CENTER LINE JOINT PRESERVATION

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Champaign, Illinois
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DISCLAIMER

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Items of Discussion

- The Concept
- 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







ILLINOIS' PRESERVATION/MAINTENANCE STRATEGIES

- Do Nothing
- Rout & Seal
- Spray Patch
  - Emulsion & Aggregate
- HMA Inlays
- Micro-surfacing



ROUT & SEAL


MAHOMET

SPRAY PATCH

Emulsion with Aggregate Cover



HOT MIX ASPHALT INLAY

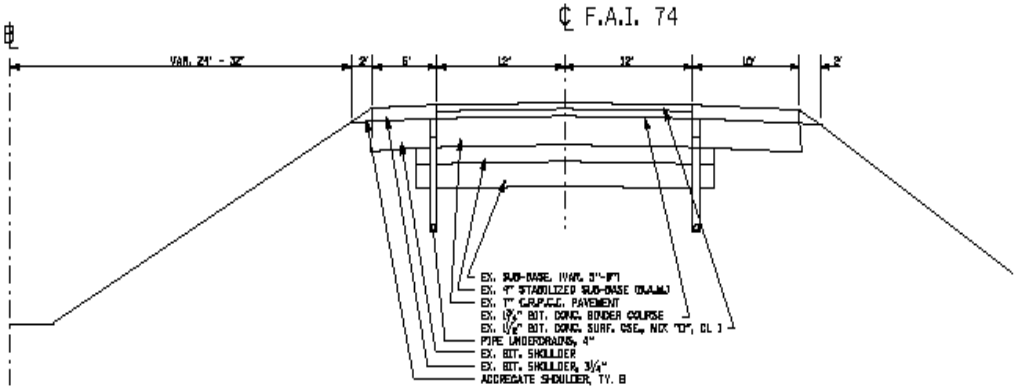
CONTRACT NO. 70680

C.D.H. DIST.	SECTION	COUNTY	TOTAL SHEET SHEETS	SHEET NO.
74	*	MCLEAN	11	4
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

* CM PATCHING 2008-1

EXISTING TYPICAL SECTION

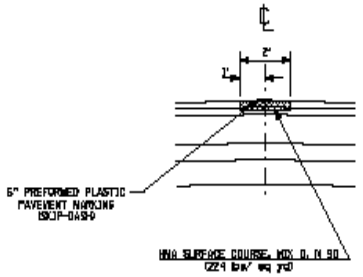
STA. 603+50 - 737+00 (EB)
STA. 607+00 - 737+00 (WB)



BRIDGE OMISSIONS:
STA. 718+67.07 - 720+48.07
STA. 779+64.14 - 781+27.72
STA. 1038+05.75 - 1039+97.75

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.

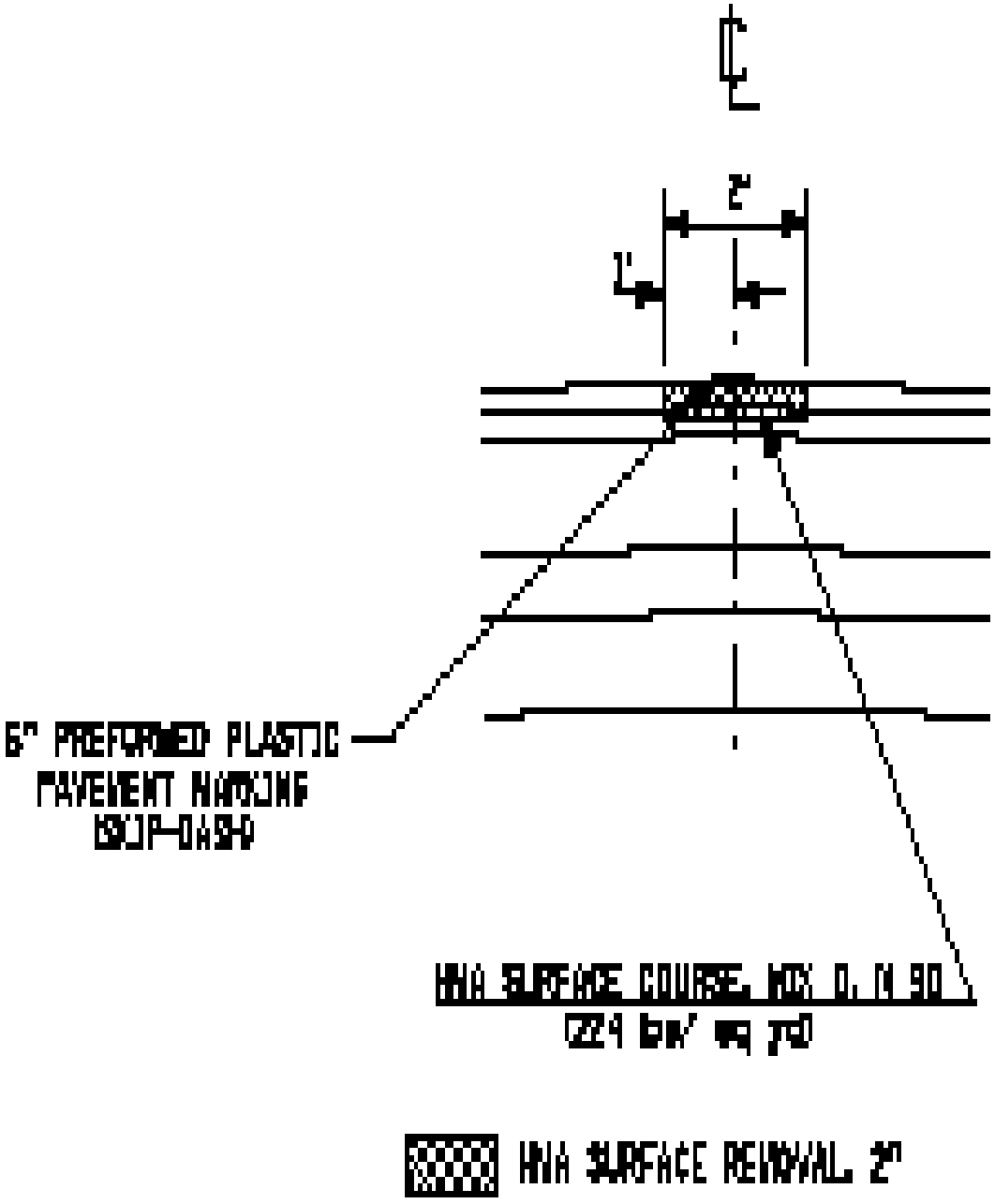
REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

EXISTING / PROPOSED TYPICAL SECTIONS

SCALE: VERT. HORIZ.
DATE
DRAWN BY
CHECKED BY

PLOT NOTE: = EXISTING
= PROPOSED
= REMOVAL
= ADDITIONAL


2'
1'
6" PREFORMED PLASTIC
PAVEMENT MARKING
(SOLID-DASHED)
HMA SURFACE COURSE, MIX D, (1.5D)
(229 lbs/ sq yd)
HMA SURFACE REMOVAL, 2"





IDOT INVESTIGATES OPTIONS

- Hal Wakefield – FHWA
- LaDonna Rowden – IDOT BMPR
- Sharon Haasis – IDOT BMPR
- Tom Ritschel – ILPPMA
- Scott Lackey – IDOT R3/D5 Materials

KEY ISSUES

- Performance on Interstates
- Condition of the Joints
- Raised Reflective Pavement Markers
- Temporary Pavement Markings
- Permanent Pavement Markings

MINNESOTA DOT

- Project
  FAI Route 494
  Section
  Hennepin County

Average Daily Traffic – 140,000 to 150,000


494
5
77
1/4 MILE
77
Crack up to 3″ wide and 4″ deep


EXIT 4B
Lyndale Ave
EXIT 4B


EXITS 5B&A
35W
Albert Lea
Minneapolis
1¼ MILES
RPORT TAXI


255
255

MISSOURI DOT

- Project

  FAI Route 44

  Section D608-126-RW Micro-surfacing Repair

  St Louis County

  - Lane Re-Alignment for staged construction




BERGKAMP
MIX-PAVERS

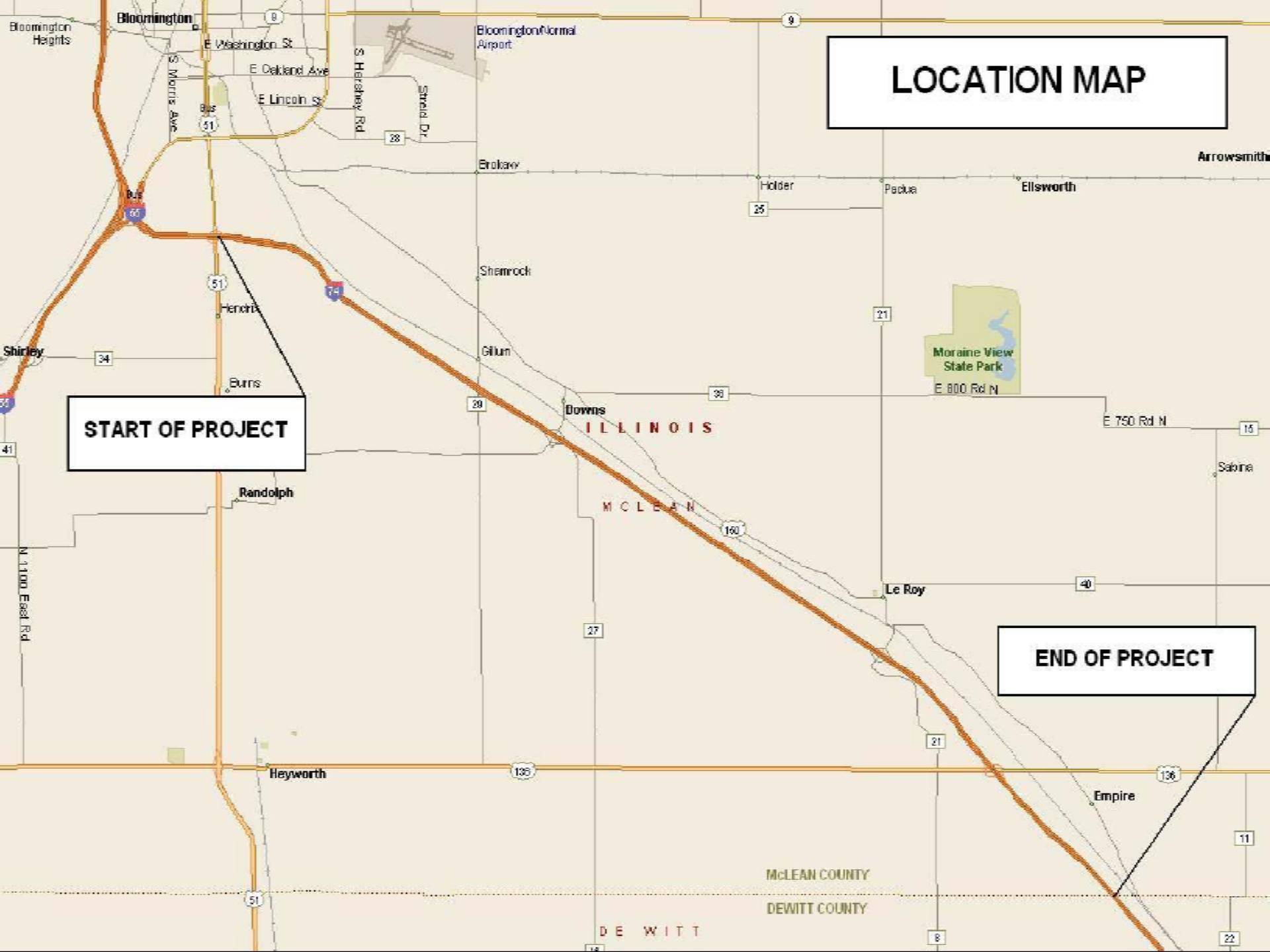

CHEVROLET

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
(Approximately 46 miles of joint repair)


LOCATION MAP
START OF PROJECT
END OF PROJECT
Bloomington
Bloomington Heights
E Washington St
E Oakland Ave
E Lincoln St
S Morris Ave
S Hershey Rd
Streid Dr
Bloomington/Normal Airport
Arrowsmith
Ellsworth
Holder
Pecue
Shamrock
Hendrix
Shirley
Burns
Gilum
Downs
Moraine View State Park
E 800 Rd N
E 750 Rd N
Sabina
ILLINOIS
MCLEAN
Randolph
Le Roy
N 1100 East Rd
Heyworth
Empire
McLEAN COUNTY
DEWITT COUNTY
DE WITT









DESIGN DETAILS

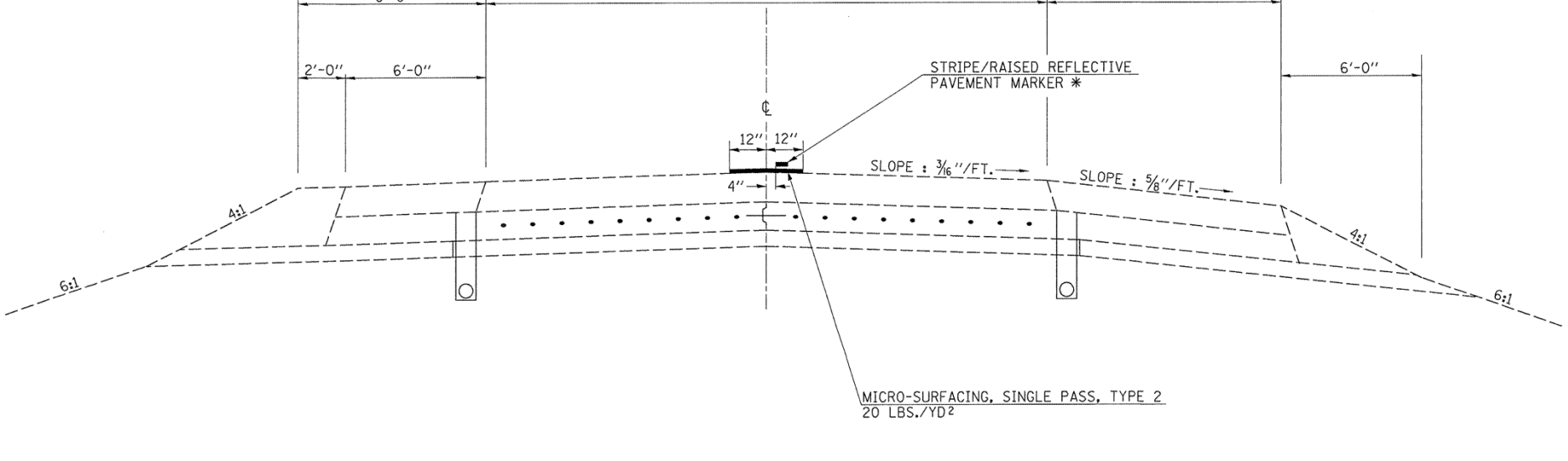
- Remove Existing Striping
- Install Temporary Striping
- Remove existing RRPMs
- All surfaces primed
- Construct 1000 ft Test Section
- Micro-surfacing, single pass, Type 2 - 24 inch
    - Mix approved by IDOT
- Cure minimum of 1 hour before opening to traffic
- 7 Day cure before permanent striping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



* OFFSET LANE TO BE DESIGNATED BY THE RESIDENT ENGINEER

* EQUATION STATIONS

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

\d570732\cadsheets\d570732-s\t-typical.dgn	USER NAME = craigra	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PROPOSED TYPICAL CROSS SECTION			F.A.I. RTE.	SECTION	COUNTY	TO SHE
	PLOT SCALE = 40.0000 ' / IN.	DRAWN -	REVISED -					74	(57-17 THRU 24, 9-11)	MCLEAN	
	PLOT DATE = 10/20/2008	CHECKED -	REVISED -							CONTRACT N	
		DATE -	REVISED -		SCALE:	SHEET NO. OF SHEETS	STA. TO STA.	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

CONSTRUCTION DETAILS

- Mix Design
  - Aggregate 028FM20 (Crushed Stone) – Maximum Nominal Aggregate Size #4 sieve
  - Latex Modified Emulsified Asphalt (CSS-1h) @ 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








MSI
21A J9Z




CAUTION
MOVING
PARTS
EMULSION






CONSTRUCTION
VEHICLE
WATCH FOR SUDDEN
STOPS OR TURNS
EMULSION
DODGE










MAYTAG






STOP




DO
NOT
FOLLOW







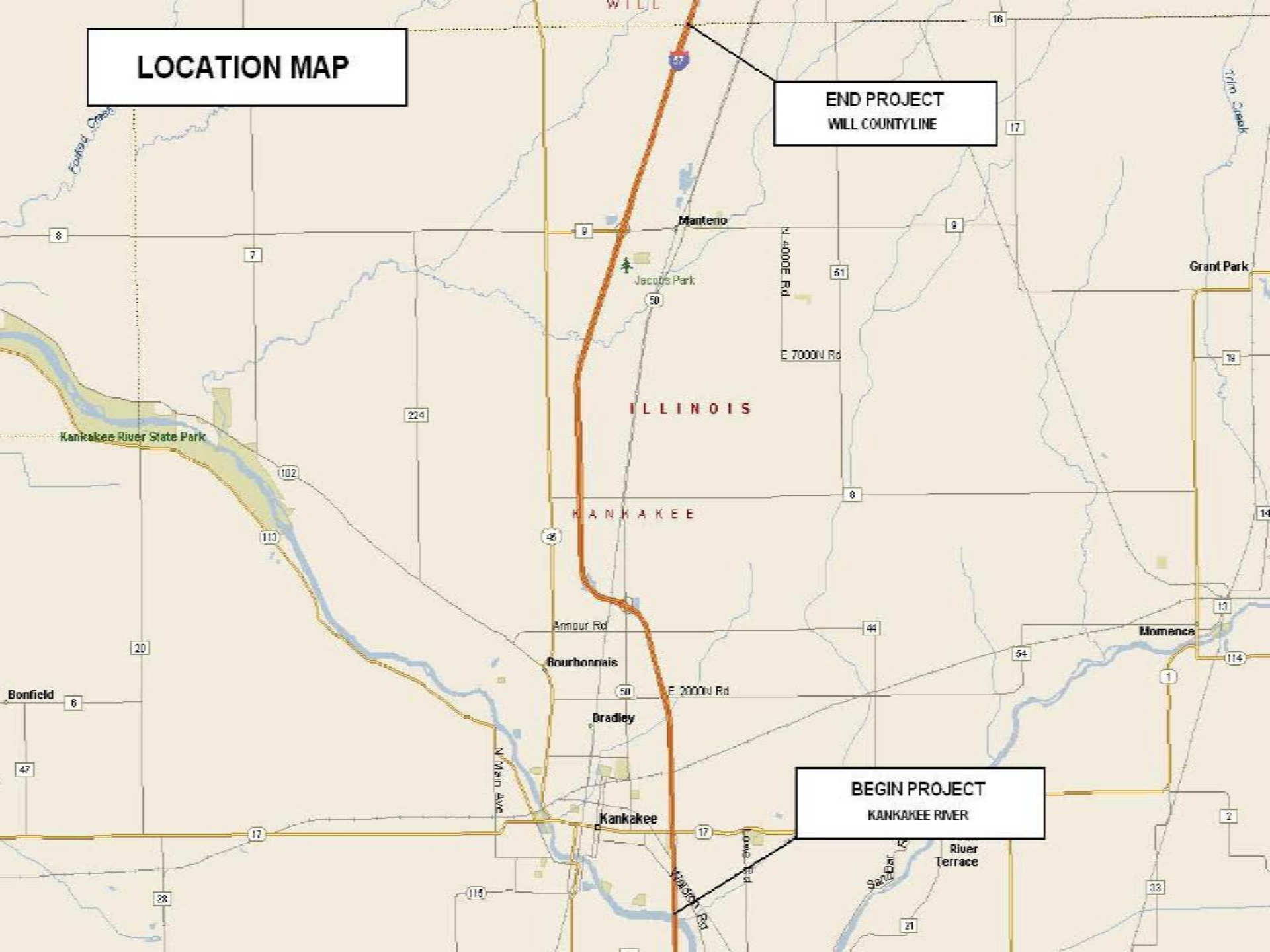


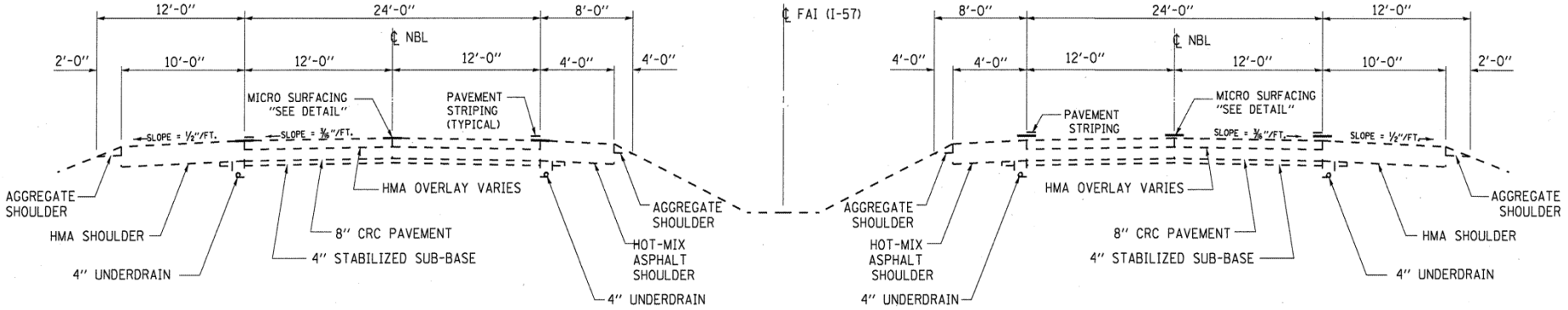
IDOT'S PAVEMENT PRESERVATION & MAINTENANCE 2009

Region 2/District 3 – Ottawa, IL

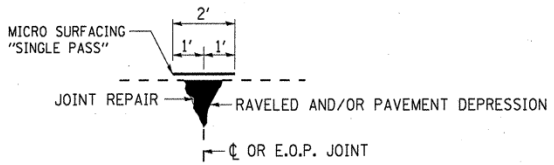
FAI Route 57
Section VARIOUS
Kankakee County
Contract No. 66984 July 31, 2009 Letting

Limits - Kankakee River to Will County Line
(Approximately 58 miles of joint repair)


LOCATION MAP
END PROJECT
WILL COUNTY LINE
BEGIN PROJECT
KANKAKEE RIVER
WILL
Manteno
Jacobs Park
N 4000E Rd
E 7000N Rd
Grant Park
ILLINOIS
Kankakee River State Park
KANKAKEE
Armour Rd
Bourbonnais
E 2000N Rd
Bradley
Momence
Bonfield
N Main Ave
Kankakee
River Terrace



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

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PLOT DATE = Jun 23, 2009 - 09:17:29 AM
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DRAWN - RON WOODSHANK
CHECKED -
DATE -
REVISED -
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REVISED -

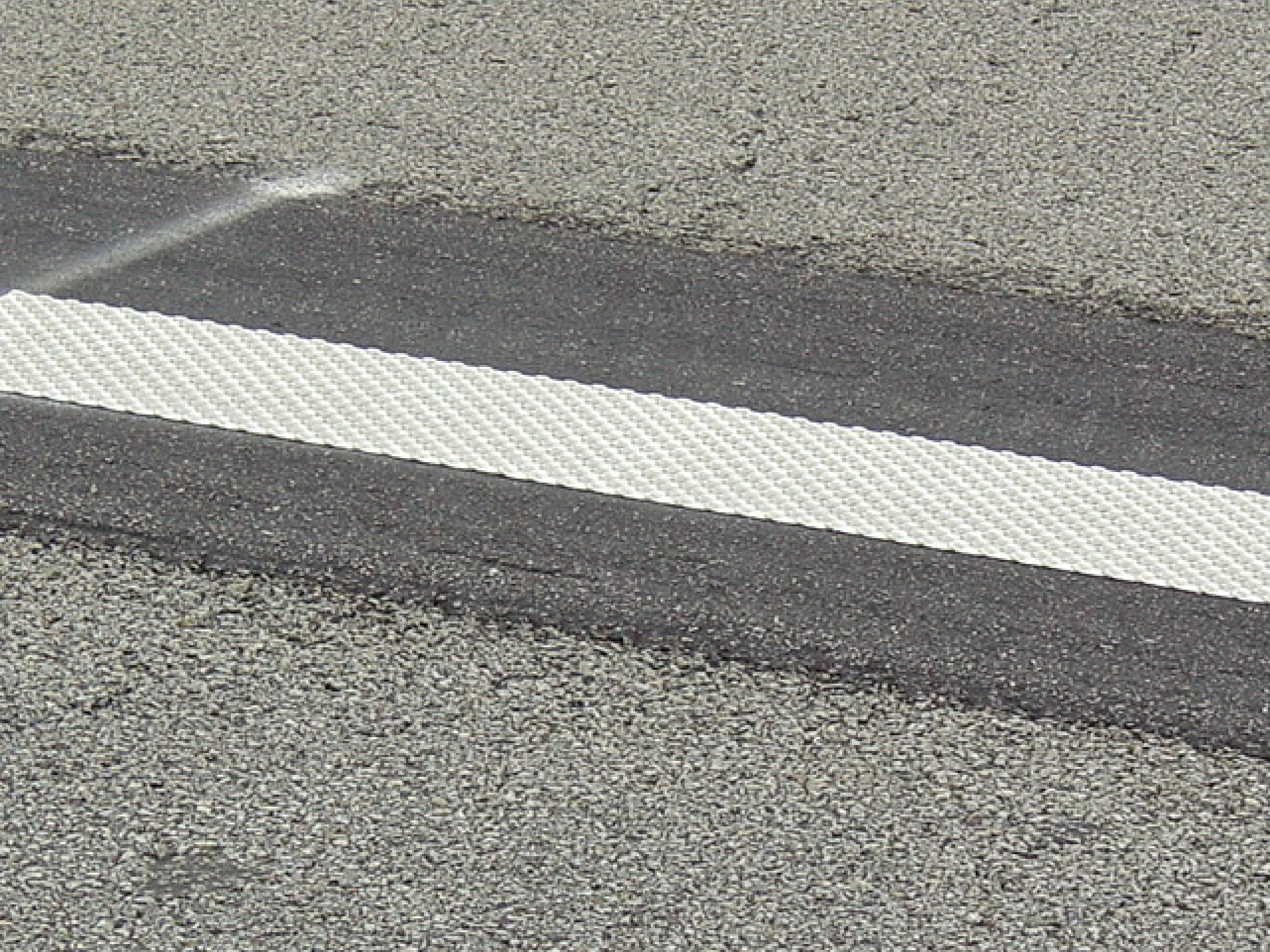
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICALS
SCALE: _____ SHEET NO. 1 OF 1 SHEETS STA. _____ TO STA. _____

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
57	VARIOUS	KANKAKEE	5	4
		CONTRACT NO. 66984		
		ILLINOIS		










EXIT
315

EVALUATE THE OPTIONS!

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 and night time work

HOW MANY YEARS UNTIL THE NEXT REPAIR?













What can we do instead?

What can you do instead?
(DELAY ONE MILE OF INTERSTATE RESURFACING)

- Construct one of the following on our 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 - 2 to 3 span bridge replacement
  - 3 box culvert replacements

DESIGN & CONSTRUCTION ISSUES

- Condition of Joint
  - Preliminary work
    - One or Two Pass Micro-surfacing
- Raised Reflective Pavement Markers
- Temporary Pavement Marking
- Type of Permanent Striping

QUESTIONS?

Scott A Lackey, PE
IDOT Region 3/District 5
Materials Engineer
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