HOT-IN-PLACE RECYCLING
Mequon, WI

Presented by:
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TO USE HIR
OR
TO NOT USE HIR?
(that, is the question)
What I consider when making a determination
Presentation Outline

Introduction
Past Practices
Fit HIR process to the road, not the road to HIPR
HIR – When does it make Sense (cents).
HIR and Politics
HIR – Is it construction or Maintenance?
HIR – When is it the right decision?
What type of surface treatment to use
Benefits of using HIR
Obstacles to using HIR
QUIZ
Introduction

Personal Background
20 years Navy Civil Engineer Corps
16 years Mequon City Engineer
4 yrs WI Rep for Gallagher Asphalt

City of Mequon
Located approx 20 miles north of Milwaukee
Situated on the shore of lake Michigan
Population of 22,000+
Area of 48 square miles
205 center line miles of roads
Bordering on extreme fiscal conservative
Affluent rural community
Zoning is 1 to 5 acre residential lot size
Road Program Past Practices

Full depth reclamation
Crack seal and overlay
Mill / Fill
Foam Injection
Fly Ash base stabilization
Simple overlay
Seal coat – chips and slag
Slurry Seal
Micro pave
Fit HIR to the road, **not** the road to HIR

- Based upon sound engineering and economics make the decision as to which roads should be done in a given contract or budget cycle and then determine which reconditioning or reconstruction process best meets the needs.
- Right Road, Right Time, Right Fix, Right Contractor

Building Block For a Good Pavement Management and Preservation program
HIR - When does it make Sense (cents)?

Alternative to:
- overlay
- mill and fill

Road Infrastructure
Vertical Alignment Constraints
Long Range Plan for Area

Road characteristics do I look for when considering HIR

Structurally Sound – no more then 35% base patching
Adequate asphalt depth
Extent and Type of cracking – rubber less then 20% of road surface
Other Surface Defects: Cracking, Raveling, Rutting
Existing Surface Treatments
Service Condition Rating
OBSTACLES TO USING HIR

* Reluctance to change - NIMBYism
* Failure to understand the concept of Pavement Preservation and Life cycle benefit. Worst first is not the way to go
* Resistance to being the first in the area to use HIPR
* Concern with regard to funding.
* Political support
* Public support
* Unless additional material is added during the operation it requires a surface treatment.
* On thicker pavement sections reflective cracks reappear in “short” period of time.
* Bidding competition – lack of
* Required quantity to mobilize to an area.
Why did we decide to use HIR

1. Potential cost savings for an equivalent final product.
2. Reduced construction time.
3. Minimal impact to existing infrastructure.
4. Reduced traffic impact and congestion
5. Environment
6. Wanted to try something “new”
Pre HIR Road Conditions

Year: 2006
Area: Ranch, Hickory, Mulberry, Chestnut Subdivision

General Road Condition:
Local neighborhood streets
Rural cross section
Heavy cracking
Rutting
3” asphalt
6-8” stone base
SCR: 3.5
Alternatives Considered

H-S with 1.5” overlay

Crack Fill the significant cracks, wedge, and Slurry / Chip Seal

Simple wedge with Overlay

Mill and Fill with 1.5” overlay

FDR with 3” overlay
Final Options

- H-S with 1.5” overlay
- Mill and Fill with 1.5” overlay

Cost Comparison

- H-S with Overlay: $3.15 + $3.96 = $7.11
- 1.5” mill & Fill with over Lay: $2.07 + $3.13 + $3.96 = $9.16

Saved $2.05 per SY = 22.44% = $256,000
Post HIR Condition

Year: 2013
Age: 7 years
Area: Ranch, Hickory, Mulberry, and Chestnut

Current SCR: 8.5
Condition: Only Limited Longitudinal and Transverse Cracking

Asphalt Depth: 4.5 Inches – 3” existing treated with 1.5” HIR plus a 1.5” overlay

Base: 6 – 8 Stone
2008 Pre HIR Road Condition
Area: Solar Heights Subdivision
SY Quantity: 90,000

General Road Condition
  Local Neighborhood Streets
  SCR: 4.0, Age: 35+ yrs
  Rural Cross Section
  Flat – Drainage issues
  Heavy Cracking
  Large Quantity of Cracks
  Rutting
  Alligatoring
  5+ inches of asphalt
  6-8 inches of stone
Alternatives Considered

H-S with Chip Seal

H-S with 1.5” Overlay

Crack Fill the significant cracks, wedge, and Slurry / Chip Seal

Simple wedge with Overlay

Mill and Fill

FDR with 3” overlay
Final Options
- H-S with Chip Seal surface treatment
- Mill and Fill
- FDR with 3” overlay

Cost Comparison
- H-S with Chip seal: $3.15 + $1.15 = $4.30
- 1.5” mill & Fill: $2.07 + $3.96 = $6.03
- FDR with 3” overlay = $1.25 + $3.13 + $3.96 = $8.34
- Saved $1.73 per SY = 28.7% = $155,000
- Saved $4.04 per SY = 48% = $363,600
Benefits of HIR

- Effectively addresses the symptoms of deteriorated oxidized pavement.
- Substantial cost savings over more traditional techniques such as milling and filling can be realized.
- Environmentally friendly
- Minimal traffic impact – no road closure
- Significantly less interruption and impact.
- Time to completed finished product is reduced
- Cracks are interrupted and filled.
- Ruts and holes are filled, shoves and bumps are leveled, drainage and crowns are re-established.
Lessons Learned

Perform your due diligence
Follow up
Be careful about “pushing the envelope”
Try not to bend to political and/or resident pressure
THANK YOU

QUESTIONS