thin Bonded Wearing Course (UTBWC), with Chip Seal spec being revised.
Maryland Specifications - UTBWC

- **SECTION 500 — ULTRA THIN BONDED WEARING COURSE**
  - DESCRIPTION. Apply a Polymer Modified Emulsion Membrane then overlay immediately with a thin Gap-Graded Stone Matrix Asphalt (GGSMA) mix. The application of these two materials per this Special Provision is referred as an Ultra Thin Bonded Wearing Course.

- **SECTION 900 — ULTRA-THIN BONDED WEARING COURSE**
  - Polymer Modified Emulsion Membrane
  - Gap-Graded Stone Matrix Asphalt (GGSMA) Mixture for UTBWC
Where will we use UTBWC / Microsurfacing?

- District locations, upcoming projects
District One – UTBWC

- MD 16
- MD 331
- MD 575
- MD 14
- Timeframe: Pave in Spring 2017
District Two – UTBWC

- In project selection process. Ad date of May 2017.
- Completed 5 UTBWC in 2016
Comments from Ed Stein and Henry Dierker: Lessons Learned

- UTBWC in D2 worked well. Hope to add 3 – 5 additional years of life.
- Works best on milled surfaces
- Best for use on mainline only: issues with no milling, rumble strips, paver width
- Patch, grind, crack seal, pave UTBWC
- Pavement markings need grinding
- Do not recommend on composite roadways/HMA resurfacing – reflective cracking evident within several months.
District Three - UTBWC

- MD 109
- MD 650
- MD 373
- MD 193

Timeframe: Ad dated TBD.
District Four--UTBWC

- MD 30
- MD 130
- Timeframe: NTP on 6/12/16, pave Spring 2017
District Five - UTBWC

- MD 2, NB/SB, Coster Mill Bridge Rd.

- Time Frame: Ad dates TBD. Single ad projects
District Seven

- Micro Surfacing:
  Two projects in Carroll County
  One project in Frederick County
- Time Frame: NTP July 2017

- UTBWC:
  I-70 WB fr. MD 27 to MD 75 (half UTBWC, half Gap)
  I-70 WB fr. MD 75 to Monocacy River, (half UTBWC, half Gap)
- Time Frame: Ad dates April and December 2017

PAGD working with D7 to develop a budget and list of candidates for UTBWC for FY 19
1999: Ultra Thin Bonded Wearing Course MD 180 Frederick County
District Six--UTBWC

- MD 36
- MD 61

- Time Frame: Advertise in Spring 2017 depending on budget. May expand to Interstate locations.
Good Candidate: Maryland Rt. 36, June 2016

District Six, LaVale, MD        MILLING
Starting up at expansion joint.
After slight hiccup, paving train started.
Making the best of a difficult situation.
Delivery temperature
Night time paving operation
Pavement temperature. Should be 225. Have to consider night time temps were around 60 – 65F
Resulting Pavement Macrotexture – Very consistent
Questions?

Thank you!