

In-Place Recycling Seminar

HOT-IN-PLACE RECYCLING

Presented by:

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ARRA Recycling Disciplines

- Cold Planing / Milling
- Hot in Place Recycling
- Cold in Place Recycling
- Full Depth Reclamation
- Soil Stabilization



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Sub-categories with the HIR Discipline

- Surface Recycling
- Surface Repaving
- Remixing



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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.

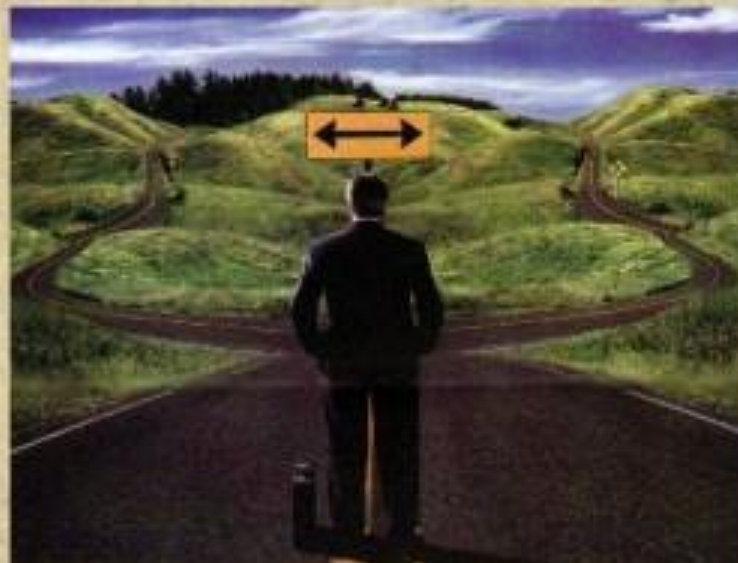


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HIR

Where Does IT Fit In?

Re-Construction



Preventive
Maintenance

Value of "Timely" Pavement Maintenance

Pavement Condition

Very Good

Good

Fair

Poor

Very Poor

Time for HIR

Time (Years)

0

2

4

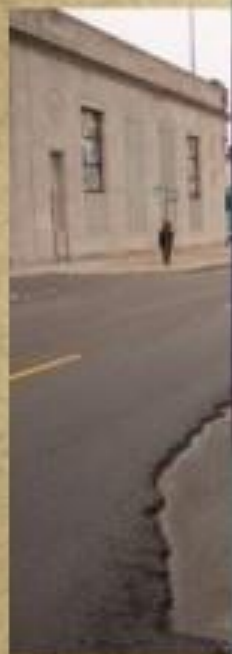
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12

14



**Hot
inPlace**
RECYCLING



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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

- Tines 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 !!





**Hot
inPlace**
RECYCLING

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So What Have We Done?



**Hot
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RECYCLING



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Typical Pavement Rehabilitation Designs

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

Item Description	Qty	Unit	Total
Bituminous Concrete Surface Removal 3"	18,000 SY	\$2.20	\$39,600.00
Bituminous Material Prime Coat	1,800 GAL	\$2.00	\$3,600.00
Bituminous Concrete Binder Cse 1-1/2"	1,500 Tons	\$52.00	\$78,000.00
Bituminous Concrete Surface Cse 1-1/2"	1,500 Tons	\$58.00	\$87,000.00
Estimated Cost =			\$208,200.00

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

Item Description	Qty	Unit	Total
Heater Scarification	18,000 SY	\$3.25	\$58,500.00
Asphalt Modifier	1,800 GAL	\$3.50	\$6,300.00
Bituminous Concrete Surface Cse 1-1/2"	1,500 Tons	\$58.00	\$87,000.00
Estimated Cost =			\$151,800.00

Savings of \$58,140 = 27% !!!!

- IDOT-approved
- Qualifies for MFT monies

**Standard Specifications
for Road and Bridge
Construction**

Adopted January 1, 2002

IDOT Approved!
IDOT Approved!
IDOT Approved!



Illinois Department of Transportation



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Preventive Maintenance / Pavement Preservation

- Micro-Surfacing



Preventive Maintenance / Pavement Preservation

- Slurry Seal



Preventive Maintenance / Pavement Preservation

- Chip Seal





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Thank You! Any Questions?



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