Northeast Pavement Preservation Partnership

Warwick, Rhode Island
December 12, 2007
Maine DOT

- Responsible for approximately 8400 centerline miles of roadway
- Approximately 4300 miles are in Pavement Preservation
- Remaining are backlog (unbuilt), Maintenance Surface Treatment
Pavement Preservation Treatments used by MaineDOT

- Crack Seals
- Microsurfacing
- Chip Seals (Rubberized and conventional)
- Hot mix Surface Treatments (3/4” overlays are the workhorse treatment)
Crack Sealing

- Crack Seal – Blow clean and heat crack; fill and overband with rubberized asphalt

- Rout and Seal – Grind out and heat crack; fill with low modulus rubberized asphalt
Crack Sealing
Microsurfacing

A polymer modified asphalt slurry consisting of emulsion, aggregates, and Portland cement. Applied with specialized equipment and is a relatively fast operation.

- Does not require much surface preparation
- Good skid resistance values
- Good for rut filling
- Prone to cold weather cracking
- Mitigates aging of underlying HMA layer
Microsurfacing
Rubberized Asphalt Chip Seal

This process is a blend of 20% crumb rubber and asphalt. Blended asphalt is hot spray-applied at the rate of 0.6 \(+/-\) gallons per square yard, covered with 3/8" or 1/2" precoated stone, followed by rolling.

- Flexible - Good for moderately cracked roads.
- Relatively easy/fast to apply
- Ideal for cold wet climates
- Other unique applications (such as a lightweight bridge wearing course)
Rubberized Asphalt Chip Seal
Chip Spreader
Rubberized Asphalt Chip Seal

After

Before
Rubberized Asphalt Chip Seal — After
Paver-Placed Surface Treatments

Ultra Thin Bonded Wearing Course (UTBWC)

Ultra-thin wearing course (UTBWC, or NovaChip) is a polymer emulsion sprayed immediately before placement of the hot mix overlay (3/4"), followed by rolling.

• Efficient/fast operation

• Used on roads with sound foundation (concrete)

• Good ride and aesthetically pleasing
Paver-Placed Surface Treatment

Ultra Thin Bonded Wearing Course (UTBWC)
20% Crumb rubber Asphalt Surface Treatment

A mixture of coarse-graded 3/8 inch crushed aggregate and a crumb rubber modified 58-28 asphalt binder. The mix was designed with a binder content of 6.0 to 7.5%. (actual was 8%)

- Produced in a Conventional hot mix plant
- Applied to a tack-coated surface
- Placed to a one-inch compacted thickness
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Preservation Treatments

- **Crack Seal**
  - Continuous inspection is required
  - Treatment season limited

- **Microsurfacing**
  - Some reflective cracking after 1st winter
  - Delamination, scalloping at longitudinal joints (plows)
  - Varying life cycle (1-5 years)
  - Success dependant on aggregate selection and weather/temps.

- **Rubber Chip Seal**
  - Initially rides rough (3-6 months)
  - Sweeping required immediately / frequently
Preservation Treatments

- **Rubber Chip Seal (cont.)**
  - Shoving/bleeding from braking action in intersections
  - Limited competition
  - Higher cost per mile over other chip seal processes

- **UTBWC/NovaChip**
  - Proprietary process and specialized equipment

- **Thin Overlays / Mill and Overlay**
  - Workhorse of treatments
## Preservation Treatments

### 2008-2009 estimated cost/mile

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Cost</th>
<th>Width</th>
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</thead>
<tbody>
<tr>
<td>Crack Seal</td>
<td>$6,000/mile @ 24’ (T.W.)</td>
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<tr>
<td>Microsurfacing</td>
<td>$66,000/mile @ 24’ (T.W.)</td>
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<tr>
<td>- Chip Seal</td>
<td>$55,000/mile @ 24’ (T.W.)</td>
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<tr>
<td>- State funded PPM - ¾” Hot mix overlay</td>
<td>$85,000/mile @ 34’ (6-22-6)</td>
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<td>- Capital Program PPM - ¾” Hot mix overlay</td>
<td>$135,000/mile @ 34’ (6-22-6)</td>
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<tr>
<td>- Capital Program 1 ½” mill and Hot mix overlay</td>
<td>$140,000/mile @ 24’ (T.W.)</td>
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<tr>
<td>- Capital Program 1 ¼” Hot mix overlay</td>
<td>$170,000/mile @ 34’ (6-22-6)</td>
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Preservation Treatments
2008-2009 Capital Work-plan

Pavement Preservation Treatments  - $ 108 million  – 920 miles
  ○ Crackseals, Chip Seals, Microsurface, Thin HMA overlays

Maintenance Surface Treatments - $ 23.5 million – 640 miles
  ○ Unbuilt highways

Pavement Rehabilitation Treatments  - $ 11 million – 15 miles
State and Fed./State monies combined $ 142.5 million - 1575 miles
$668$ million - 2 year operating budget

$142.5$ million for Pavement preservation  
(21% two year budget)

$200$ million in needs.
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MaineDOT Pavement Preservation

THANK YOU!

Questions?