Longitudinal Joint Construction Study

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Interstate 75
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Notched Wedge
NOTCHED WEDGE (Base Mixes)
NOTCH/WEDGE CONSTRUCTION DATA

MILEPOST

OUTSIDE NOTCH
INSIDE NOTCH
TOTAL MAT THICKNESS
Problems with the Notched Wedge

1. Maintaining the upper notch during compaction.

2. Raveling on the lower portion of the wedge.

3. Aggregate pickup by the small wedge roller.
Restrained Edge
Problems with the Restrained Edge

1. The beveled wheel did not have enough to properly compact the uncompacted material.

2. The beveled wheel caused the mixture to push up on the inside edge of the wheel. This created a longitudinal ridge in the mat.

3. Because of Problem No. 1, the breakdown roller made two passes before using the beveled wheel. This reduced its effectiveness.
Joint Maker
Problems with the Joint Maker

1. Difficult to set up and get the correct angle to achieve compaction.
Problems with the Reheater

1. Temperatures on the heaters had to be adjusted manually. The sensors to control the heaters had not been shipped.

2. In some places, the joint was overheated.

3. Could not use the “ski poles” on the paver.

4. Slower production because of having to reheat.
Joint Adhesives
Problems with Joint Adhesives

1. Require more personnel.

2. Need to be protected to avoid “pickup” by construction traffic.

3. Tape is more labor-intensive.

4. Some “bleed-through” occurs.
Which Method Is Best?

Notched Wedge
Restrained Edge
Joint Maker
Joint Adhesives
Accumulative Distributions of Test Densities for Conventional Construction Method
Versus Other Methods

(At the Construction Joint)
Accumulative Distributions of Test Densities for Conventional Construction Method Versus Other Methods

(At Six Inches from the Construction Joint)
Long-Term Performance
Control Section
75% Cracked

Joint Maker
10-20% Cracked

Restrained Edge
30-40% Cracked

Control with Crafco
60-70% Cracked

US 68, Barren County
Control Section
90-100% Cracked

US 31W
Hardin County

Notched Wedge
60-70% Cracked
Control
50% Cracked

US 460
Menifee County

Joint Maker
1-2% Cracked
Control
30-40% Cracked

US 60
Daviess County

Notched Wedge
15-20% Cracked
Control
30% Cracked

Bluegrass Parkway
Nelson County

Reheater
40% Cracked
Control
60% Cracked

Joint Maker
50% Cracked

US 41
Webster County