NORTH CAROLINA
Department of Transportation









New Supplemental Flagging Hourly Rate

Wiley W. Jones III, PE

Assistant State Construction Engineer – Eastern Region

March 29, 2021

New Supplemental Flagging Hourly Rate

- What is the purpose of the change?
- Review of the Special Provision
  - WZTC Traffic Control General Requirements (RWZ-1)
- Timeframes for Implementation Questions?

Supplemental Flagging Hourly Rate

- For secondary road resurfacing projects,
  - revised RWZ-1
  - hourly rate for supplemental flagging to $35.00
- Special Provision updated in WASP in late February 2021
  - Central Letting - Incorporated in April 2021 letting
  - Division Lettings – included in some March 2021 lettings

Supplemental Flagging Hourly Rate

- Work Zone Traffic Control Project Special Provisions
  - WZTC Traffic Control General Requirements

TC-1

2021CPT.10.15.10601 Mecklenburg County

WORK ZONE TRAFFIC CONTROL
Project Special Provisions
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Supplemental Flagging

TC-8

2021CPT.07.03.20011 Alamance and Guilford Counties
2021CPT.07.03.20411
2021CPT.07.06.10011

The Lump Sum price for *Temporary Traffic Control* will include the work of 4 flaggers per operation per map being utilized at the same time on any day. If a pilot vehicle is used for an operation, the Lump Sum Price for *Temporary Traffic Control* will include the work of five (5) flaggers. The operator of a pilot vehicle will be considered one of the five flaggers.

Any additional flagging beyond the "included" amount covered in the *Temporary Traffic Control* pay item will be considered supplemental flagging and compensated at a rate of $35.00 per hour for each additional flagger as approved by the Engineer.

Payment will be made under:

Pay Item	**Pay Unit**
Temporary Traffic Control	Lump Sum
Work Zone Advance/General Warning Signing	Square Foot

Length of Stationary Work Zone

Refer to attached details and Standard Drawing No. 1101.02, 1101.03, 1101.04, 1101.05, 1101.11, 1110.01, 1110.02, 1115.01, 1130.01, 1135.01, 1145.01, 1150.01, 1165.01, and 1180.01 of the *2018 Roadway Standard Drawings* when closing a lane of travel in a stationary work zone such as pavement patching resurfacing, or pavement marking removal. Properly ballasted cones and skinny drums may be used instead of drums. However, drums are required for the upstream taper portion of lane closures in all applications. The stationary work zone shall be a maximum of 1 mile in length at any given time on 2 Lane, 2 Way facilities unless otherwise approved by the Engineer. A pilot vehicle operation may be used in conjunction with flaggers and the appropriate pilot vehicle warning signing as directed by the Engineer. During periods of construction inactivity, return the traffic pattern to the existing alignment and remove or cover any work zone signs. When covering work zone signs, use an opaque material that prevents reading of the sign at night by a driver using high beam headlights. Use material, which does not damage the sign sheeting. Replace any obliterated markings as required by other sections of the *2018 Standard Specifications* and the Engineer.

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Emphasis Area for Upcoming Paving Season

Wiley W. Jones III, PE
Assistant State Construction Engineer – Eastern Region

March 29, 2021

Emphasis Areas for 2021 Season

- Longitudinal Joints
- Communication

Longitudinal Joints

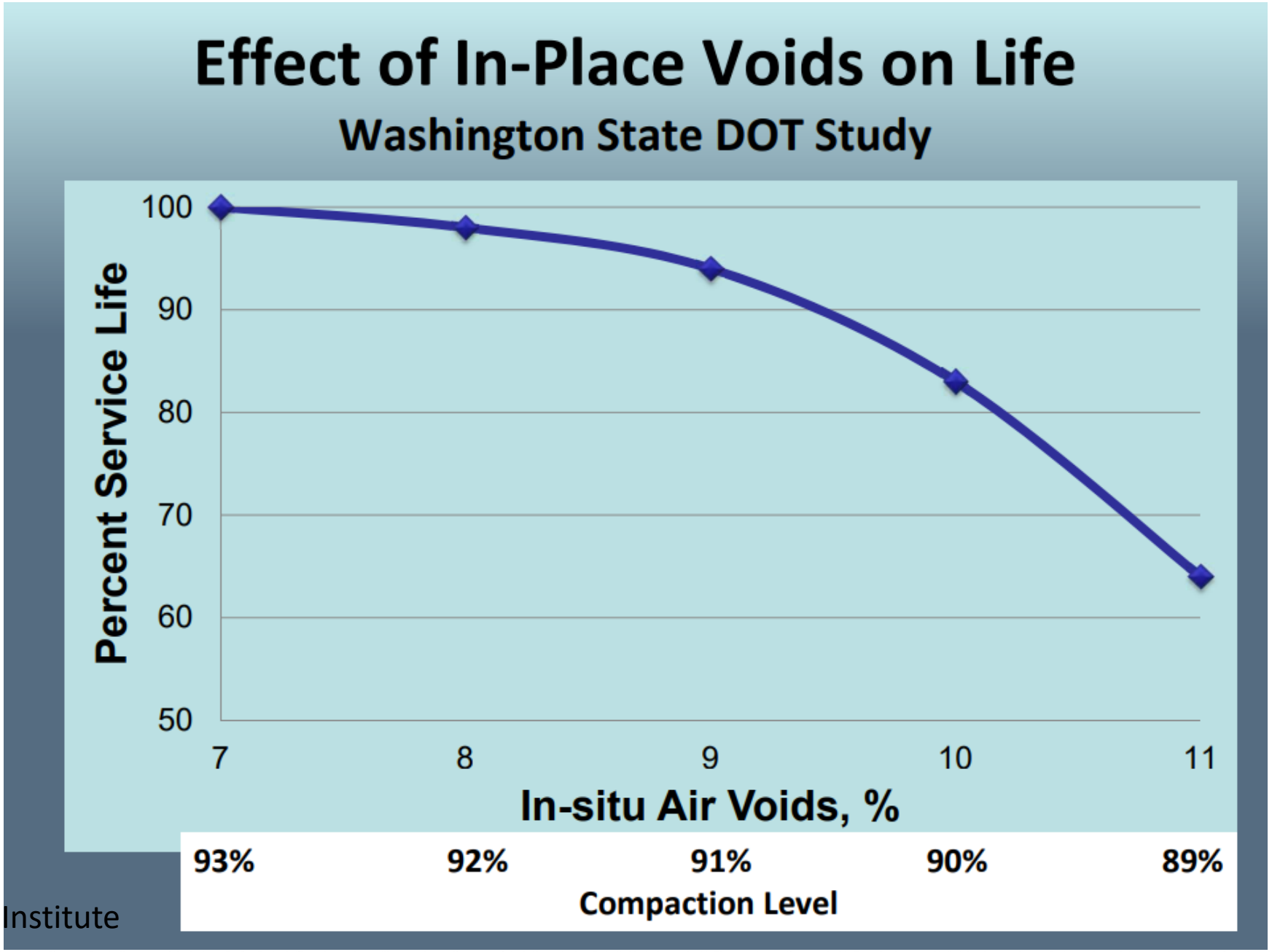
- 2012 Final Report - Best Practices for Specifying and Constructing HMA Longitudinal Joints (Asphalt Institute and FHWA)

- NCDOT QMS Manual
  - QMS Section 9.10 Constructing Longitudinal Joints

Too often longitudinal joints are the weak link in an otherwise long-lasting asphalt pavement.

- **Agency and industry concern!**
- **Offers greatest opportunity to improve overall life.**

FHWA and Asphalt Institute



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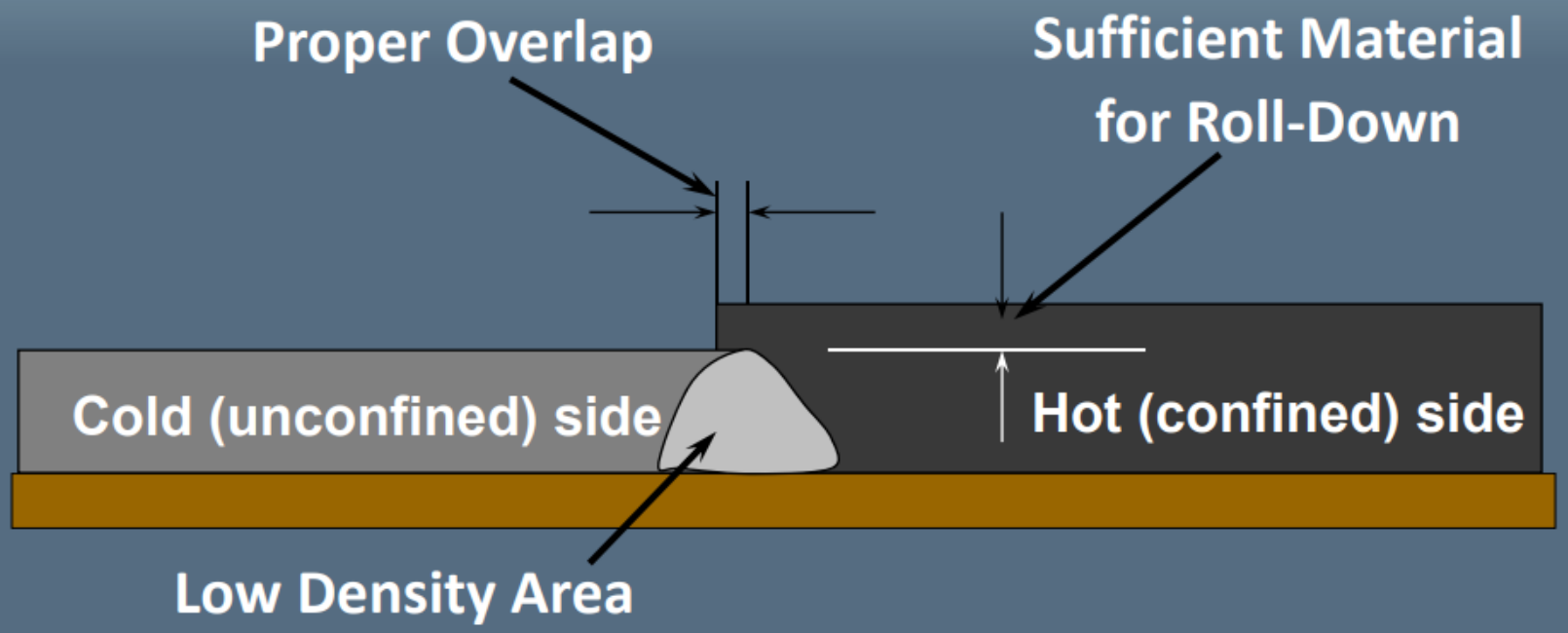
We Know Unsupported Edge Will Have Lower Density



Please note "Cold side" and "Hot side", as they are terms used throughout this Workshop.

FHWA and Asphalt Institute


Typical Residential Neighborhood Street

Longitudinal Crack begins to open and allow water into the pavement

Pothole Develops


More Recently Resurfaced Section
First Place the crack seems to develop

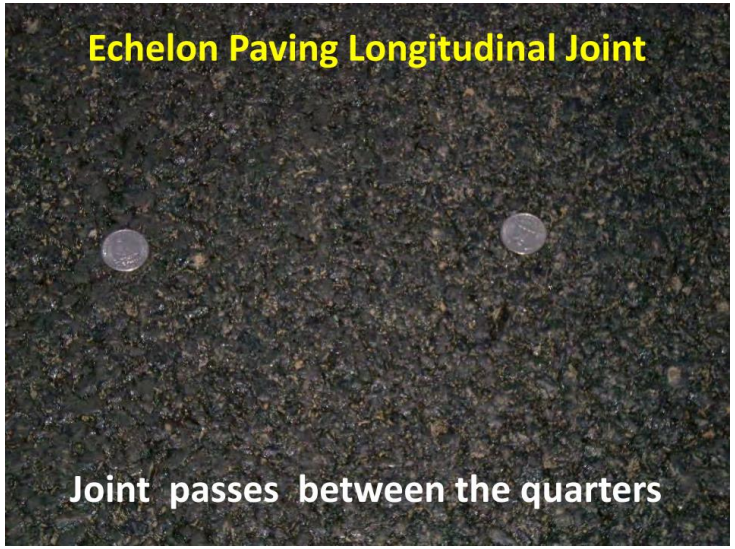
How can we construct better Longitudinal Joints?

FHWA and Asphalt Institute

This study showed there is no consensus on the best technique for all aspects of longitudinal joint construction. It also showed that with attention to detail, we can produce good joints with differing techniques.

How can we construct better Longitudinal Joints?

- Echelon Paving yields the best longitudinal joints.
- Limits # cold joints



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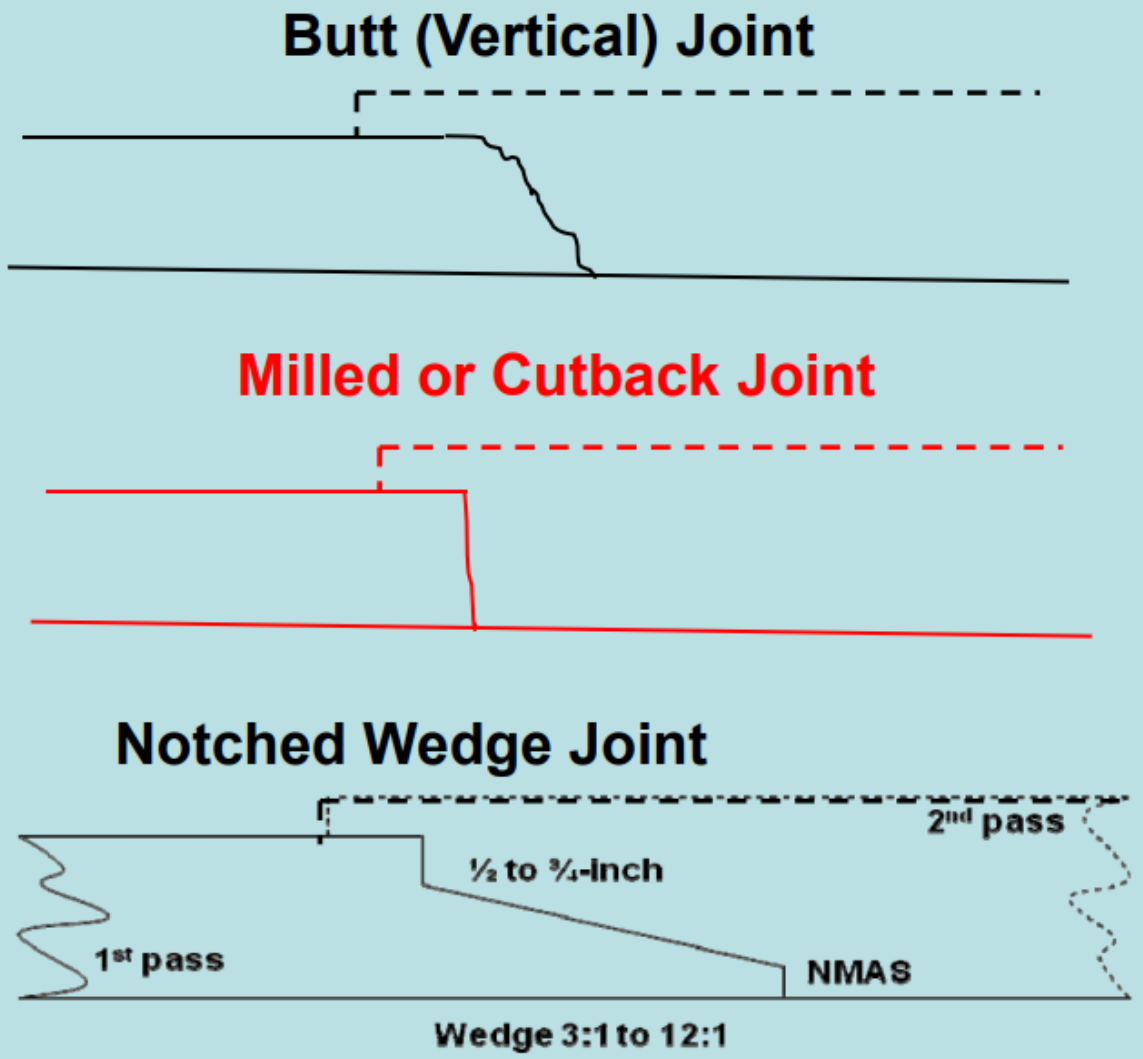
Defining Different Types of Longitudinal Joints



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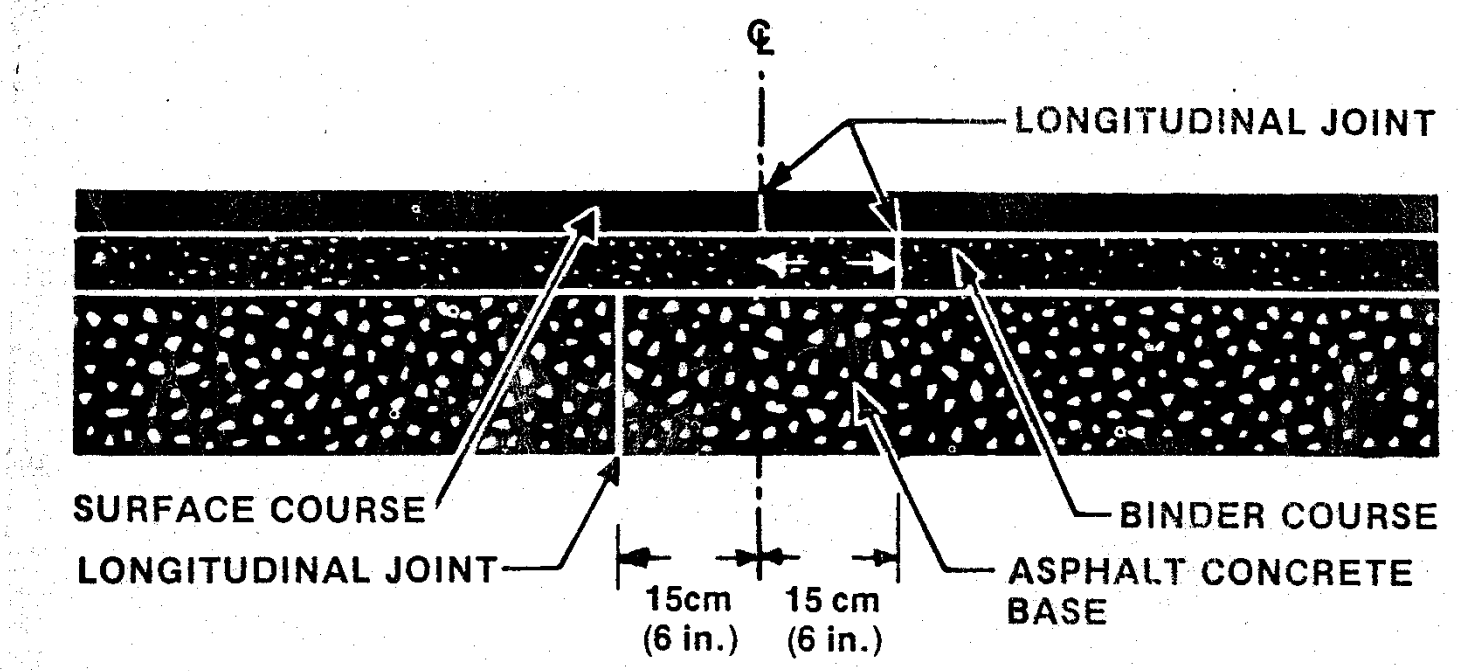
How can we construct better Longitudinal Joints?

- Planning
  - Layout Joints such that final surface layer is in correct location
  - Avoid wheel paths
  - Raised pavement Markers
  - Striping (if possible)

Location of the Longitudinal Joints

- Overlapping successive courses helps prevent cracking and separation along the longitudinal joint



Longitudinal Joint Construction

FHWA and Asphalt Institute

How can we construct better Longitudinal Joints?

- Tack Coat
  - Uniform coverage Full width of mat
  - Also overlap the edge a few inches to minimize movement of unsupported edge

How can we construct better Longitudinal Joints?

- First Pass must be Straight
  - Stringline
  - Paint marks
  - Edge of curb and gutter
- Properly compact the unconfined edge

Tough to get proper overlap (1”) with next pass

FHWA and Asphalt Institute

How can we construct better Longitudinal Joints?

END GATE

Seated Flat on the Existing Surface

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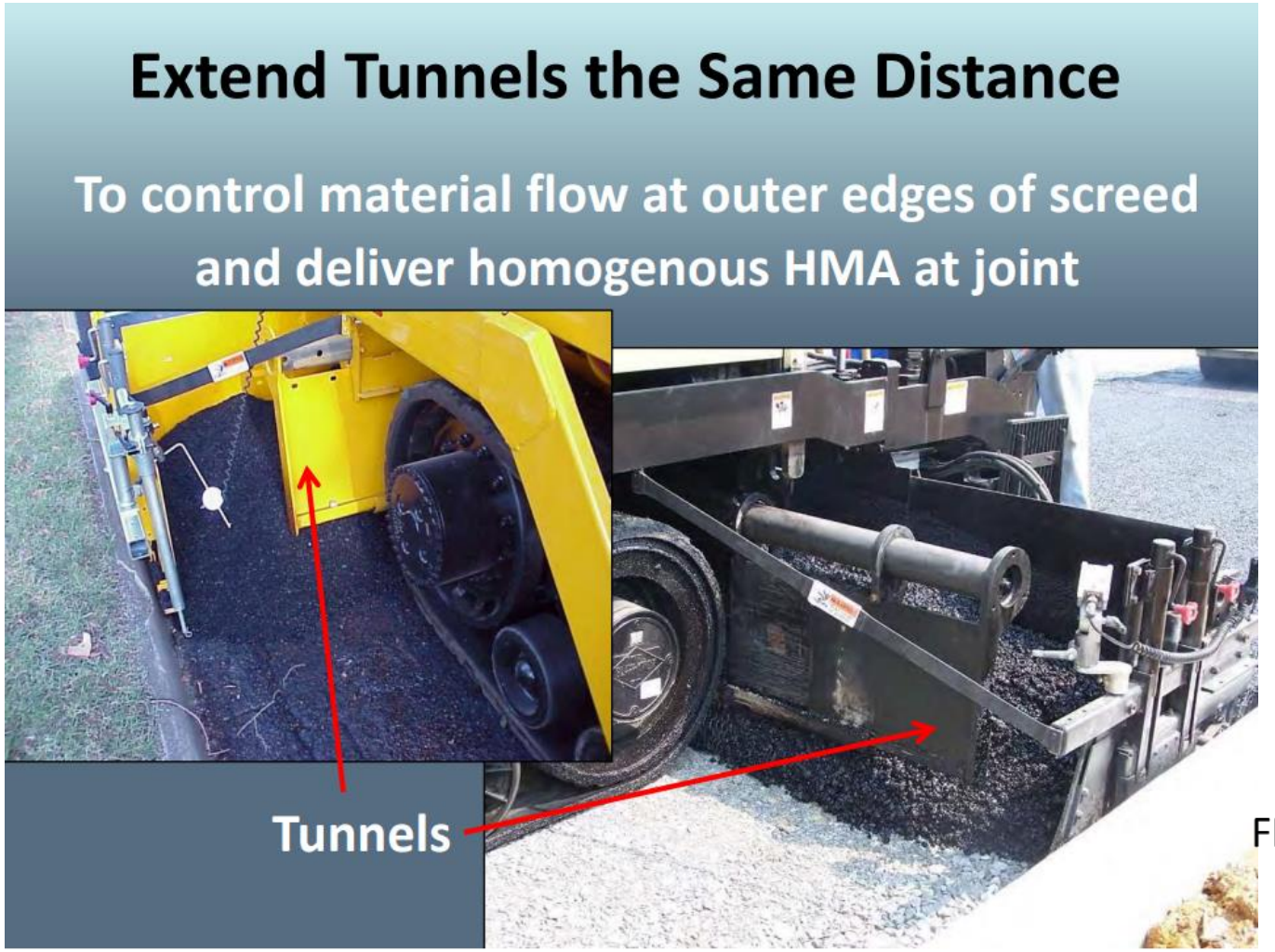
How can we construct better Longitudinal Joints?



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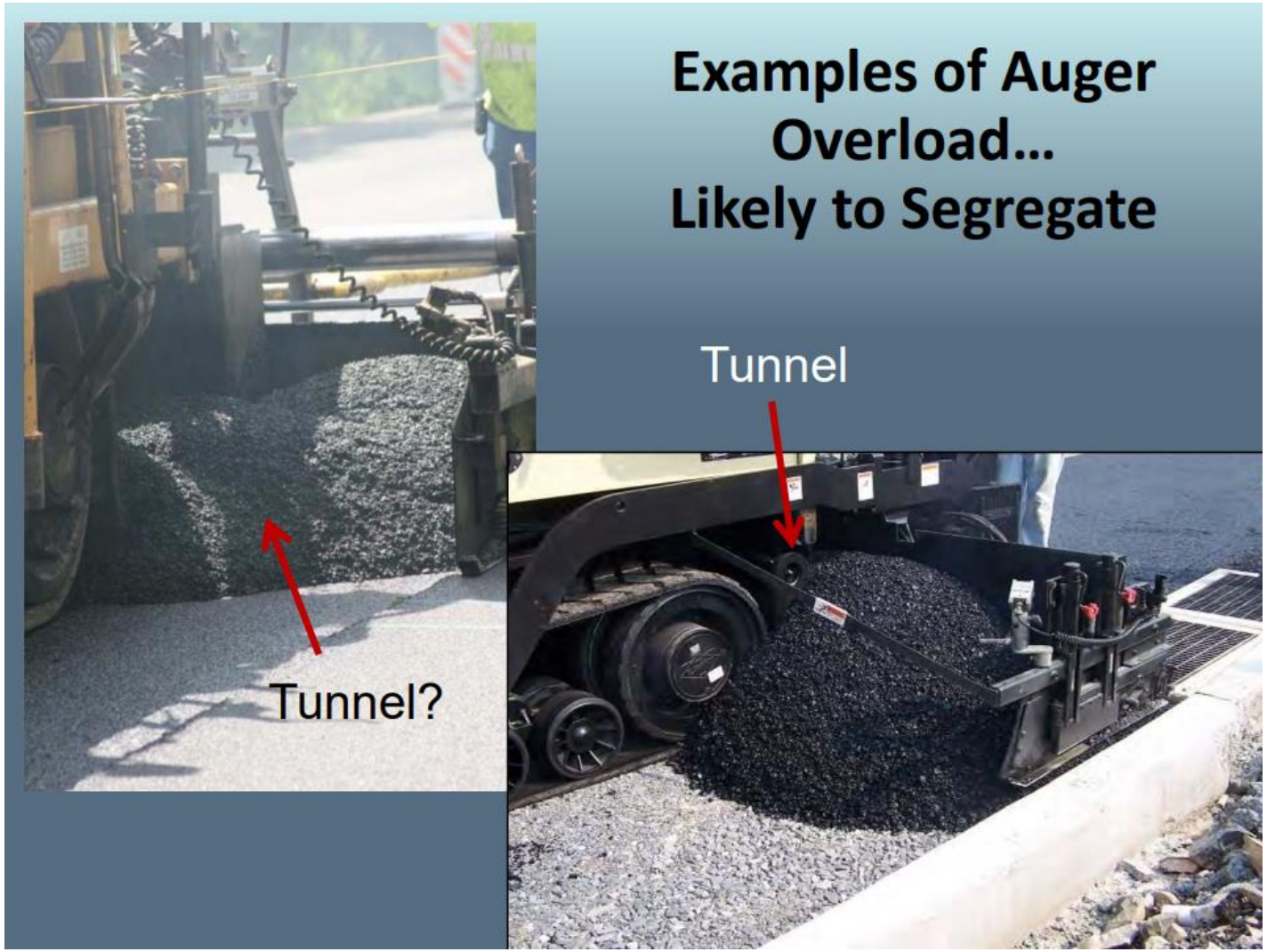
How can we construct better Longitudinal Joints?



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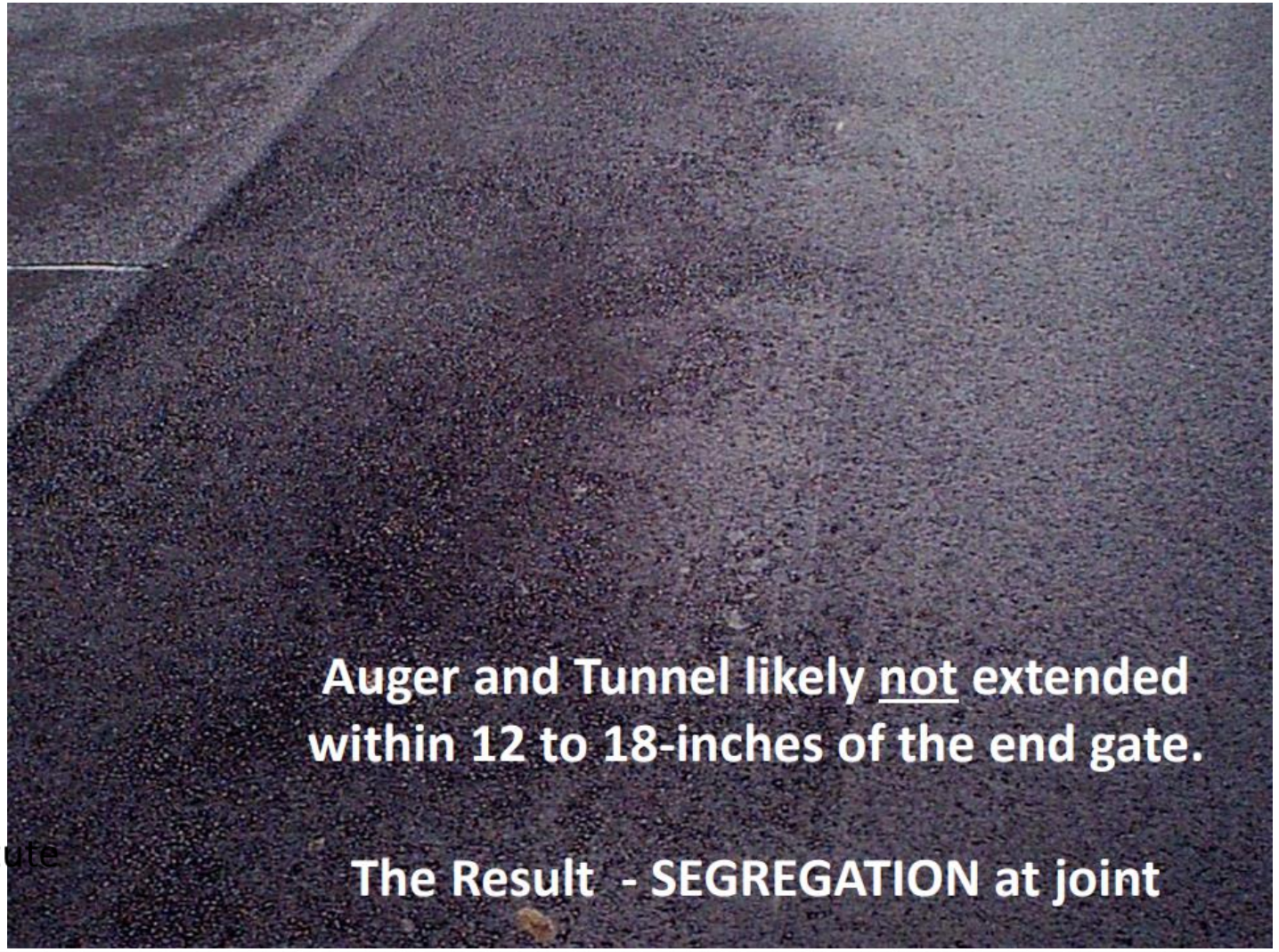

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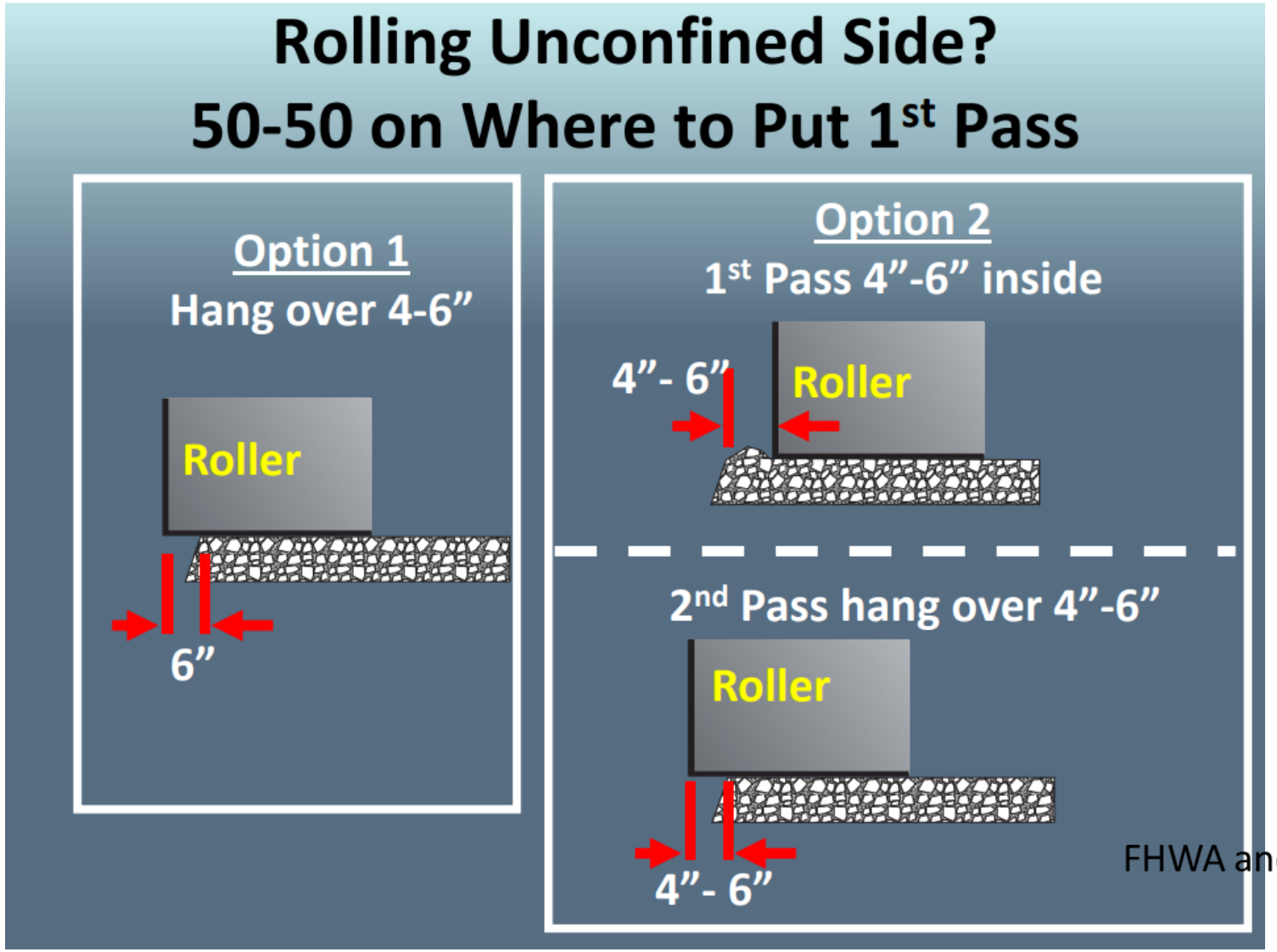

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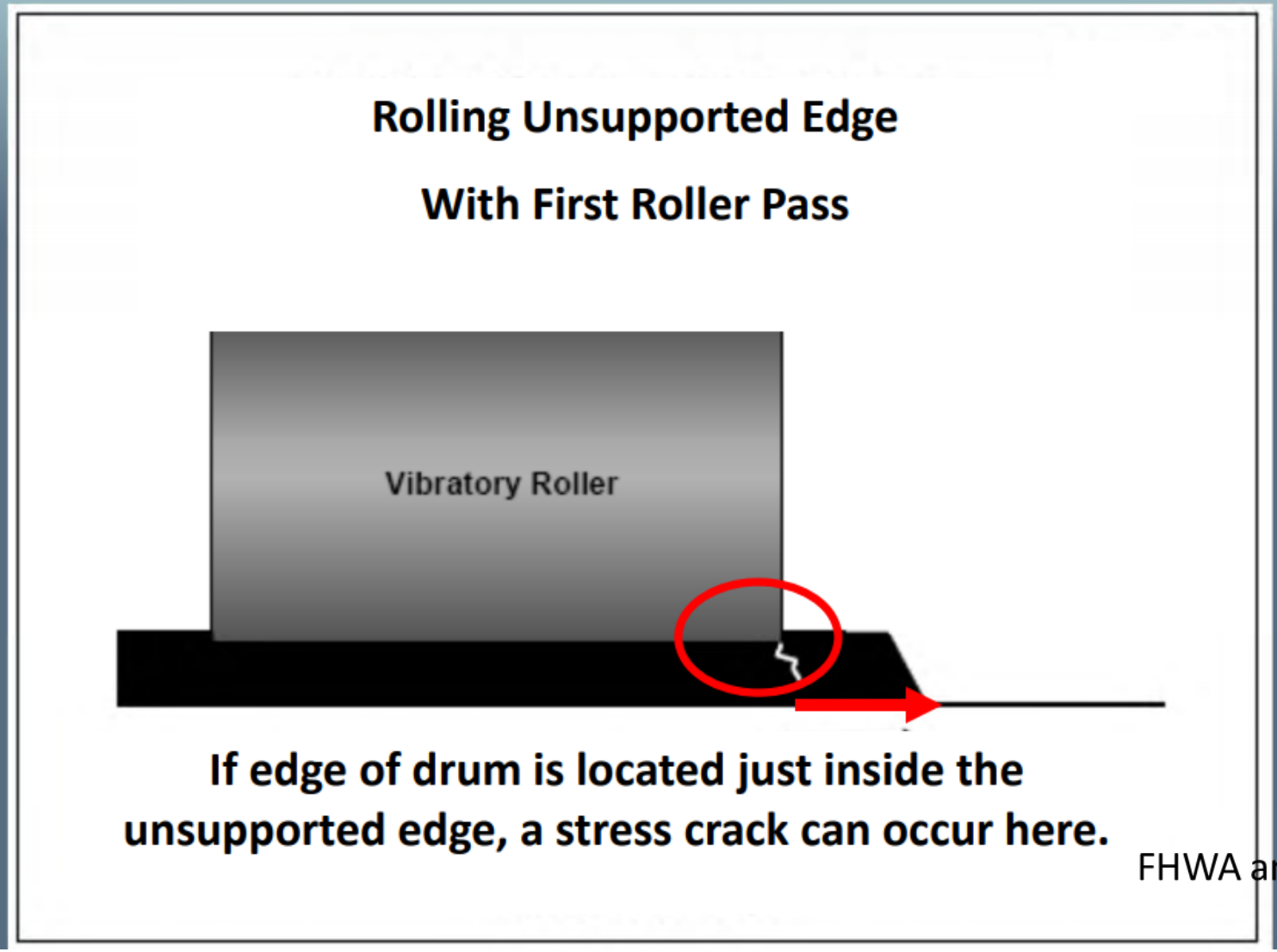
What We Don't Want



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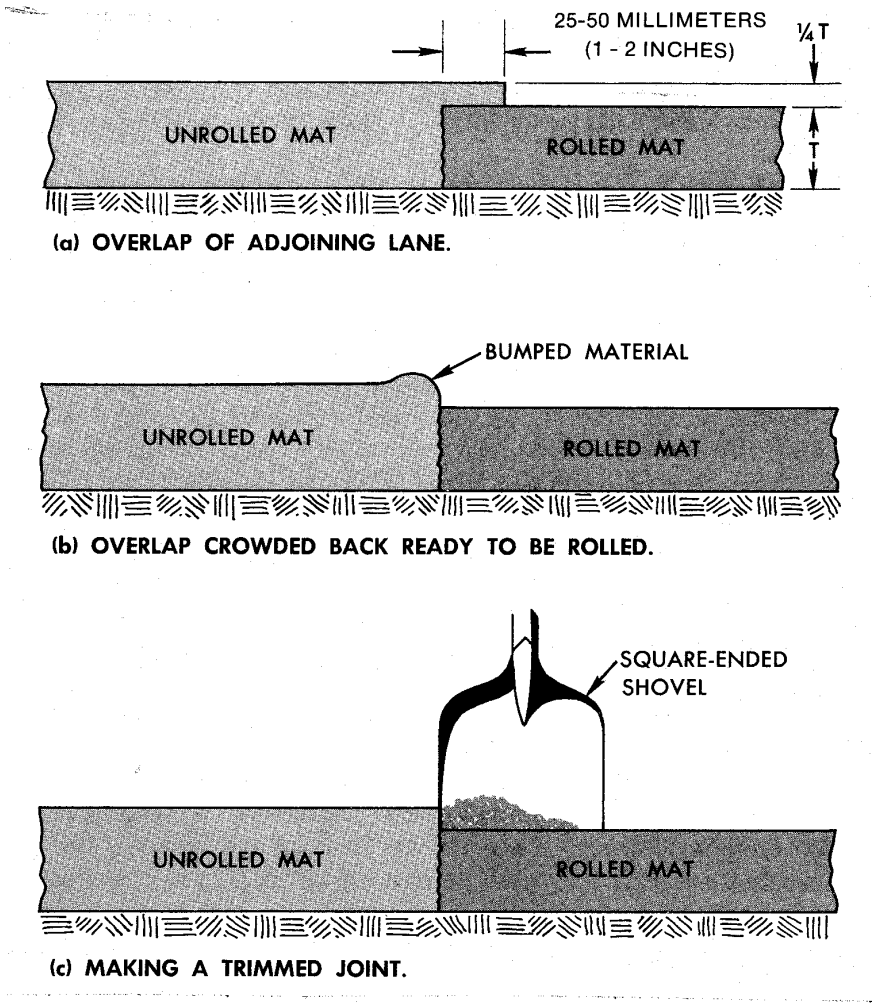
How can we construct better Longitudinal Joints?

- NCDOT QMS Manual
  - Section 9.10.3
    - The edge of the drum on a vibratory or steel wheel roller should extend out over the edge of the mix a minimum of 6 inches when the first lane is being compacted.
- Asphalt Institute – FHWA presentation
  - Recommendation Option 1
    - First Roller Pass Hangs Over 4-6 inches

Paving the Hot Side of the Joint

- Good Tack Coat along the edge of the joint
- Provide Sufficient Asphalt Material
  - Setting automatic controls appropriately
    - Ski pole
    - Joint Matcher
    - If hot side is low, the roller will “bridge” onto cold mat and no further densification occurs at the joint.
- Overlap onto cold mat 1 to 1.5 inches
- Eliminate Segregation

Construction of Adjoining Lane



- Leave the uncompacted mix above the compacted mix by 1/4” for each 1” of compacted pavement.
- If level of asphalt mix is flush with adjacent pavement, the steel wheeled roller will not properly densify the mix along the joint.

Don't Rake Overlap Across Joint!

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Rolling the Supported Edge

Our Recommendation:

1st pass all on hot mat with roller edge off joint approx 6-12 inches

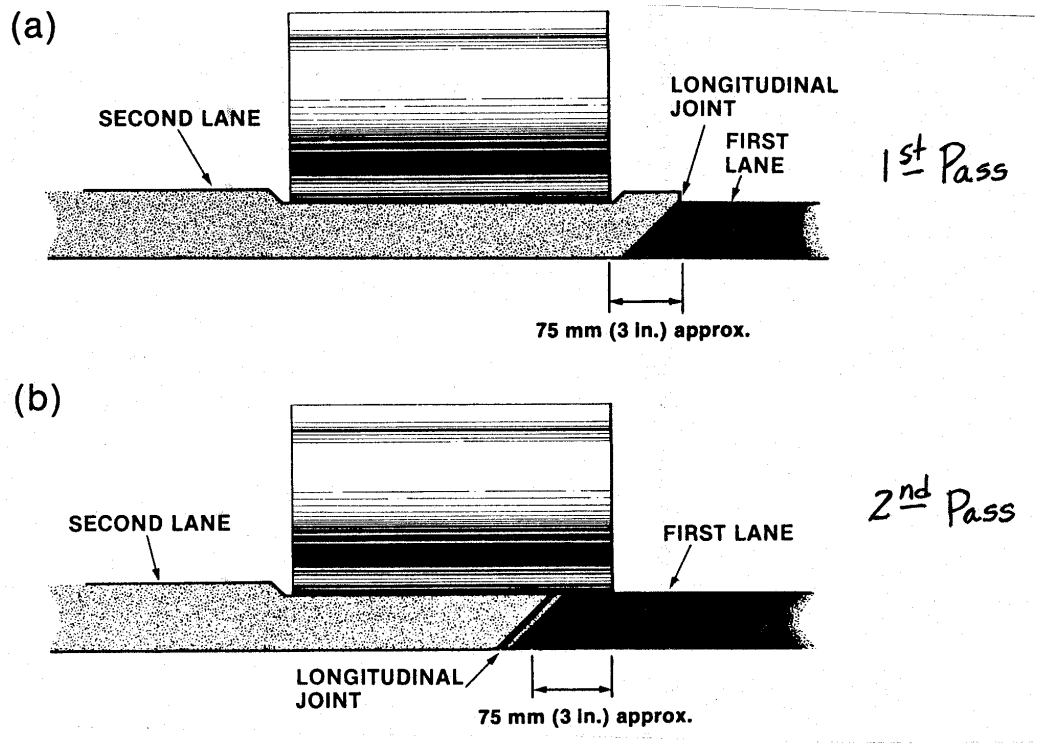
2nd pass overlaps on cold mat 3-6 inches

FHWA and Asphalt Institute

QMS Manual Rolling Longitudinal Joints

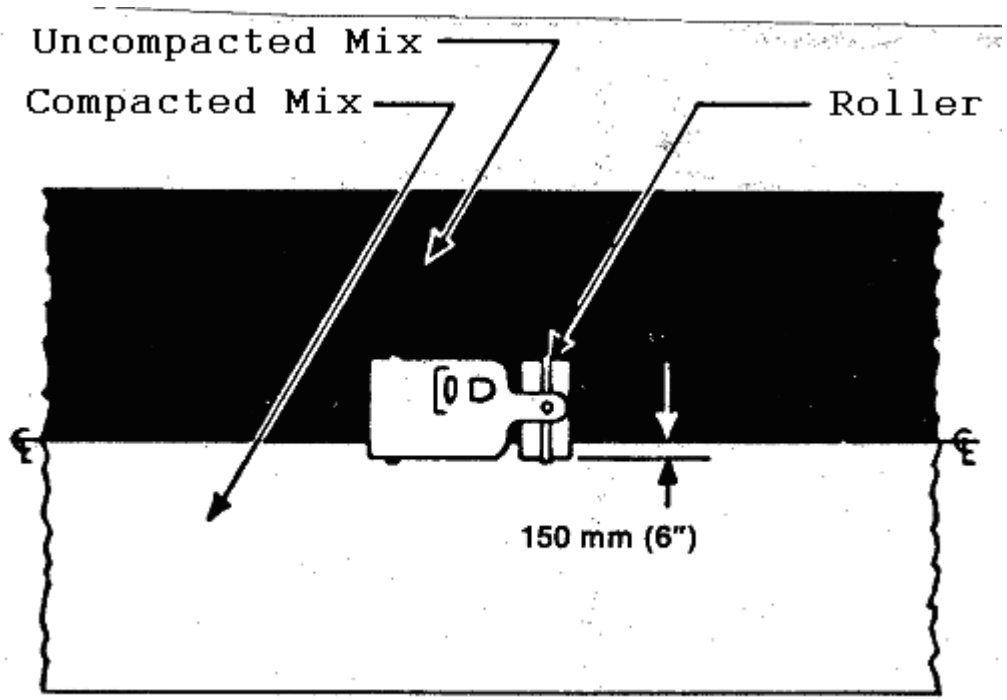
For Vibratory Rollers:

- 1st pass of the roller positioned about 3” off the joint on the “hot (new) mat”
- This leaves a narrow ridge of hot unrolled mix.
- 2nd Pass overlapping the cold mat 3” to pinch and press the asphalt into place.



Vibratory Rolling Mode

Rolling Longitudinal Joints



Static Rolling Mode

- Rolled Directly behind the paver
- Roller on the “hot (new) mat”
- Overlapping the cold mat 6”
- Pinch and press the asphalt into place

The final pass on a crowned section FHWA and Asphalt Institute

Emphasis Areas for 2021 Season

- Longitudinal Joints
- Communication
  - Lane placement sequence
  - Testing of joint
  - Talk about Joint Construction Practices
    - Paving
    - Rolling
    - Materials

Communication

- Two Way Street
- Best when both parties participate

Thank you for your attention

Discussion/Questions?