Items of Discussion

- Types of Joint Distress
- Illinois’ Preservation/Maintenance Strategies
- Illinois Investigates Options
- Illinois’ Preservation/Maintenance Work 2009
- Compare the Options
TYPES OF JOINT DISTRESS

- Low Temperature Cracking
  Low Density; Low Tensile Strength
- Reflective Cracking
  Base Conditions
- Ravelling of HMA
  Low Density; Segregation; Oxidation of HMA; Hardening of Binder; Freeze Thaw; Stripping of Binder
ILLINOIS’ PRESERVATION/MAINTENANCE STRATEGIES

• Do Nothing
• Rout & Seal
• Spray Patch
  Emulsion & Aggregate
• HMA Inlays
• Micro-surfacing
ROUT & SEAL
SPRAY PATCH

Emulsion with Aggregate Cover
HOT MIX ASPHALT INLAY
EXISTING TYPICAL SECTION

ST.A 603+660 - 737+000 EKB
ST.A 607+060 - 731+000 WKB

PROPOSED CENTERLINE JOINT REPAIR
TYPICAL SECTION

ST.A 603+660 - 737+000 EKB
ST.A 607+060 - 731+000 WKB

NOTES: The milling, placement of asphalt, and pavement marking must be completed in the same day.
IDOT INVESTIGATES OPTIONS

- Minnesota DOT
- Missouri DOT
• Project
  FAI Route 494
  Section
  Hennepin County

  Average Daily Traffic – 140,000 to 150,000
• Project
  FAI Route 44
  Section D608-126-RW Micro-surfacing Repair
  St Louis County
Region 3/District 5 – Paris, IL

FAI Route 74
Section (57-17 Thru 24, 9-1)
McLean County
Contract No. 70732      March 2009 Letting

Limits - US Bus 51 to DeWitt County Line
• Remove Existing Striping
• Install Temporary Striping
• Remove existing RRPMs
• All surfaces primed
• Construct 1000 ft Test Section
• Micro-surfacing, single pass, Type 2 - 24 inch
  • Mix approved by IDOT
• Cure minimum of 1 hour before opening to traffic
• 7 Day cure before permanent striping and RRPM
  • Striping – Epoxy Paint
• 25 Working Days
PROPOSED TYPICAL CROSS SECTION FAI 74

STA. 258+00.00 TO STA. 1554+55.00 *
STA. 639+50.00 TO STA. 737+12.00 *

* OFFSET LANE TO BE DESIGNATED BY THE RESIDENT ENGINEER

MICRO-SURFACING, SINGLE PASS, TYPE 2
20 LBS./YD²

EQUATION STATIONS

STA. 1241+13.43 (BK) = STA. 100+00.00 (AH)
STA. 1808+31.35 (BK) = STA. 187+31.34 (AH)
CONSTRUCTION DETAILS

• Mix Design
  • Aggregate 028FM20 (Crushed Stone) – Maximum Nominal Aggregate Size #4 sieve
  • Latex Modified Emulsified Asphalt (CSS-1h) - PG 64-22 @ 12%
  • Cement @ 0.5%
  • Water @ 5.0%

• Traffic Control
  • Daytime Construction
  • Closure of Passing Lane only on weekdays
  • Removal of Existing Striping – Water Blast Recovery System
  • Temporary Pavement Marking – Paint offset from microsurfacing
  • Raised Reflector Pavement Marker Removal
CONSTRUCTION DETAILS

- Micro-surfacing Equipment
  - Mixing Machine - Continuous Flow
  - Surfacing Spreader – Surface Box w/ Twin Shafted Paddles.
- Prime Coat – Emulsion SS1HP @ 0.08 gal/sq yd
- Test Section
  - Completed within section. Determined RRPM removal left depression in surface. Filled with cold mix.
- Micro-Surfacing Application Rate – 20lb/sq yd
- Production rates: 5 mile/day avg.; max 10 mile/day
- 1 hour minimum cure before opening to traffic
- 7 day cure before permanent pavement markings & RRPM
- Remove temporary striping with Water Blast Recovery System
DO NOT FOLLOW
IDOT’S PAVEMENT PRESERVATION & MAINTENANCE 2009

Region 2/District 3 – Ottawa, IL

FAI Route 57
Section VARIOUS
Kankakee County
Contract No. 66984    July 31, 2009 Letting

Limits - Kankakee River to Will County Line
TYPICAL SECTION

MICRO-SURFACING DETAIL

NOTES

1. LOCATIONS OF MICRO-SURFACING SHALL BE LOCATED AT THE CENTERLINE OF PAVEMENT JOINT OR A COMBINATION OF THE CENTERLINE OF PAVEMENT JOINT AND/OR EDGE OF PAVEMENT JOINTS, ACTUAL LOCATIONS SHALL BE FIELD DETERMINED BY THE ENGINEER PRIOR TO THE CONTRACTOR BEGINNING HIS/HER CONSTRUCTION OPERATIONS.

2. OFFSET OF THE CENTERLINE PAVEMENT STRIPING SHALL BE FIELD DETERMINED BY THE ENGINEER.

MICRO-SURFACING OMISSIONS

M.P. 312.67 TO M.P. 312.71 SN 046-0008 NB & SN 046-0009 SB
M.P. 312.79 TO M.P. 312.81 SN 046-0010 SB & SN 046-0011 SB
M.P. 313.64 TO M.P. 313.65 SN 046-0013 SB & SN 046-0012 SB
M.P. 315.46 TO M.P. 315.50 SN 046-0015 NB & SN 046-0014 SB
M.P. 315.73 TO M.P. 315.77 SN 046-0017 SB & SN 046-0016 SB
M.P. 319.99 TO M.P. 320.01 SN 046-0019 SB & SN 046-0018 SB

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICALS
EVALUATE THE OPTIONS!
DO NOTHING
SPRAY PATCH
HOT MIX ASPHALT INLAY
MICRO-SURFACING
COST COMPARISON

• IDOT Operations – Spray Patch
  • Cost: $1.08/LF

• Awarded Contract – HMA Inlay
  • Cost: HMA Inlay $3.60/LF   Project Cost $7.40/LF

• Awarded Contract – Micro-surfacing
  • D5 Cost: Micro $1.03/LF   Project Cost $2.23/LF
  • D3 Cost: Micro $1.00/LF   Project Cost $3.55/LF*

* Additional cost for Preformed Plastic Pavement Marking
HOW MANY YEARS UNTIL THE NEXT REPAIR?
What can we do instead?
What can you do instead?
(DELAY ONE MILE OF INTERSTATE)

- Primary/Secondary Highways
  - 5 miles of mill & HMA overlay - SMART
  - 4 miles of 2 lift HMA overlay – 3P
  - 1 mile of Urban 5 lane mill & HMA overlay
  - 12 miles of 2 pass micro-surfacing
  - 1 bridge replacement
  - 3 box culvert replacements
DESIGN & CONSTRUCTION ISSUES

- Condition of Joint
- Raised Reflective Pavement Markers
- Drainage
- Temporary Pavement Marking
- Type of Permanent Striping
QUESTIONS?

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