Northeast Asphalt User/Producer Group

Longitudinal Joint Construction

October 11, 2006
Carlos Rosenberger
“In recent years, it has become evident how critical longitudinal joint construction is to the life of the pavement structure.....

Many pavements have been, or are in the process of being, resurfaced as a direct or indirect result of longitudinal joint deterioration”

Kentucky Transportation Center
College of Engineering
Talked about:
- improving fatigue with increased AC
- Agency’s lowering gyrations, design @ lower Va, etc.
- Look at dust:binder ratio

BUT,

“In-place air voids are the most important with respect to performance

If we don’t compact in-place, forget everything else!”
Wedge joint I-81 (PA) Southbound Near Mason-Dixon Line

Butt joint I-68 Maryland
Longitudinal Joint Construction

I-68  Maryland
July  2006
Reference to assist in getting the 1st pass straight

Pattern line
Great Results

Maryland
1st Pass extended over the edge 3 – 4 inches
Compacting Unconfined Edges

- Unconfined edges may shove out
- First pass 6 - 12” from edge to develop lateral confinement
- Second pass slight overhang
- Compacted portion supports weight of drum
Ideal overlap  1”

Practical overlap  2”
12.5mm SMA overlap
No lute person
Frank & John Shipley (SHA) noting aggregate appearance after 1st roller pass; “it blends into the mat within 6 months”
Bump the joint
Longitudinal Joint
I-68 project approximately 5 years old
I-68 project approximately 5 years old

( same project, same location as previous slide )
Do We Need a Longitudinal Joint Density Spec?

**NCAT 1992 Study**
- Suggest wedge joint OR butt w/rubberized paint
- Roll first pass 6” off joint
- Spec L-joint 2% < Mat

**Colorado**
- 2001 & 2002 Overall average 89.5% (info only) 20 projects
- 2003 Overall average 90.1% (pay factor) 30 projects
- 2004 Overall average 90.1% (pay factor) 34 projects
- 2005 Overall average 90.7% (pay factor) 16 projects
- Specification 6” core within 1” of visible joint

**Miscellaneous States**
- Report L-joint within 3lbs of mat density
**Kentucky**
- Contractors are currently achieving densities at the joint that are 2 to 3% less than center of the mat
- 59% of the time “hot side” higher density (conventional)
- 70% of the time “hot side” higher density (experimental)

**Maryland**
- Method Specification “appears to be working very good”

**Pennsylvania**
- Paint L-joint with PG
- Consider implementing density spec

**Delaware**
- Consider implementing density spec

**Virginia**
- Difference between mat and joint for 125mm is 34%
- Difference between mat and joint for 95mm is 26%
- Confined joint 974% vs Unconfined joint 964%
Do We Need a:

Joint Density Specification

or

Prescription Specification

or

Keep the Status Quo
Building Quality HMA
Longitudinal Joint
Point / Counterpoint

TRB - Washington D.C.

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