“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?

U.S Government Investment in Transportation
- National Defense: 83%
- Transportation to U.S Economy: 88%
- Motor Vehicle in Daily Life: 78%

Importance Rating

Average U.S Household Monthly Bill
- Gas Tax
- Electricity
- Phone
- TV/Internet

New Hampshire DOT
Department of Transportation
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

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 binder cost increased 460% from 1992-2012
What’s the solution?

• Increase Revenue; gas tax, mileage fee, registration, etc
• Make our roads last
  - How do we accomplish with constrained funding?
    a) Build “Perpetual Pavements”
    b) Utilize “Pavement Preservation Treatments”
Perpetual Pavement Design
For Asphalt Pavements

Standard Design
Top-down cracking
Bottom-up cracking

Perpetual Pavement Design
Wearing Course
Binder Course
Base Course
Select Materials
Polymer or Rubber Modified Asphalt
Asphalt Rich Base

Design Depth
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 & pave

- 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 = $29.60
TOTAL COST/SY OVER 50 YEARS = $60.00
## Pavement Preservation Treatments (typical)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Additional Life (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crack Sealing</td>
<td>2</td>
</tr>
<tr>
<td>Chip Seals – asphalt emulsion</td>
<td>5 to 8</td>
</tr>
<tr>
<td>Chip Seals – rubberized AC</td>
<td>8 to 10</td>
</tr>
<tr>
<td>Micro-surfacing</td>
<td>6</td>
</tr>
<tr>
<td>Bonded Wearing Course</td>
<td>10</td>
</tr>
<tr>
<td>Modified 4.75 mm HMA</td>
<td>8 to 10</td>
</tr>
</tbody>
</table>
Keep Good Roads Good
Is this “Mission Impossible”?

• Sustainable funding
• Build Perpetual Pavements
• Maintain using Pavement Preservation Practices
Let’s build tomorrow!

“Keep Good Roads Good”

Thank You!