“Keep Good Roads Good!”

Is this

“Mission Impossible?”
Keep Good Roads Good!

Challenges:

• Deteriorating Road Conditions
• Current Levels of Investment
• Available Funding
• Increasing Costs
Personal investment in “good roads”

How important are “good roads” to the public?

How much are “good roads” worth?

Average U.S Household Monthly Bill

- Gas Tax
- Electricity
- Phone
- TV/Internet

U.S Government Investment in Transportation
- National Defense
- Transportation to U.S Economy
- Motor Vehicle in Daily Life

Importance Rating

AGREE
DISAGREE

0%
50%
100%
Regional investment in “good roads”

New England 2009 funding (actual): $1.7 Billion
New England 1977 value (corrected for inflation): $1.9 Billion
National investment in "good roads"

- Federal gas tax

*Last increase in 1993
The NHDOT Maintained road network would stretch from Concord, NH to Anchorage, AK – 4,559 miles

A very long drive!
Poor Road Conditions

Anchorage, AK

Lake Watson, Yukon

Concord, NH

Anchorage, AK

Fargo, ND

Concord, NH

Would your car survive?
Funding Resources for NH

• State Funds (road toll tax a.k.a. gas tax, motor vehicle fees, court fees, misc.) ($250M/ year)
• Federal Aid: Highway Fund ($143M/year)
  - Currently matched with Turnpike Toll Credits
  - Reduces Capital Program by 15 to 20 %
• Turnpike Fund: For use on turnpike only ($117M/year)
• Future Revenue Outlook
Increase in Material Costs

• Asphalt Cement cost increased 460% from 1992-2012
What’s the solution?

• Increase Revenue; gas tax, mileage fee, registration, etc
• Make our roads last longer
  - How do we accomplish with constrained funding?
  
**Pavement Preservation!!**
Pavement Preservation

• The **RIGHT** Treatment on the **RIGHT** Road at the **RIGHT** Time
• Cost Effectiveness
• Education and Promoting the Benefits
The RIGHT Treatment on the RIGHT Road at the RIGHT Time

Asphalt Deterioration Curve

- Excellent
- Good
- Fair
- Poor
- Very Poor
- Failed

Time (Years)

- 0
- 5
- 10
- 15
- 20
- 25

Pavement Condition

1. Fog Seal Rejuvenation
2. Slurry Seal, Chip Seal or Microsurfacing (Single)
3. Chip Seal or Microsurfacing (Double)
4. Cape Seal Or Bonded Wearing Course
5. HMA Overlay
6. Mill & HMA Overlay
7. In-Place Recycling & Overlay
8. Full Depth Reconstruction
9. Crack Filling (as needed)
Why “Pavement Preservation”?  

2013 NHDOT Equivalent Annual Costs (EACs)

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>COST ($/SY)</th>
<th>AVG. SERVICE LIFE (years)</th>
<th>EAC ($/SY/year)</th>
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</thead>
<tbody>
<tr>
<td>4.75mm HMA</td>
<td>$2.86</td>
<td>6</td>
<td>$0.48</td>
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<tr>
<td>Micro Surfacing</td>
<td>$3.11</td>
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<td>$0.52</td>
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<tr>
<td>Double Chip Seal</td>
<td>$4.02</td>
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<td>$0.57</td>
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<td>1&quot; HBP Overlay</td>
<td>$4.60</td>
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<td>$0.58</td>
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<tr>
<td>Bonded Wearing Course</td>
<td>$5.94</td>
<td>10</td>
<td>$0.59</td>
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<tr>
<td>3/4&quot; Paver Shim</td>
<td>$3.66</td>
<td>6</td>
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<tr>
<td>Asphalt Rubber Chip Seal</td>
<td>$5.39</td>
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<td>1-1/2&quot; HBP Overlay</td>
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<tr>
<td>1-1/2&quot; HBP Inlay</td>
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<tr>
<td>FDR with 4&quot; HBP</td>
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<tr>
<td>2&quot; TW Inlay with 1-1/2&quot; FW Overlay</td>
<td>$17.72</td>
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<td>4&quot; CIP with 3-1/2&quot; HBP Overlay</td>
<td>$29.15</td>
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<td>$1.94</td>
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</tbody>
</table>

Preservation Treatments  
Rehabilitation Treatments
Why “Pavement Preservation”? 

**Progressive Pavement Management**

**Preservation vs. Rehabilitation**

**Preservation Strategy**
- Years 5, 14, 30 & 39: Cracksealing
- Years 10 & 35: Microsurfacing (Double)
- Years 17 & 42: Chip Seal
- Year 25: Mill & Pavement

**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 =**
- **Preservation Strategy:** $29.60
- **Rehabilitation Strategy:** $60.00
Promoting the Benefits

2012 NH 12 Micro Surfacing Project
Promoting the Benefits

2012 NH 112 Asphalt Rubber Chip Seal Project
Let’s build tomorrow!

“Keep Good Roads Good”

Thank You!