



# Longitudinal Joint Construction Study

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# Interstate 75



**KY 546**

4 22 19 10



11 3'95

<b>County</b>	<b>Route</b>	<b>Joint Technique</b>	<b>Joint Adhesive</b>	<b>Lift thickness</b>
Barren	US 68	Joint Maker / Restrained Edge	Crafco	1.0" Surface
Hardin	US 31W	Notched Wedge	Joint Tape	1.5" Surface
Casey	US 127	Notched Wedge	Crafco	1.5" Surface
Menifee	US 460	Joint Maker / Restrained Edge		1.0" Surface
Laurel	KY 80	Restrained Edge		1.5" Surface
Daviess	US 60	Notched Wedge		1.5" Surface
Scott	US 62	Notched Wedge		4.0" Base
Nelson	BGPKWY	Infrared Reheater		1.5" Surface
Logan	US 431	Restrained Edge		1.5" Surface
Pulaski	KY 80	Joint Adhesive	Crafco	1.25" Surface
Pulaski	US 27	Restrained edge		1.5" Surface
Webster	US 41	Joint Maker		1.0" Surface



# Notched Wedge





7 7'8



# NOTCHED WEDGE (Base Mixes)



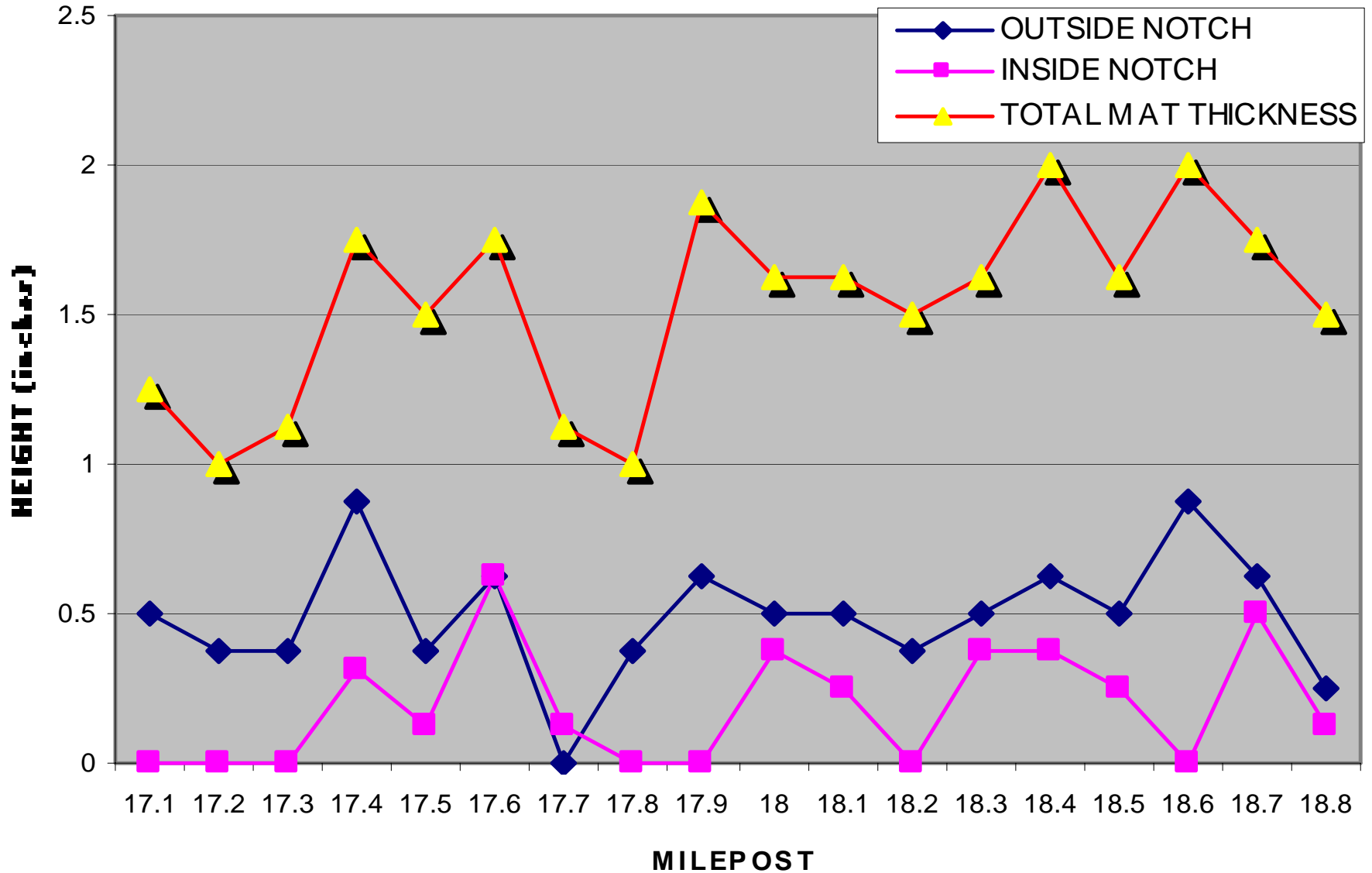






6 22 '00

# NOTCH/WEDGE CONSTRUCTION DATA





# *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







MERRY  
OAKS

INGERSOLL-RAND





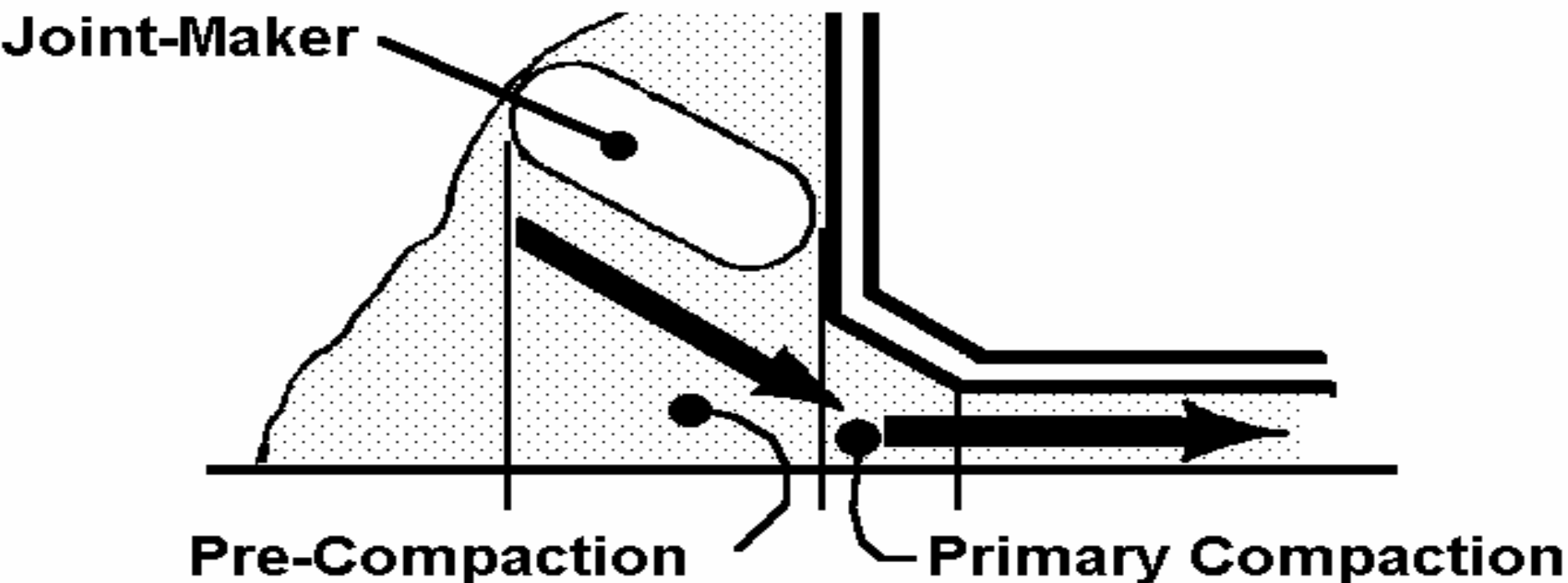
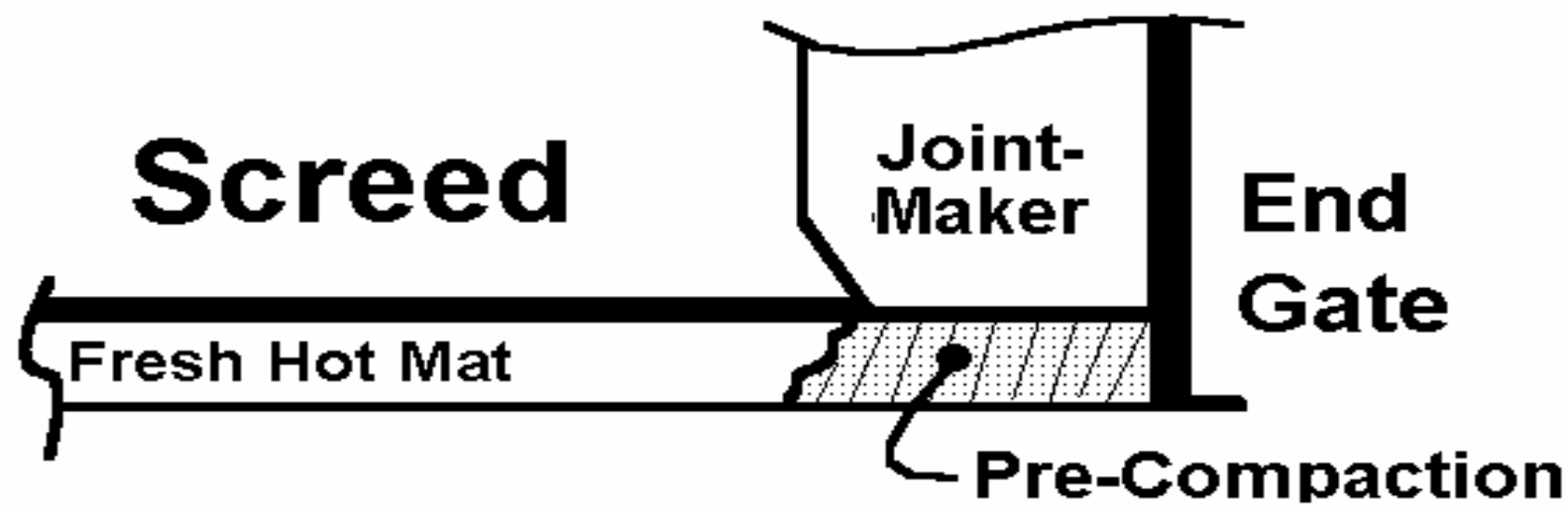
# ***Problems with the Restrained Edge***

- 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.**



# Bluegrass Parkway Joint Reheater













95

260

350

150

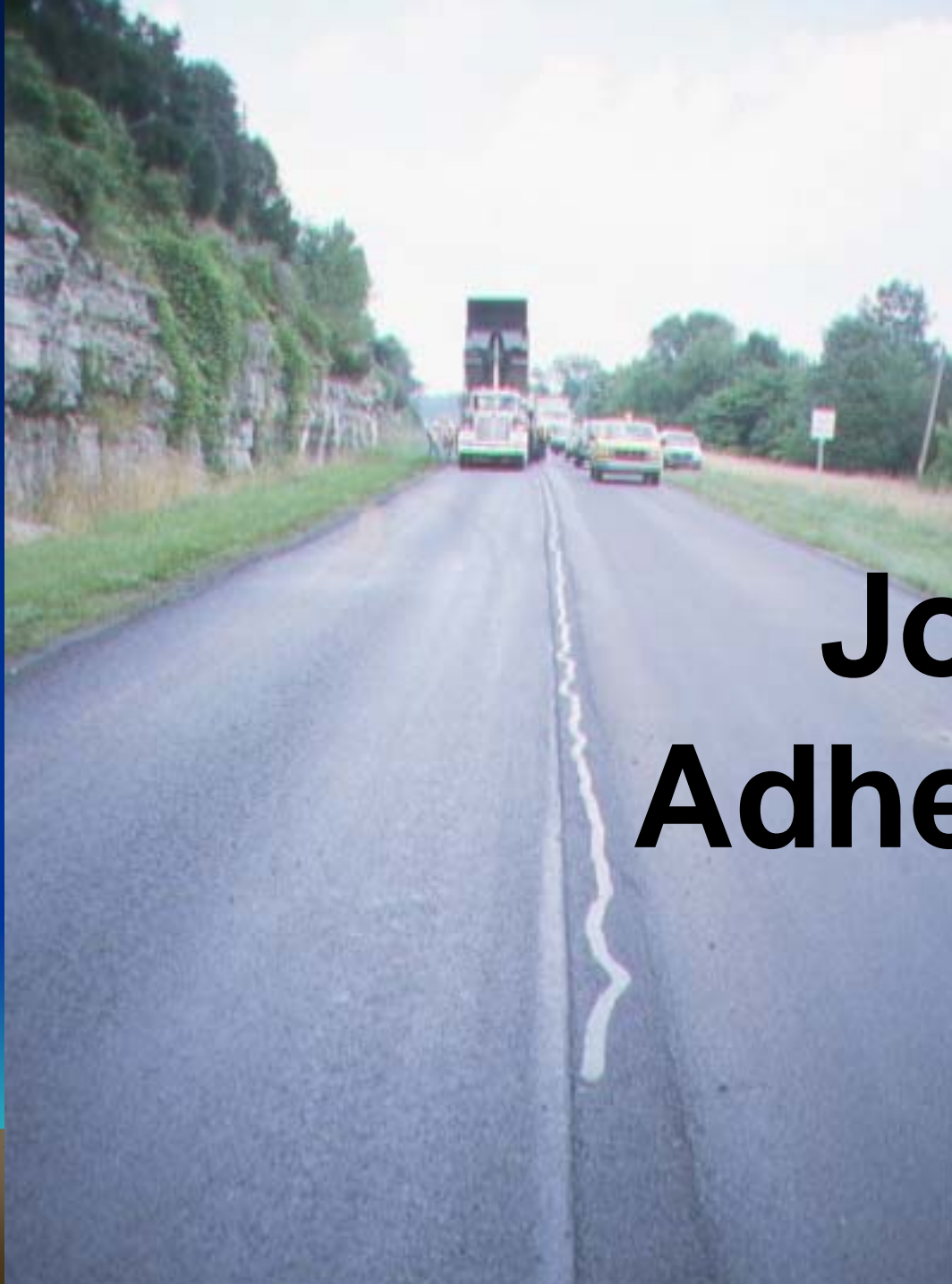
360



# ***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







**CRAFCO**







6 2 9

# ***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.**



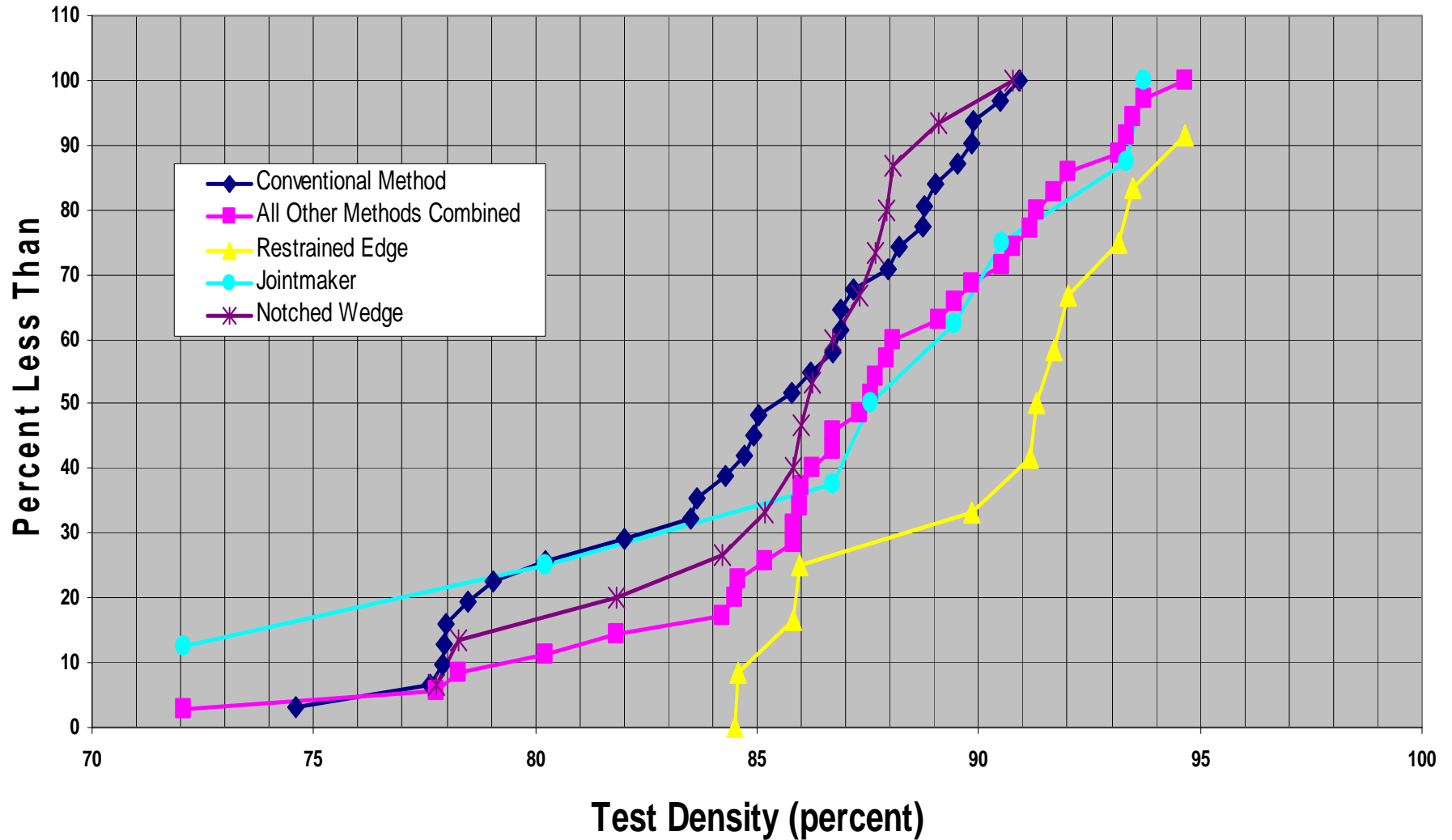
# ***Which Method Is Best?***

**Notched Wedge  
Restrained Edge  
Joint Maker  
Joint Adhesives**



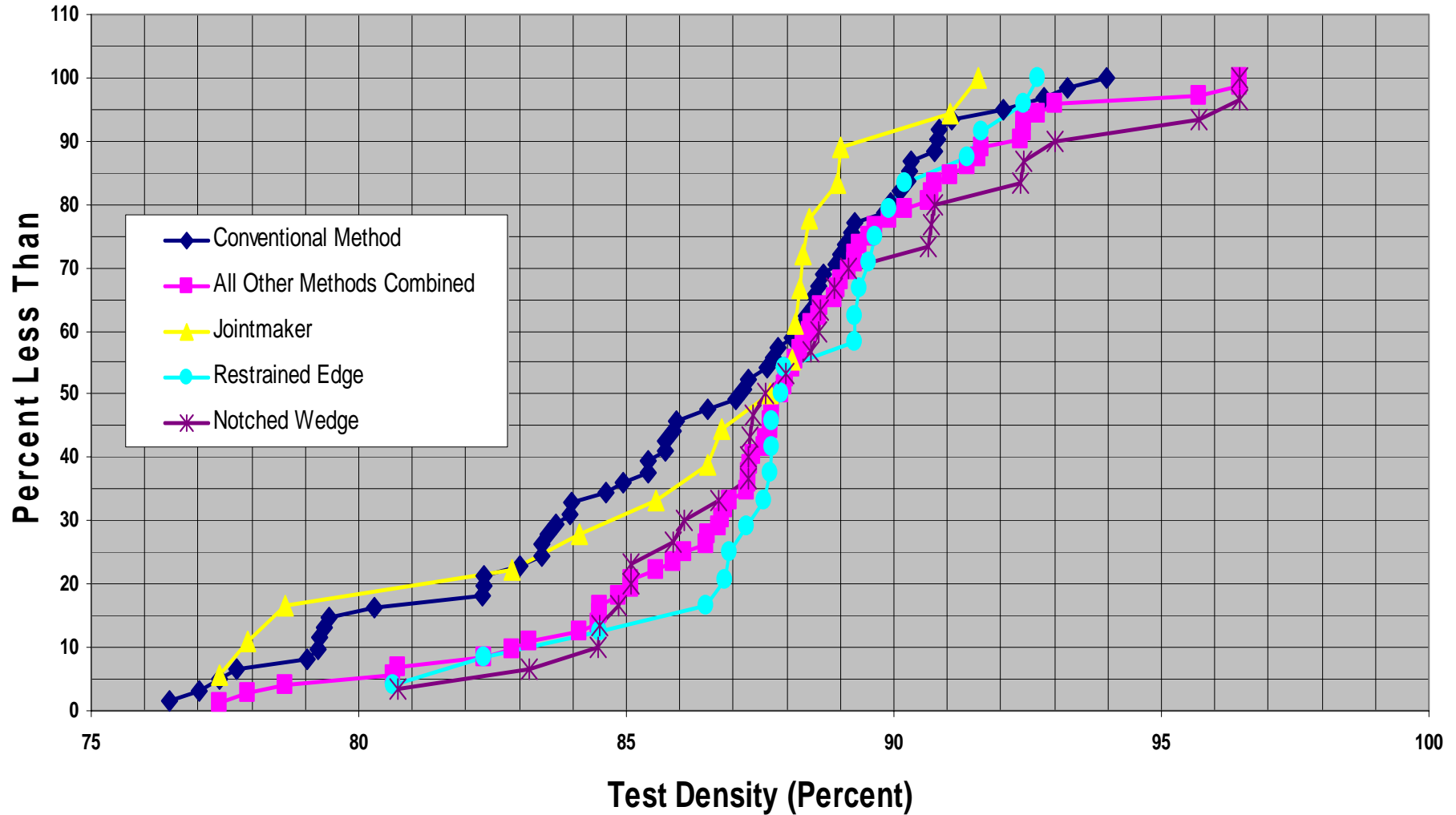
# Accumulative Distributions of Test Densities for Conventional Construction Method Versus Other Methods

( 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



**Joint Maker**  
**10-20% Cracked**

**Control Section**  
**75% Cracked**

**US 68, Barren County**

**Restrained Edge**  
**30-40% Cracked**

**Control with Crafcro**  
**60-70% Cracked**

**Control Section  
90-100% Cracked**


**US 31W  
Hardin County**

**Notched Wedge  
60-70% Cracked**

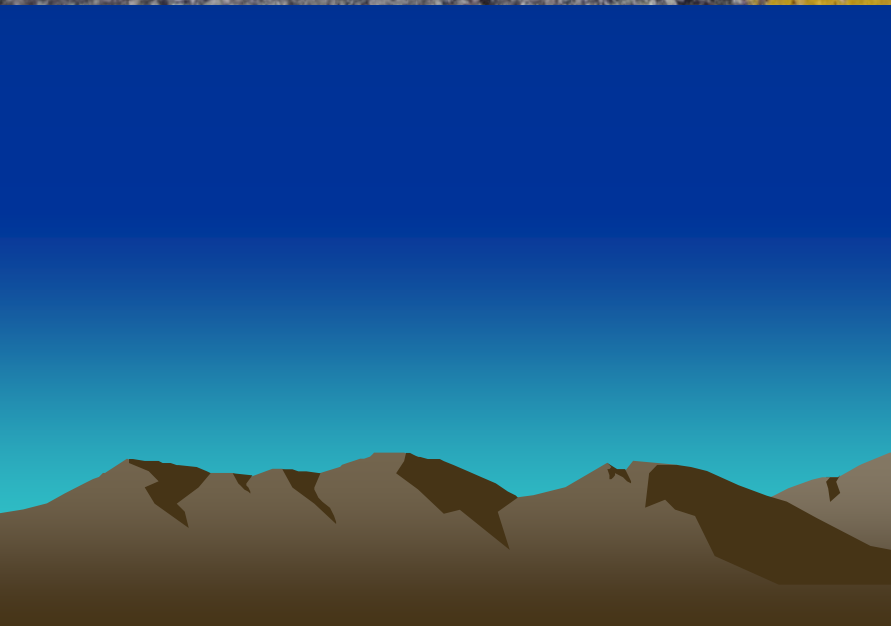
A close-up photograph of asphalt pavement. On the left, the asphalt is heavily cracked and fragmented. On the right, a yellow painted line is visible, showing some wear and cracking. The overall appearance is that of a control section with significant cracking.

**Control**  
**50% Cracked**

**US 460**  
**Menifee County**

A close-up photograph of asphalt pavement. A yellow painted line runs vertically through the center. The asphalt surface is relatively smooth and shows very little cracking compared to the control section.

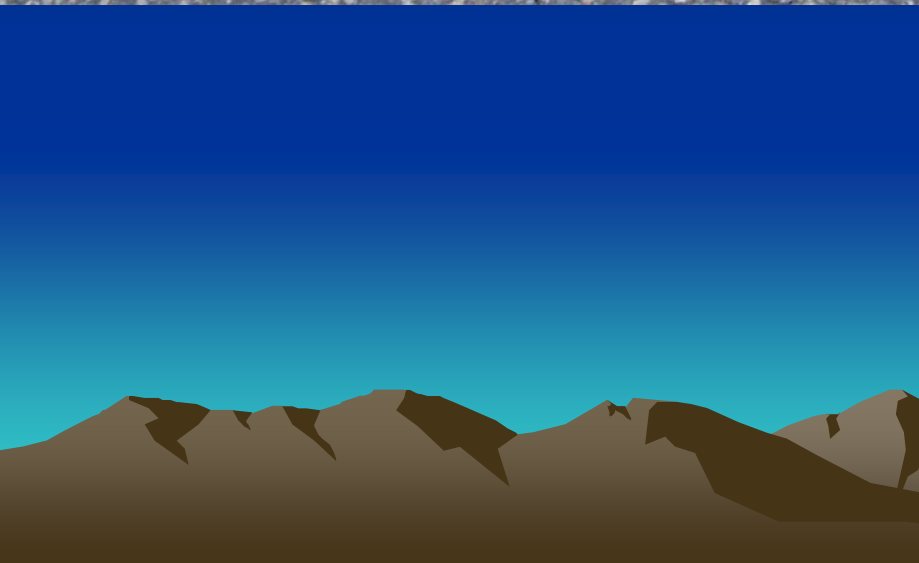
**Joint Maker**  
**1-2% Cracked**



**Control  
40% Cracked**

**KY 80  
Laurel County**

**Restrained Edge  
40% Cracked**



**Control**  
**30-40% Cracked**

**US 60**  
**Daviess County**

**Notched Wedge**  
**15-20% Cracked**



**Control  
30% Cracked**

# **Bluegrass Parkway Nelson County**

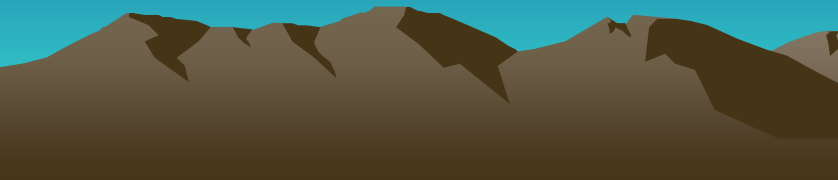


**Reheater  
40% Cracked**

# US 41 Webster County

**Control  
60% Cracked**

**Joint Maker  
50% Cracked**





# Conclusions?

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