Construction of Longitudinal Joints

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Relationship between Density and Pavement Life

- Low Density
- Permeability
- Segregation
- Poor adhesion at interface
“You must plan for the longitudinal joint, it cannot be an afterthought”..
Longitudinal Joint Density

- Layout of the Site
- Tack Application
- Paver Practices
- Proper Depth
- Proper Overlap
- Handwork
- Compaction
- Quality Control
Layout – 1st Pull

- Mark a consistent, straight line for paver operator
- Offset 6” from existing joint
Tacking the 1st Pull

2’ section along center line is tacked first
Good Paver Practice

Paver hopper remains open between dumps

Material should not be pushed more than 24” to end gate
Paver Practice – 1st Pull

• Vibratory screed **ON**
• End gates set for neat butt joint
• Augers within 24” of end gate
• Consistent paver speed
• Non-contact ski for grade control
Definitions

Unconfined Edges

No Unconfined Edges

One Unconfined Edge

Two Unconfined Edges
Compaction – 1<sup>st</sup> Pull

Roll unconfined edges with a 6” overlap

We generally roll from centerline to outside edge, sealing off longitudinal joint first
Compaction - 1st Pull

Beginning just inside of the unsupported edge can cause cracking late in the roller pattern from lateral mix movement.

Edge of drum directly on edge of unsupported edge will typically cause lateral movement of mat.
Longitudinal Joint Density

2nd Pull

- Proper tack application
- Paving practices
- Correct depth and overlap of material
- Compaction
Tacking the 2\textsuperscript{nd} Pull

- Ensure joint is clean

- Tack the vertical face of the joint with 0.20 gal/S.Y. prior to paving

- Slight puddling at the base of vertical face is acceptable
Tacking the Vertical Face

Inset A

Slight Puddling

Tack Coat At Joint

Existing Pavement

12”
Paver Practice - 2nd Pull

- Consistent paver speed
- Joint matcher for grade control
- End gates down and augers within 24”
2nd Pull – Proper Depth

- $D_2 = D_1 + 25\%$
- $D_2 =$ Depth of 2nd Pull
- $D_1 =$ Compacted Depth of 1st Pull

DON’T STARVE THE JOINT!
2nd Pull – Proper Overlap

- We overlap the joint $\frac{1}{2}” - 1”$
- Do not trust the “toe test”
- Handwork?
2nd Pull – No Handwork Necessary

“Bumping the joint......BAD!”
A visible white line is assurance that you are not “starving” the longitudinal joint.
2\textsuperscript{nd} Pull - Compaction
2\textsuperscript{nd} Pass will leave 6” – 36” depending on road width

3\textsuperscript{rd} Pass pinches joint with sufficient material to achieve compaction
Longitudinal Joint Density QC

- Utilize the gauge beyond minimum requirements
- Prioritize density
- Have a plan for corrective action
Common Longitudinal Joint Density Issues

• Starving the joint, or “bridging”

• Excessive grade changes

• Paver speed
  • Rollers unable to keep up with paving operation
  • Electronics affected by inconsistent speed

• Communication between operators and technicians
Longitudinal Joint Density Summary

- **Layout** for straight lines and offset joints
- **Quality paving practice** with the machine
- **Tack** the clean joint location and vertical face
- Proper **depth and overlap**
- **Compaction** with joint density in mind
- Diligent **quality control**
Questions?