Presentation Outline

• Keeping Good Roads good under a minimal funding scenario
• The need for Long term Planning and Strategies
• Benefits, Limitations, Opportunities, Needs
• Summary
Strategies versus Treatments

• It appears that owners are looking at a broad range of treatments to stretch their $$$ but not on proper strategies to preserve pavements

• Project selection is an important aspect of preservation-putting the right treatment-on the right road-at the right time.
Strategies versus Treatments

Original Pavement

Preventive Trigger

Optimal Timing

Rehabilitation Trigger

Time / Traffic

Pavement Condition
Strategies versus Treatments

• Reduced $$ and deteriorating conditions should lead to a focus on preservation

• Is that happening?

• Agencies moving to treatments with lower unit cost to stretch $$$

• Using treatments as Band-Aids is not pavement preservation
## NHDOT Pavement Management Section
### 2011/2012 Equivalent Annual Costs

<table>
<thead>
<tr>
<th>Treatment Alternative</th>
<th>2011/2012 Approx. Costs</th>
<th>Estimated Service Life</th>
<th>Equivalent Annual Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($/lane-mile)</td>
<td>($/SY)</td>
<td>(years)</td>
</tr>
<tr>
<td>Micro or 4.75mm HMA</td>
<td>$22,810</td>
<td>$3.24</td>
<td>6</td>
</tr>
<tr>
<td>Double Chip Seal</td>
<td>$28,301</td>
<td>$4.02</td>
<td>7</td>
</tr>
<tr>
<td>Bonded Wearing Course (Nova Chip)</td>
<td>$41,818</td>
<td>$5.94</td>
<td>10</td>
</tr>
<tr>
<td>3/4&quot; Paver Shim</td>
<td>$25,281</td>
<td>$3.59</td>
<td>6</td>
</tr>
<tr>
<td>1&quot; HBP Overlay</td>
<td>$33,708</td>
<td>$4.79</td>
<td>8</td>
</tr>
<tr>
<td>Chip Seal</td>
<td>$21,120</td>
<td>$3.00</td>
<td>5</td>
</tr>
<tr>
<td>15% AR Chip Seal</td>
<td>$35,482</td>
<td>$5.04</td>
<td>8</td>
</tr>
<tr>
<td>1-1/2&quot; HBP Overlay</td>
<td>$50,561</td>
<td>$7.18</td>
<td>10</td>
</tr>
<tr>
<td>1-1/2&quot; ARGG Overlay</td>
<td>$70,786</td>
<td>$10.05</td>
<td>13</td>
</tr>
<tr>
<td>1-1/2&quot; HBP Inlay</td>
<td>$67,457</td>
<td>$9.58</td>
<td>10</td>
</tr>
<tr>
<td>FDR with 4&quot; HBP</td>
<td>$147,502</td>
<td>$20.95</td>
<td>15</td>
</tr>
<tr>
<td>2&quot; TW Inlay with 1-1/2&quot; FW Overlay</td>
<td>$134,872</td>
<td>$19.16</td>
<td>13</td>
</tr>
<tr>
<td>4&quot; CIP with 3&quot; HBP Overlay</td>
<td>$156,035</td>
<td>$22.16</td>
<td>15</td>
</tr>
</tbody>
</table>
# Treatment Life Table (NH DOT)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Good Condition (PCI=80)</th>
<th>Fair Condition (PCI=60)</th>
<th>Poor Condition (PCI=40)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crack Fill or Seal</td>
<td>1 - 3</td>
<td>0 - 2</td>
<td>0</td>
</tr>
<tr>
<td>Chip Seal</td>
<td>4 - 10</td>
<td>3 - 6</td>
<td>0 - 3</td>
</tr>
<tr>
<td>AR Chip Seal</td>
<td>6 - 12</td>
<td>3 - 7</td>
<td>2 - 4</td>
</tr>
<tr>
<td>Thin HMA</td>
<td>4 – 10</td>
<td>3 - 7</td>
<td>2 - 4</td>
</tr>
<tr>
<td>Bonded Wearing</td>
<td>6 - 12</td>
<td>3 - 7</td>
<td>2 - 4</td>
</tr>
<tr>
<td>AR Mixes</td>
<td>10 - 15</td>
<td>5 - 12</td>
<td>3 - 6</td>
</tr>
</tbody>
</table>

Apply treatments at the right time & get the best return on your investment or Equivalent Annual Cost “EAC”.

[Image of a graph or chart related to treatment life tables]
Strategies

Progressive Pavement Management

Preservation vs. Rehabilitation

Preservation Strategy:
- Years 5, 14, 30 & 39: Cracksealing
- Years 10 & 35: Microsurfacing (Double)
- Years 17 & 42: Bonded Wearing Course
- Year 25: Mill & Pave

TOTAL COST/SY OVER 50 YEARS = $28.20

Rehabilitation Strategy:
- Year 15: FDR plus 4" Hot Mix Overlay
- Year 30: FDR plus 4" Hot Mix Overlay
- Year 45: FDR plus 4" Hot Mix Overlay

TOTAL COST/SY OVER 50 YEARS = $60.10
Strategies

- Approximate costs associated with various Strategies

- Reconstruction - $100/yd$^2$

- Rehabilitation - $15-30/yd^2$

- Preservation - $10/yd^2$
Benefits of Preservation Treatments

• Stretching the limited $$$
• Sustainability
  ➢ Use of RAP, RAS, Tire Rubber
• Environmentally friendly
  ➢ WMA, Emulsions
• Cost effective
Paving Greener
Limitations of Preservation Treatments

- Lack of QA requirements for non-HMA/WMA treatments
- Loss of knowledge in agencies
- Poor project selection
- Quality oriented contractors
- Lack of Performance Related Specs
Opportunities-Needs

• Integration of companies
  ➢ Developing capabilities with other treatment types
• Participation in the Regional Pavement Preservation Partnerships
• Re-establishment of the FHWA/Industry Pavement Preservation Expert Task Group
• Training for agency and industry
• Funding for Pavement Preservation research
Summary

- Pavement Preservation is a Program area in a number of agencies and continues to grow.
- Agencies trying to stretch their limited $$ are focusing on preservation treatments (not always in the correct way).
- Maintaining our nation’s highway network is essential for job creation and economic growth.
Summary

• There are numerous flexible and rigid pavement treatments in the preservation arena

• Choosing the right treatment and placing it at the right time on the right road is the mantra of pavement preservation

• Keeping good roads good is the right thing to do and good public policy
FP2 Contributors

Corporate Sponsors

Sponsoring Associations
Summary

• Need more information
  – www.fp2.org
  – www.pavementpreservation.org

Thanks