PRESERVATION IN THE NATIONAL PARK SERVICE

Northeast Pavement Preservation Partnership Meeting
Portsmouth, NH
November 8-10, 2010
1. Northeast Region (NER)
2. Road System
3. Pavement Condition
4. Comparisons
5. Preservation Approach
6. Projections
7. Conclusions
1. Northeast Region
• Park Units  NPS  393  NER  78  or 20%
• States/Territories  50+  13  or 26%
• Population  311 M  73 M  or 24%
• Annual Visitation  285 M  54 M  or 19%
• Economic Impact  $11.6 B  $1.5 B  or 13%
• Alternate Transportation Systems  110  24  or 22%
• Major Metropolitan areas in the Northeast Corridor
NER Transportation Assets
Road Network: Scenic, Historic and Unchanged
Transportation Assets

- Roads 41%
- Parking 30%
- Multi-Modal 24%
- Bridges 5%
Total Deferred Maintenance Needs including Roads, Bridges and Multi-Modal Transportation

NER $2.9 B = 18% of NPS

Total Need: $15.6B
2. Road System
Paved Road and Equivalent Miles of Parking
NER vs. NPS

<table>
<thead>
<tr>
<th>Region</th>
<th>Paved Roads (miles)</th>
<th>Equivalent Miles of Parking (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALASKA</td>
<td>24</td>
<td>9</td>
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<tr>
<td>MIDWEST</td>
<td>205</td>
<td>129</td>
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<tr>
<td>NATIONAL CAPITAL</td>
<td>266</td>
<td>130</td>
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<tr>
<td>NORTHEAST</td>
<td>466</td>
<td>365</td>
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<tr>
<td>PACIFIC WEST</td>
<td>1322</td>
<td>407</td>
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<tr>
<td>SOUTHEAST</td>
<td>1544</td>
<td>324</td>
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<tr>
<td>INTERMOUNTAIN</td>
<td>1643</td>
<td>593</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td><strong>5468</strong></td>
<td><strong>1957</strong></td>
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</table>
NER Road Facts

- 1,204 Total Miles:
  - 478 Paved Road Miles
  - 397 Paved Parking Miles
  - 329 Gravel Road Miles
- 88% Asphalt, 12% PCC
- Parking is 45% of Pavement
- 186 Bridges & Tunnels
- Longest Road is 105 Miles
- Historic and Non-historic
- Urban and Rural
- High, Low and Seasonal Use
- Increased Commuter Traffic
- Minimal Heavy Truck Traffic
NER Paved Miles by Functional Class
478 Road Miles and 379 Parking Miles Equivalent
NER Funding

• $15M FY10 Program Budget
• $12M Construction Awards
  • Surface & Light 3R Treatments
• $3M or 20% Planning, Design, Contracting and Supervision
3. Pavement Condition
• FHWA Collects Standard Condition Data for all NPS Parks
Collected on Cycles

Parking Manually Rated

Four Condition Categories
The Surface Condition Rating (SCR) and Roughness Condition Index (RCI) are combined to define the Pavement Condition Rating (PCR):

\[ 60\% \text{ SCR} + 40\% \text{ RCI} = \text{PCR} \]
Excellent Condition = 95 to 100 PCR
- Roads 8% or 36 Miles
- Parking 7%

Good Condition = 85 to 94 PCR
- Roads 42% or 193 Miles
- Parking 23%
(NER Goal is 85 PCR or Better)

Fair Condition = 61 to 84 PCR
- Roads 29% or 135 Miles
- Parking 35%

Poor Condition = 0 to 60 PCR
- Roads 21% or 97 Miles
- Parking 35%
NER Pavement Condition Rating – 2009

Northeast Region - Roads
Pavement Condition Categories

Northeast Region - Parking Areas
Pavement Condition Categories
4. Comparisons
Servicewide Breakdown by Condition Category – 2009

National Average - Roads Pavement Condition Categories

National Average - Parking Areas Pavement Condition Categories
2007-2009
National-NER Comparison

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Excellent</td>
<td>7.14</td>
<td>9.04</td>
<td>4.55</td>
<td>18.25</td>
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<tr>
<td>Good</td>
<td>5.01</td>
<td>9.30</td>
<td>5.01</td>
<td>11.27</td>
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<tr>
<td>Fair</td>
<td>37.07</td>
<td>39.60</td>
<td>30.74</td>
<td>34.82</td>
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<tr>
<td>Poor</td>
<td>50.78</td>
<td>42.06</td>
<td>59.70</td>
<td>35.66</td>
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Construction Design (PE) to Construction (CN) Costs

Northeast 11.40%
6 Regions 13.75
Construction Supervision (CE) to Net Construction (CN) Costs

- Northeast: 6.94%
- 6 Regions: 12.90%
• Project Miles as Pct. of Route Miles

- NCRO
- NERO
- SERO
- MWRO
- IMRO
- PWRO
- AKRO

### Difference in Pavement Condition Ratings
(Northeast - National)

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2009</th>
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<tbody>
<tr>
<td>Excellent</td>
<td>+2%</td>
<td>+1%</td>
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<tr>
<td>Good</td>
<td>+4%</td>
<td>+26%</td>
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<tr>
<td>Fair</td>
<td>+3%</td>
<td>-16%</td>
</tr>
<tr>
<td>Poor</td>
<td>-9%</td>
<td>-11%</td>
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</table>
5. Preservation Approach
Approach:
• RIP Data Collection
• HPMA Modeling
• 100% Field Validation
• ROS Prioritization (Roadway Objective Score)
• Program Formulation

Key Assumptions:
• Focus on Primary Roads
• Stay Between the White Lines
• Minimize Investment in Parking Lots
• Demolish Non Performing Assets
• Minimize Design and Supervision Costs
• Follow Established Priorities
6. Projections
Route Miles – Pre and Post Pavement Management

• Prior to 2005 - 4.7 Miles Per Year
  - 65 PCR in 2005

• 2005 thru 2010 - 50+ Miles Per Year
  - 76 PCR in 2010

• Continue Approach Through 2017 with
  Increase in Surface Treatments to
  achieve minimum 85 PCR to optimum
  94 PCR
Funding and Reauthorization Scenarios

- Level PCR 86.63
- Low PCR 87.68
- Medium PCR 91.32
- High PCR 91.86
A Comparison of 4 funding levels over a 9-year analysis period – 2011-2019
By 2013 Excellent and Good Categories will exceed 55% of the NER network (FC 12378)
National Park Service

Treatment Breakdown By Route Miles

<table>
<thead>
<tr>
<th>Year</th>
<th>Preservation</th>
<th>Light 3R</th>
<th>Heavy 3R</th>
<th>4R Reconstruct</th>
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<tr>
<td>2005</td>
<td>11.6</td>
<td>9.6</td>
<td>1.8</td>
<td>1.4</td>
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<td>2006</td>
<td>16.5</td>
<td>26.0</td>
<td>9.7</td>
<td>1.5</td>
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<td>2007</td>
<td>35.0</td>
<td>16.2</td>
<td>9.2</td>
<td>1.2</td>
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<tr>
<td>2008</td>
<td>10.0</td>
<td>10.0</td>
<td>1.7</td>
<td>1.0</td>
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<tr>
<td>2009</td>
<td>15.0</td>
<td>35.5</td>
<td>2.9</td>
<td>1.3</td>
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<tr>
<td>2010</td>
<td>18.9</td>
<td>70.3</td>
<td>5.8</td>
<td>1.3</td>
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<td>2011</td>
<td>29.7</td>
<td>17.0</td>
<td>11.3</td>
<td>3.6</td>
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<td>2012</td>
<td>51.9</td>
<td>4.3</td>
<td>13.0</td>
<td>0.0</td>
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<td>2013</td>
<td>31.7</td>
<td>25.5</td>
<td>10.8</td>
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<td>2014</td>
<td>204.3</td>
<td>0.0</td>
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<tr>
<td>2015</td>
<td>73.9</td>
<td>0.0</td>
<td>14.0</td>
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<tr>
<td>2016</td>
<td>53.8</td>
<td>0.0</td>
<td>0.3</td>
<td>0.0</td>
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<tr>
<td>2017</td>
<td>208.4</td>
<td>0.1</td>
<td>0.7</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Miles of Treatment by Route

- Preservation
- Light 3R
- Heavy 3R
- 4R Reconstruct
7. Conclusions
Summary

• Continue Pavement Management & Preservation Program
• Increase Condition Data Collection Cycle
• Preserve Investment Thru Increased Preservation
• Focus - High Priority Roads - Where 80% of Visitors Travel
• “Outside the White Lines” - Only as Necessary
• Improve Highest Priority Visitor Parking
• Limited Heavy 4R Construction if Funding Allows
• Integrate Safety Countermeasure Priorities, Congestion Mitigation Priorities and Multi Modal Priorities
Questions?