

CENTER LINE JOINT PRESERVATION

2009 Midwestern Pavement Preservation Meeting
Schaumburg, Illinois
October 28, 2009

Scott A Lackey, PE
Illinois Department of Transportation – Region 3/District 5
Materials Engineer

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





EXIT 142
Downs
1/2 MILE



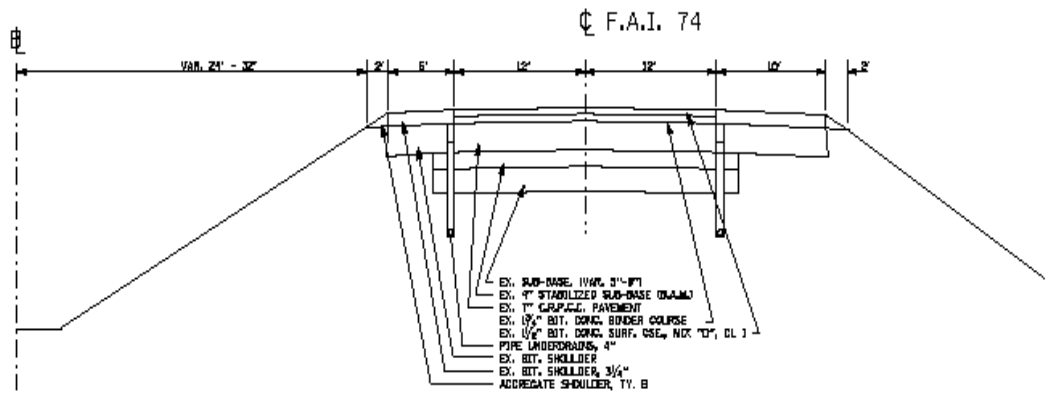
HOT MIX ASPHALT INLAY

SECTION	COUNTY	TOTAL SHEETS
74	MCLEAM	4

STA. TO STA.
 ILLINOIS DEPARTMENT OF TRANSPORTATION
 * CM PATRONIC 2008-1

EXISTING TYPICAL SECTION

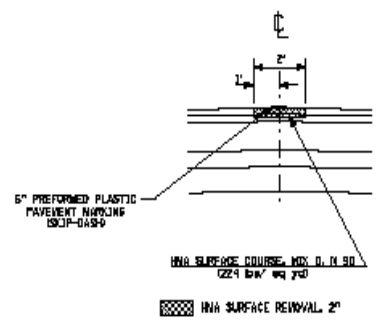
STA. 603+50 - 737+00 (EB)
 STA. 607+00 - 737+00 (WB)



BRIDGE OMISSIONS:
 STA. 718+67.07 - 720+48.07
 STA. 779+64.14 - 781+27.72
 STA. 1038+05.75 - 1039+49.75

① PROPOSED CENTERLINE JOINT REPAIR TYPICAL SECTION

STA. 603+50 - 737+00 (EB)
 STA. 607+00 - 737+00 (WB)



NOTE: THE MILLING, PLACEMENT OF ASPHALT, AND PAVEMENT MARKING MUST BE COMPLETED IN THE SAME DAY.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
EXISTING / PROPOSED TYPICAL SECTIONS
 SCALE: VERT. 1/4\"/>

PLAT DATE: 11/11/09
 DATE: 11/11/09
 DRAWN BY: J. J. JONES
 CHECKED BY: J. J. JONES
 IN CHARGE: J. J. JONES





IDOT INVESTIGATES OPTIONS

- Minnesota DOT
- Missouri DOT

MINNESOTA DOT

- Project
FAI Route 494
Section
Hennepin County

Average Daily Traffic – 140,000 to 150,000



Crack up to 3"
wide and 4"
deep



EXIT 4 B

Lyndale Ave ↗



Albert Lee
Minneapolis
I-94

AIRPORT TAXI

TRIA



MISSOURI DOT

- Project

FAI Route 44

Section D608-126-RW Micro-surfacing Repair

St Louis County











IDOT'S PAVEMENT PRESERVATION & MAINTENANCE 2009

Region 3/District 5 – Paris, IL

FAI Route 74

Section (57-17 Thru 24, 9-1)I

McLean County

Contract No. 70732 March 2009 Letting

Limits - US Bus 51 to DeWitt County Line

LOCATION MAP

START OF PROJECT

END OF PROJECT











DESIGN DETAILS

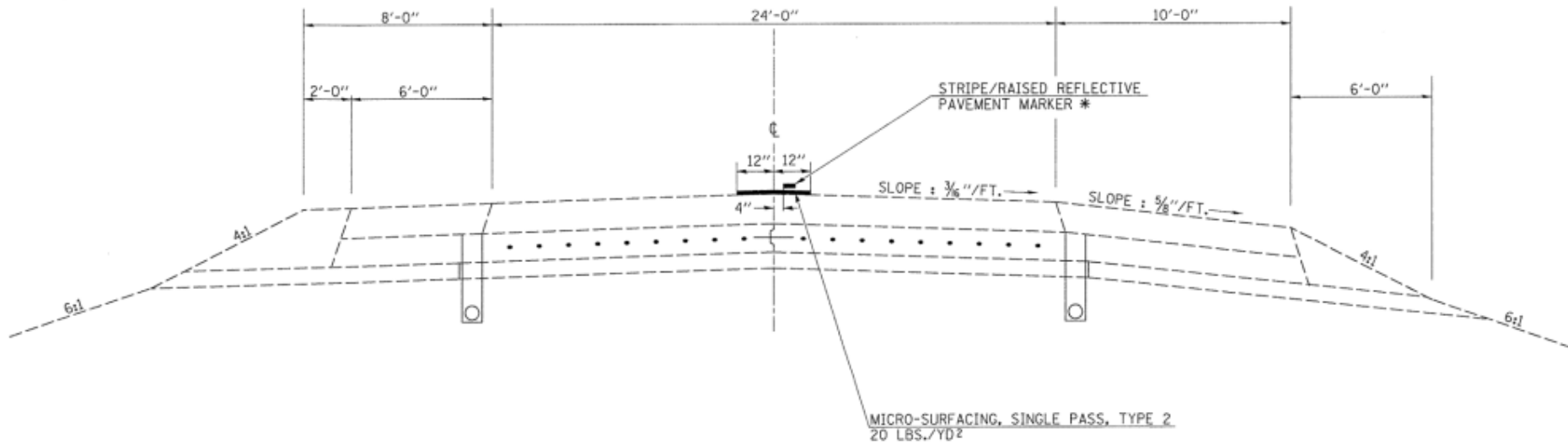
- Remove Existing Striping
- Install Temporary Striping
- Remove existing RRPMs
- All surfaces primed
- Construct 1000 ft Test Section
- Micro-surfacing, single pass, Type 2 - 24 inch
 - Mix approved by IDOT
- Cure minimum of 1 hour before opening to traffic
- 7 Day cure before permanent striping and RRPM
 - Striping – Epoxy Paint
- 25 Working Days

MICRO-SURFACING OMISSIONS

STA. 779+67.94 TO STA. 781+29.22 (SN 057-0120/0121)
 STA. 781+29.22 TO STA. 1126+76.21 (EB ONLY-EXISTING IN
 STA. 1126+76.21 TO STA. 1127+85.71 (SN 057-0128/0129)
 STA. 1038+04.25 TO STA. 1039+95.75 (SN 057-0125/0126)
 STA. 376+15.95 TO STA. 377+52.37 (SN 057-0133/0134)

PROPOSED TYPICAL CROSS SECTION FAI 74

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



* EQUATION STATIONS

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

* OFFSET LANE TO BE DESIGNATED BY THE RESIDENT ENGINEER

USER NAME * cwrgr	DESIGNED -	REVISION -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED TYPICAL CROSS SECTION			SECTION	COUNTY	TO	
DRWN	DRWN	REVISION -		SCALE:	SHEET NO. OF SHEETS	STA. TO STA.	74	05-27 THRU 24, 9-111	MCLEAN	
PLT SCALE * 48.0000' / 1/8"	CHECKED -	REVISION -								CONTRACT N
PLT DATE * 10/28/2000	DATE -	REVISION -								FEB. ROAD DIST. NO. ILLINOIS FIVE AID PROJECT

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 micro-surfacing
- 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













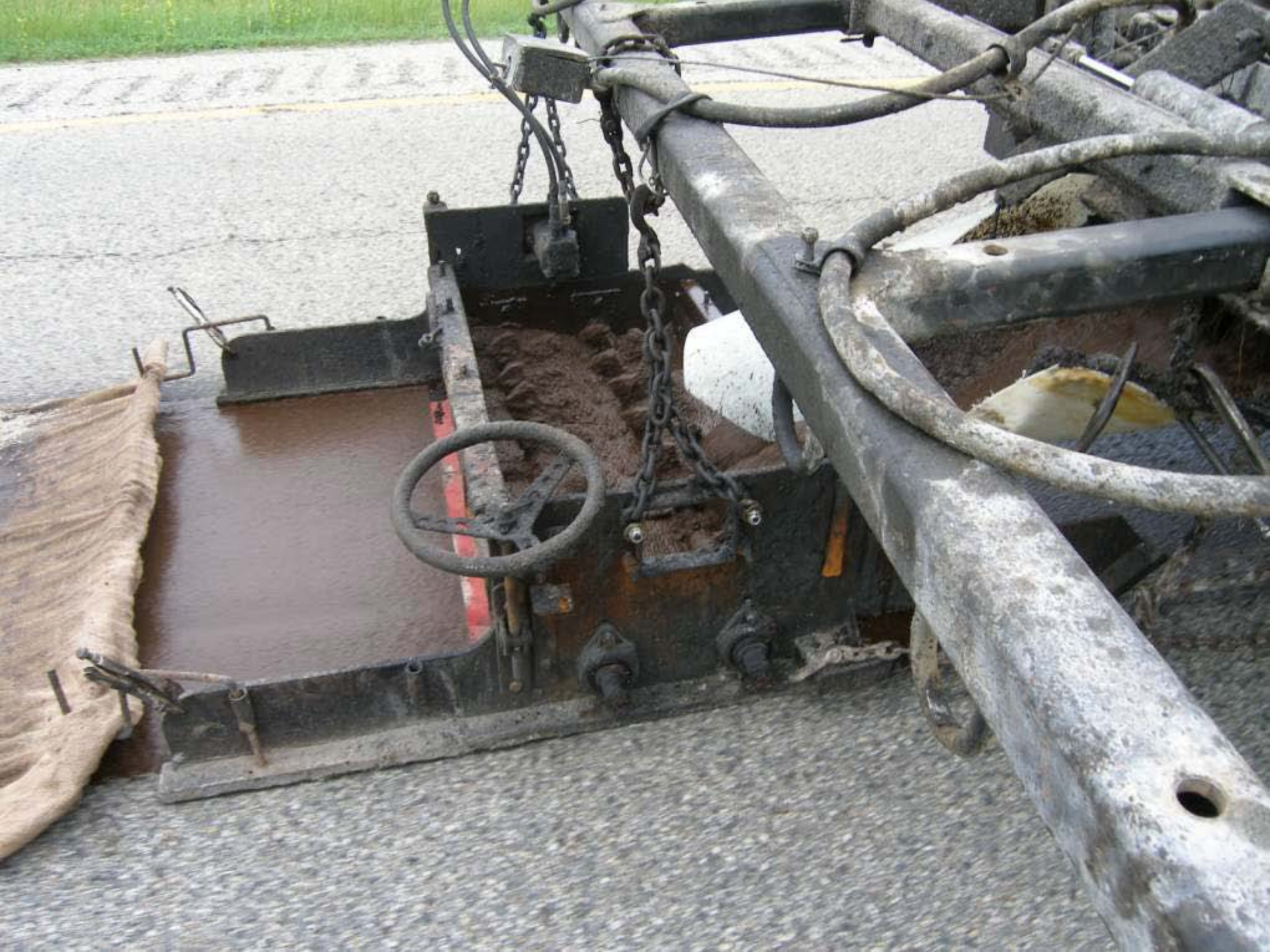
CAUTION
MOVING
PARTS

EMULSION

WA
STOPS

SAFETY
INSTRUCTIONS
READ CAREFULLY
BEFORE OPERATING
THIS EQUIPMENT
FAILURE TO FOLLOW
THESE INSTRUCTIONS
MAY RESULT IN
DEATH OR SERIOUS
INJURY.

SAFETY
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READ CAREFULLY
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THIS EQUIPMENT
FAILURE TO FOLLOW
THESE INSTRUCTIONS
MAY RESULT IN
DEATH OR SERIOUS
INJURY.







CONSTRUCTION
VEHICLE
KEEP TO THE RIGHT
STAY OUT OF LANE

EMISSION

149 457

DODGE

U





















**DO
NOT
FOLLOW**













IDOT'S PAVEMENT PRESERVATION & MAINTENANCE 2009

Region 2/District 3 – Ottawa, IL

FAI Route 57

Section VARIOUS

Kankakee County

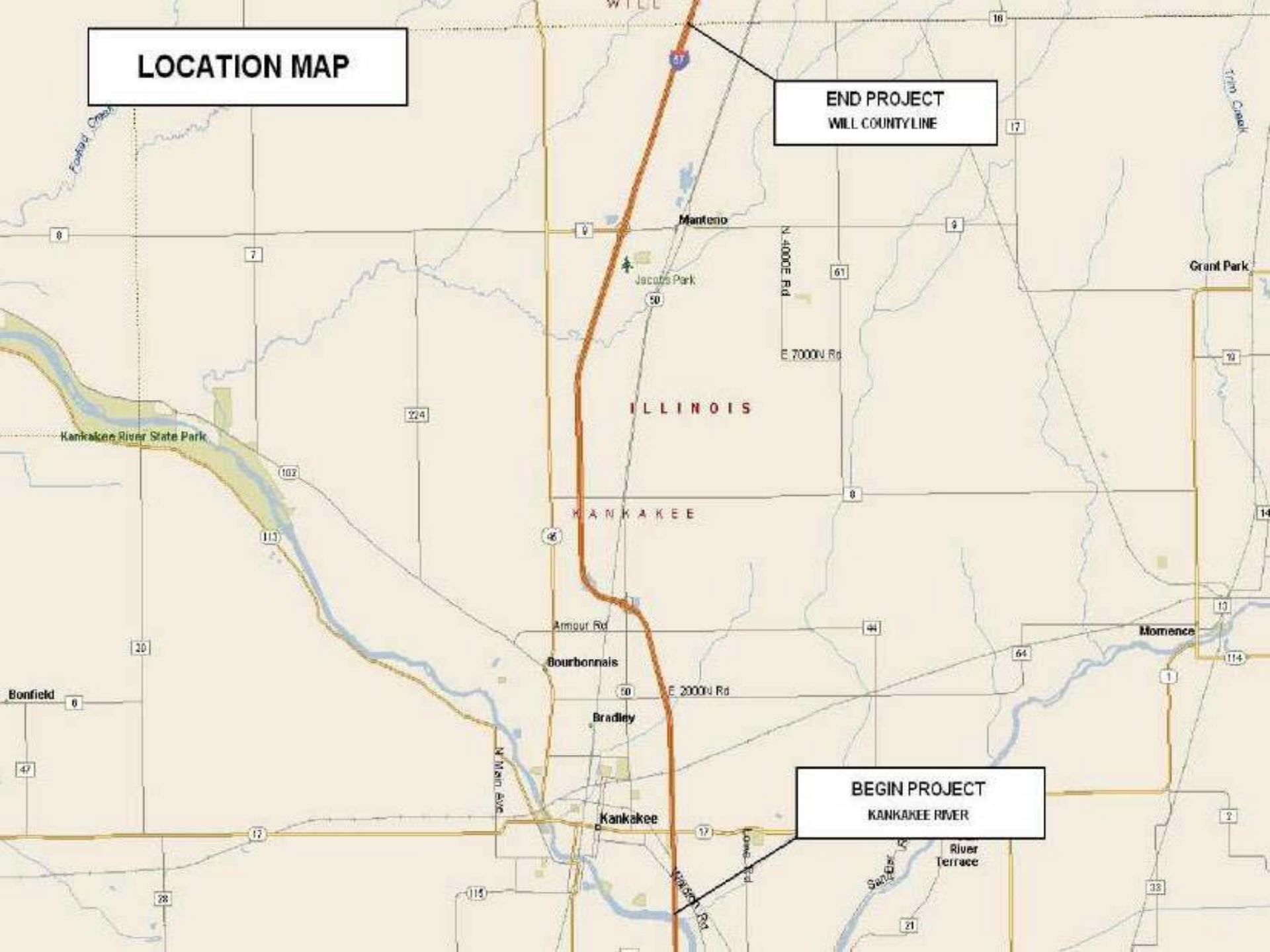
Contract No. 66984 July 31, 2009 Letting

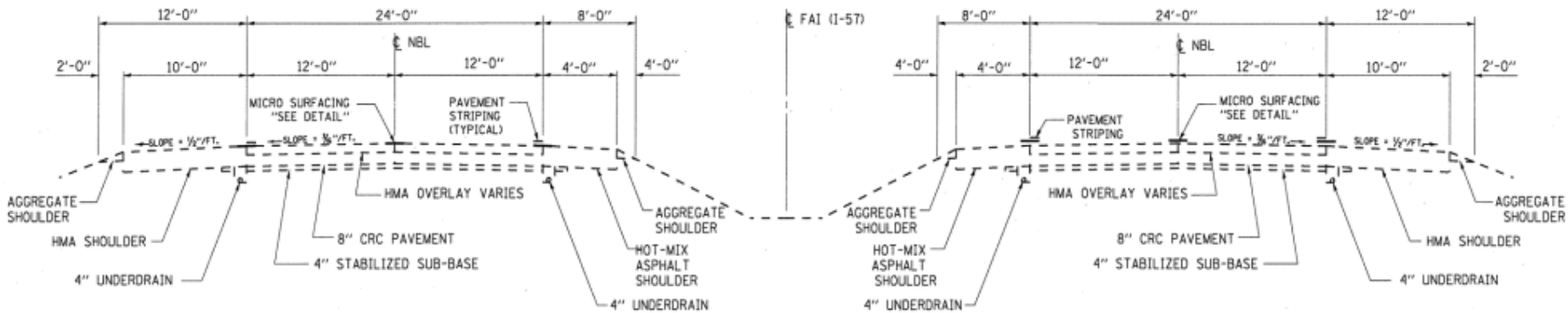
Limits - Kankakee River to Will County Line

LOCATION MAP

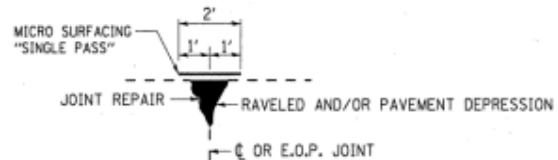
END PROJECT
WILL COUNTYLINE

BEGIN PROJECT
KANKAKEE RIVER





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

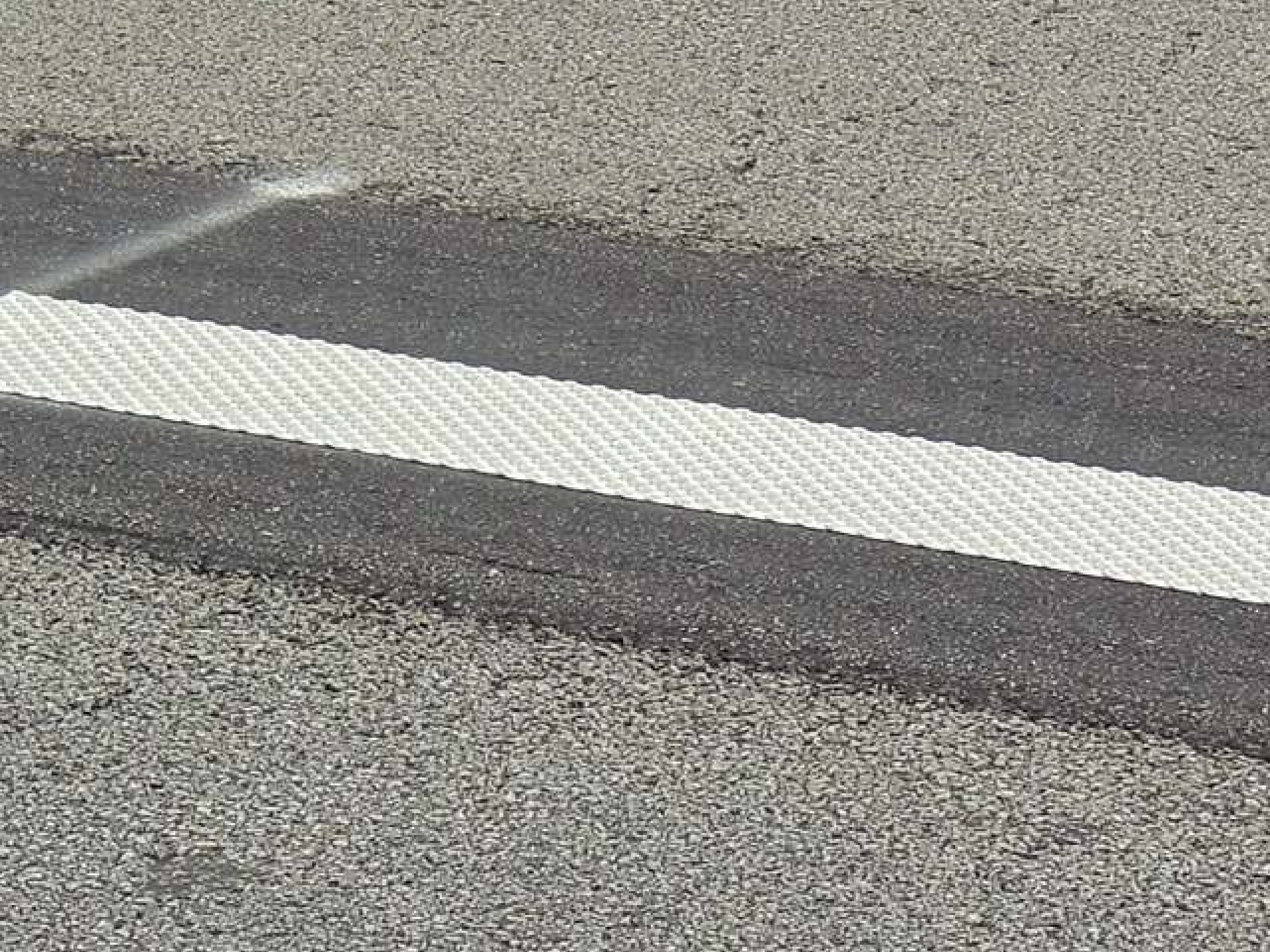
M.P. 312.67 TO M.P. 312.71	SN 046-0008 NB & SN 046-0009 SB
M.P. 312.79 TO M.P. 312.81	SN 046-0010 NB & SN 046-0011 SB
M.P. 313.64 TO M.P. 313.65	SN 046-0013 NB & SN 046-0012 SB
M.P. 315.46 TO M.P. 315.50	SN 046-0015 NB & SN 046-0014 SB
M.P. 315.73 TO M.P. 315.77	SN 046-0017 NB & SN 046-0016 SB
M.P. 319.99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















EXIT
315 ↗



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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