Midwestern States In-Place Recycling Conference

HOT-IN-PLACE RECYCLING

Presented by:
Patrick Faster, ARRA
August 12, 2009
ARRA Recycling Disciplines

- Cold Planing / Milling
- Hot in Place Recycling
- Cold in Place Recycling
- Full Depth Reclamation
- Soil Stabilization
Sub-categories with the HIR Discipline

- Surface Recycling
- Surface Repaving
- Remixing
What is the Hot-in-Place Recycling SURFACE METHOD?

Hot In-Place Recycling (HIR) is an on-site, in place, pavement rehabilitation method that consists of heating, scarifying, softening, mixing, replacing and re-compacting the existing bituminous pavement. The HIR surface method process will introduce a polymer modified rejuvenating agent typically at the rate of 1/10th gal. Per sq. yd. The now re-plasticized asphalt is ready to receive its final surface course, be it HMA overlay, micro surface, slurry or chip seal.
HIR

Where Does IT Fit In?

Re-Construction

Preventive Maintenance

Go Green, Save Green
Value of “Timely” Pavement Maintenance

Pavement Condition

- Very Good
- Good
- Fair
- Poor
- Very Poor

Time for HIR

Time (Years)

0  2  4  6  8  10  12  14

Go Green, Save Green
Typical 75mm Mill & Fill

- Grind to a 3 in. depth
- Haul grindings away
- Tack course
- Haul leveling course back
- Place 1.5 inch level course
- Roll It
- Place 1.5 inch surface course
- Roll It
Typical Reconstruction Using HIR

- 1st Pre-Heater takes pavement temp to 180 – 200 degrees
Typical Reconstruction Using HIR

- 2nd Heater takes pavement temp to 280 – 300 degrees
Typical Reconstruction Using HIR

- Introduction of rejuvenating agent
Typical Reconstruction Using HIR

- Tires set hydraulically at prescribed depth
Typical Reconstruction Using HIR

- Full width reversible augers to re-mix
Typical Reconstruction Using HIR

- Re-profiling and compaction with screed
Typical Reconstruction Using HIR

- Roller
Typical Reconstruction Using HIR

- Open to traffic!!
So What Have We Done?

Go Green, Save Green
**Typical Pavement Rehabilitation Designs**

**Pavement Profiling 3" with 1-1/2" Binder & 1-1/2" Surface Replacement**

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bituminous Concrete Surface Removal 3&quot;</td>
<td>18,000</td>
<td>SY</td>
<td>$34,200.00</td>
</tr>
<tr>
<td>Bituminous Material Prime Coat</td>
<td>1,800</td>
<td>GAL</td>
<td>$3,240.00</td>
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<td>Bituminous Concrete Binder Cse 1-1/2&quot;</td>
<td>1,500</td>
<td>Tons</td>
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<tr>
<td>Bituminous Concrete Surface Cse 1-1/2&quot;</td>
<td>1,500</td>
<td>Tons</td>
<td>$76,500.00</td>
</tr>
</tbody>
</table>

*Estimated Cost = $185,940.00*

**Heater Scarification Asphalt Modifier and 1-1/2" Surface Replacement (no grinding)**

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</tr>
</thead>
<tbody>
<tr>
<td>Heater Scarification</td>
<td>18,000</td>
<td>SY</td>
<td>$45,000.00</td>
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<tr>
<td>Asphalt Modifier</td>
<td>1,800</td>
<td>GAL</td>
<td>$6,300.00</td>
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<tr>
<td>Bituminous Concrete Surface Cse 1-1/2&quot;</td>
<td>1,500</td>
<td>Tons</td>
<td>$76,500.00</td>
</tr>
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*Estimated Cost = $127,800.00*

**Savings of $58,140 = 31% !!!!**
- IDOT-approved
- Qualifies for MFT monies
Preventive Maintenance / Pavement Preservation

- Micro-Surfacing
Preventive Maintenance / Pavement Preservation

- Slurry Seal
Preventive Maintenance / Pavement Preservation

- Chip Seal
Thank You! Any Questions?

www.hotinplace-recycling.com