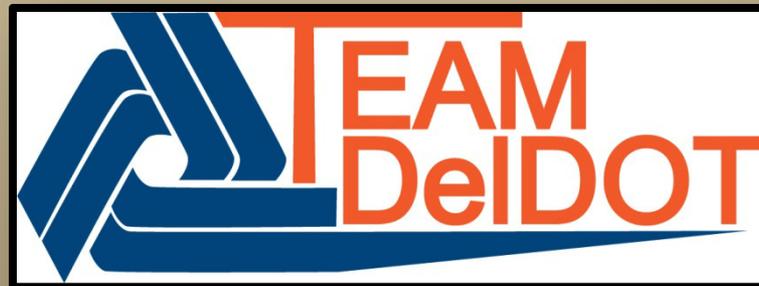


2012 WINTER WORKSHOP

LESSONS LEARNED

Hot/Warm Mix Asphalt Pavement
Longitudinal Joints



WARNING

Some photos in this presentation
may be disturbing to the audience

Viewer discretion is advised

LESSONS LEARNED

What Causes Longitudinal Joint Cracking?

- Low density which occurs at the unconfined edge when the first lane is paved.
- Temperature and environmental forces.
- Insufficient material to allow for roll down to match final grade between the two passes.
- Residual stress occurring at the wheel path.
- Irregular joint lines.

LESSONS LEARNED

Longitudinal joints between lanes of hot-mix asphalt (HMA) pavements are commonly more susceptible to moisture damage and other failures.

Therefore it is necessary to evaluate current paving practices to minimize longitudinal joint failure.

LESSONS LEARNED

Making a Straight First Paver Pass



To assure a true line when paving, closely follow lines or markings placed for this purpose. Making a straight first pass is crucial in building a quality joint.

**HMA Longitudinal
Joint Study**

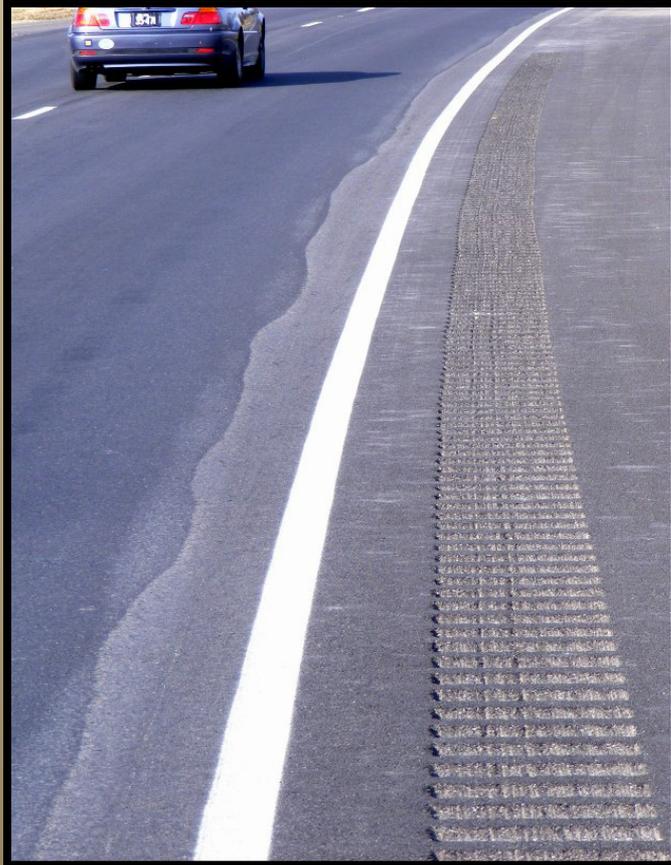


PAPA / PennDOT



LESSONS LEARNED

What We Don't Want



An irregular first pass will be impossible to match on the second pass to achieve the needed consistent overlap of 1 to 1 ½” of the paver screed.

LESSONS LEARNED

No Drinking & Paving



Consumption of Alcohol impairs the ability to pave a straight line.

LESSONS LEARNED

No Snake Rodeos



As tempting as it may be, refrain from chasing these down the road.

LESSONS LEARNED

What caused this?



LESSONS LEARNED

In Case You Said Radius



LESSONS LEARNED

**The reward for a job
well done, is to have
done it.**

Ralph Waldo Emerson

LESSONS LEARNED

Proof Straight Paving is Possible



LESSONS LEARNED

Irregular Joints Results in This



If there is too little or no overlap, the joint may be starved of material and can result in large voids or very low in place densities

Voids at joint caused by insufficient material at joint interface

LESSONS LEARNED

What Can We Do?

LESSONS LEARNED

Use a Reference Line



LESSONS LEARNED

Use a Reference Line

Subsection 401.08 Placing Bituminous Mixtures.

The Contractor is required to carefully plan the placement of the surface course to ensure that the joints in the surface course will correspond with the traffic lanes. Longitudinal joints must be parallel to the centerline. The Contractor must establish and follow reference lines or other approved markings to control the true alignment of the longitudinal joints.

LESSONS LEARNED

Consider a Pre-Pave Meeting

Developing a good paving plan ensures that all parties understand what is expected and essential for the project to be successful.

LESSONS LEARNED

Consider a Pre-Pave Meeting

A pre-paving meeting can be as formal or informal as you desire, however, remember that the purpose of the meeting is for all the parties involved in the project to be aware of each party's responsibilities. This will help the project to proceed smoothly and resolve any potential conflicts and misunderstandings before they happen.

LESSONS LEARNED

Pre-Pave Meeting Topics

- Weather and Seasonal Limitations
 - Review the Specifications
 - Material Release Requirements/Expectations
- Safety Requirements
 - Apparel
 - Temporary Traffic Control Plan
 - Condition of Traffic Control Devices
 - Lighting requirements
 - Set up and Breakdown Requirements
 - Vertical Differences
 - Temporary Pavement Markings

LESSONS LEARNED

Pre-Pave Meeting Topics (cont'd.)

- Production Rates
 - Tons/Hour
 - Monitoring Lane Restriction Lengths
- Equipment
 - Paver(s)
 - Profile Control
 - Slope Control (Establish Slope %)
 - Roller(s)
 - Adequate Size
 - Proper Speed (No Waves)
 - Operating Spray Bars

LESSONS LEARNED

Pre-Pave Meeting Topics (cont'd.)

- Hauling Equipment
 - Clean Bodies
 - Release Agents
- Mechanical Failures
 - Plant Notification
 - Time Allowance (Rejecting Material)
 - Emergency Joint Requirements

LESSONS LEARNED

Pre-Pave Meeting Topics (cont'd.)

- Condition of Existing Pavement
 - Necessary Repairs
 - Clean / Dry Surface
 - Edges Clipped Back
 - Proper Tack Application
- Construction Methods
 - Delivery Rate to Prevent Paver Stoppage
 - Pull Limits
 - Match-up Requirements

LESSONS LEARNED

Pre-Pave Meeting Topics (cont'd.)

- Compaction
 - Review Specifications & Provision (401699)
 - Quality Control Requirements
 - Table 5a Notification Procedures
 - Quality Assurance Requirements
 - Dispute Resolution
 - Drive Wheel Toward the Paver
 - Ability to keep up with paver

LESSONS LEARNED

Pre-Pave Meeting Topics (cont'd.)

- Joints
 - Review Specification Requirements
 - Alignment
 - Vertical Face
 - Adequate Material
 - Layout
 - Overlap of Successive Courses
 - Final Lift Must Correspond with Traffic Lanes

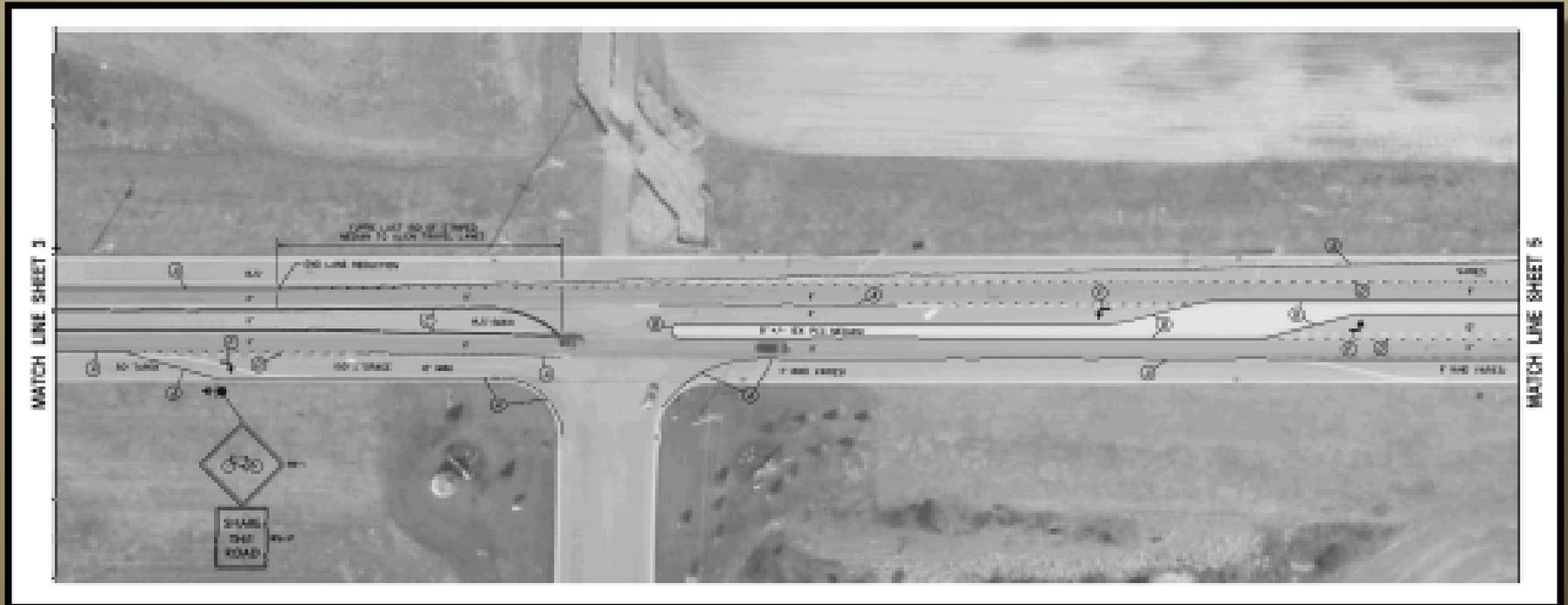
LESSONS LEARNED

Pre-Pave Meeting Topics (cont'd.)

- Surface Tolerance
 - Review Specifications
 - Excessive Deviation Correction Methods
 - Review Rideability Provision 401580
(if applicable)
 - Project Classification
 - Testing Requirements
 - Test Data Submissions
 - Equipment Calibration Requirements

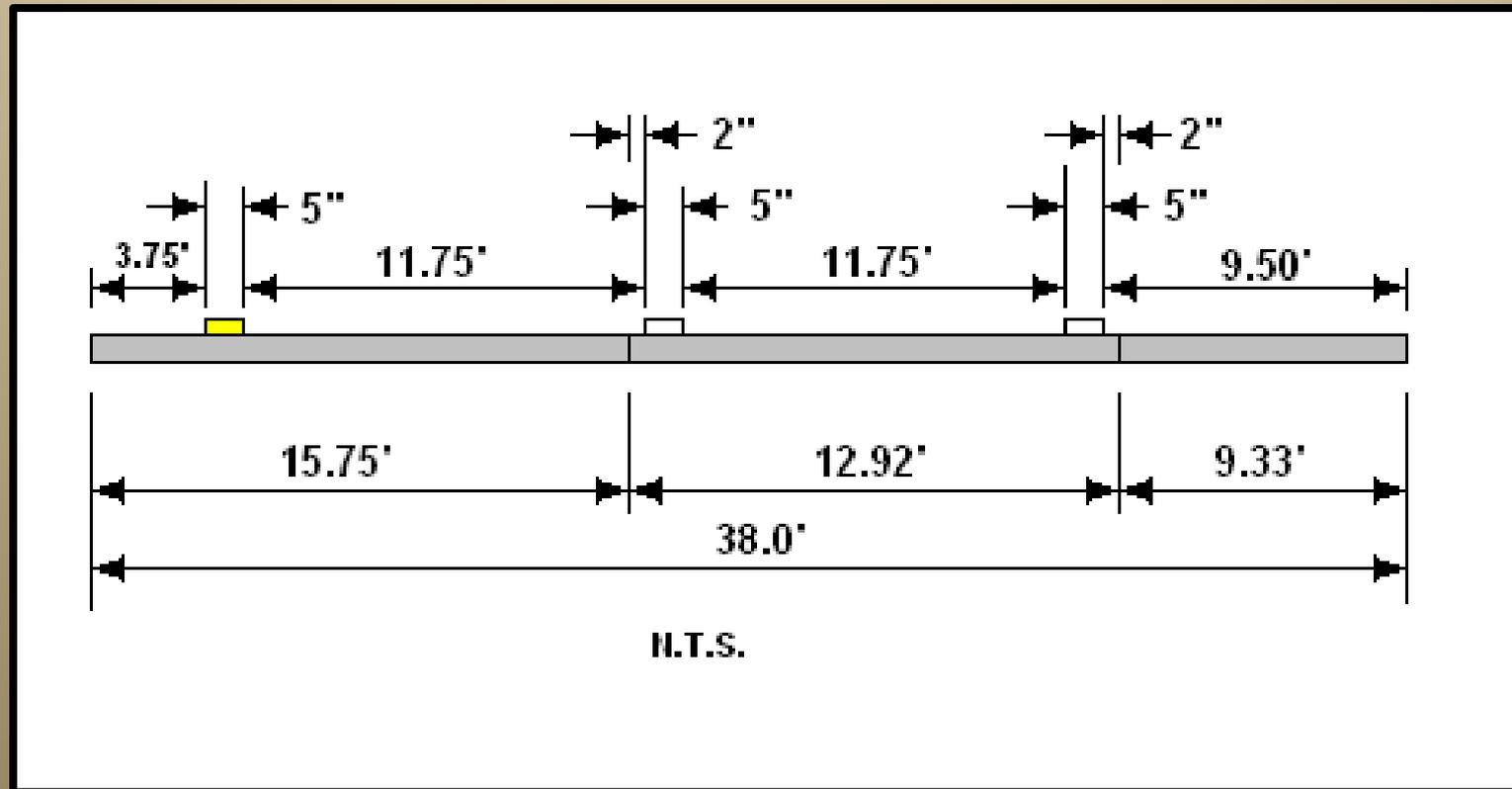
LESSONS LEARNED

Final Striping Plan



LESSONS LEARNED

Final Lift Joint Layout Plan



LESSONS LEARNED

Placing the Stripe on the Joint



LESSONS LEARNED

Which Eventually Results In This



LESSONS LEARNED

Recap

- Longitudinal Joints are more susceptible to failure
- Straight line paving is crucial
- Communication is paramount
- Gather the Required Information
- Establish a Plan of Attack
- Coordination
- Should we have a Joint Density Requirement?

LESSONS LEARNED

Questions?

LESSONS LEARNED

Thank you for your attention

