

FHWA-IDOT

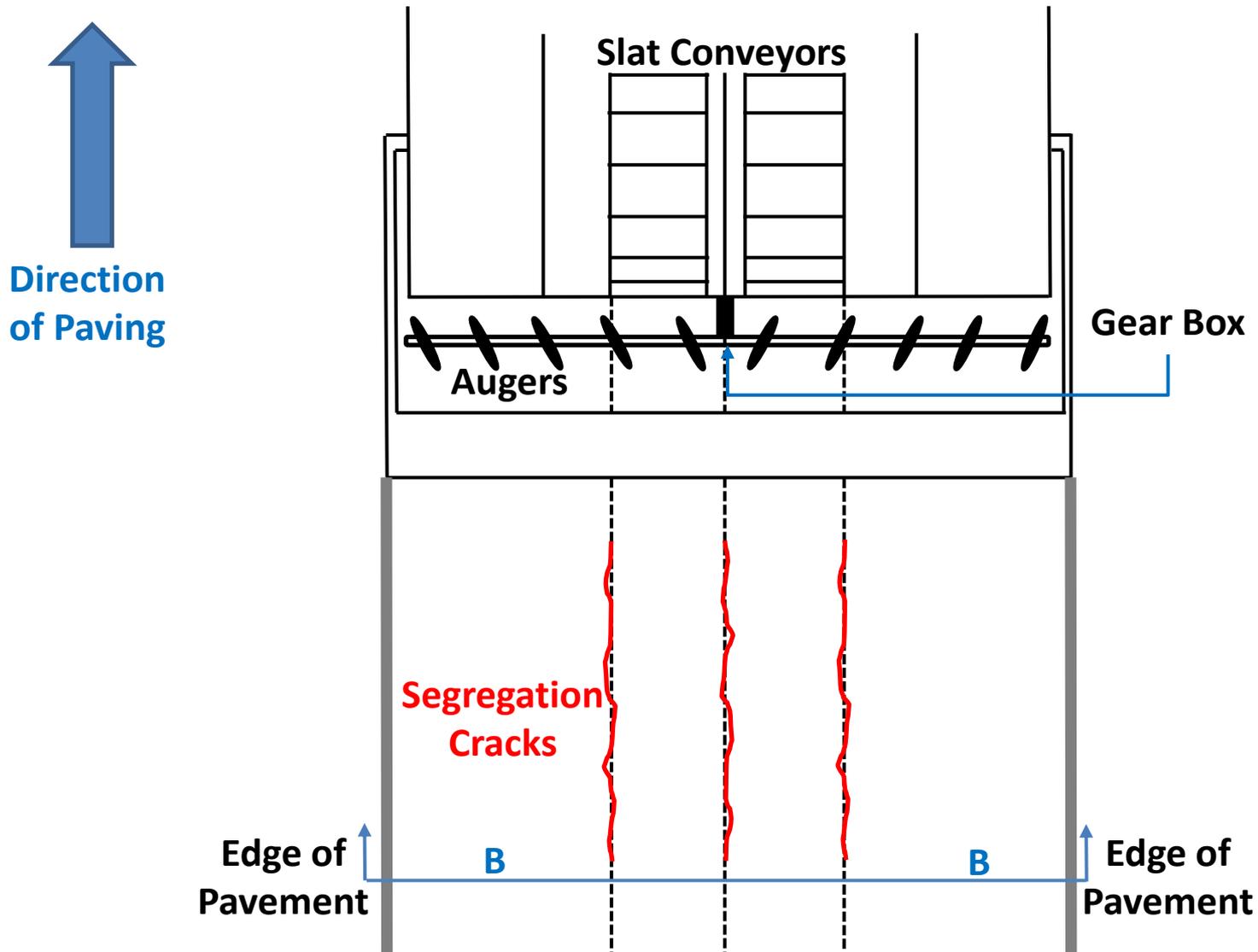
Paver Segregation Process Review

IAPA Convention 2021

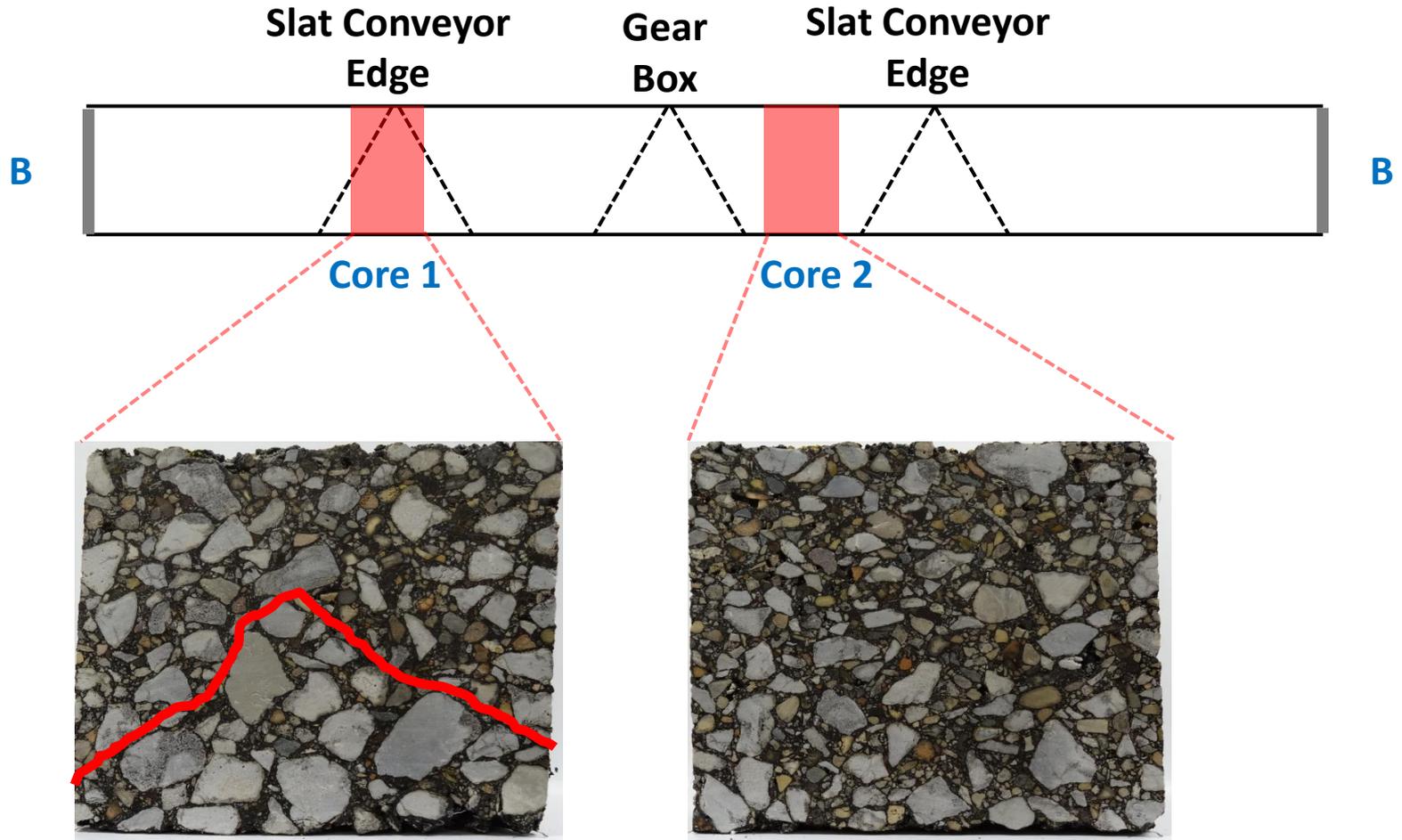


What is Longitudinal Paver Segregation?

Longitudinal Paver Segregation Schematic



Paver Segregation Schematic – Section B-B



Paver Segregation History

Illinois, Colorado, and Canada

Illinois



Colorado



Canada

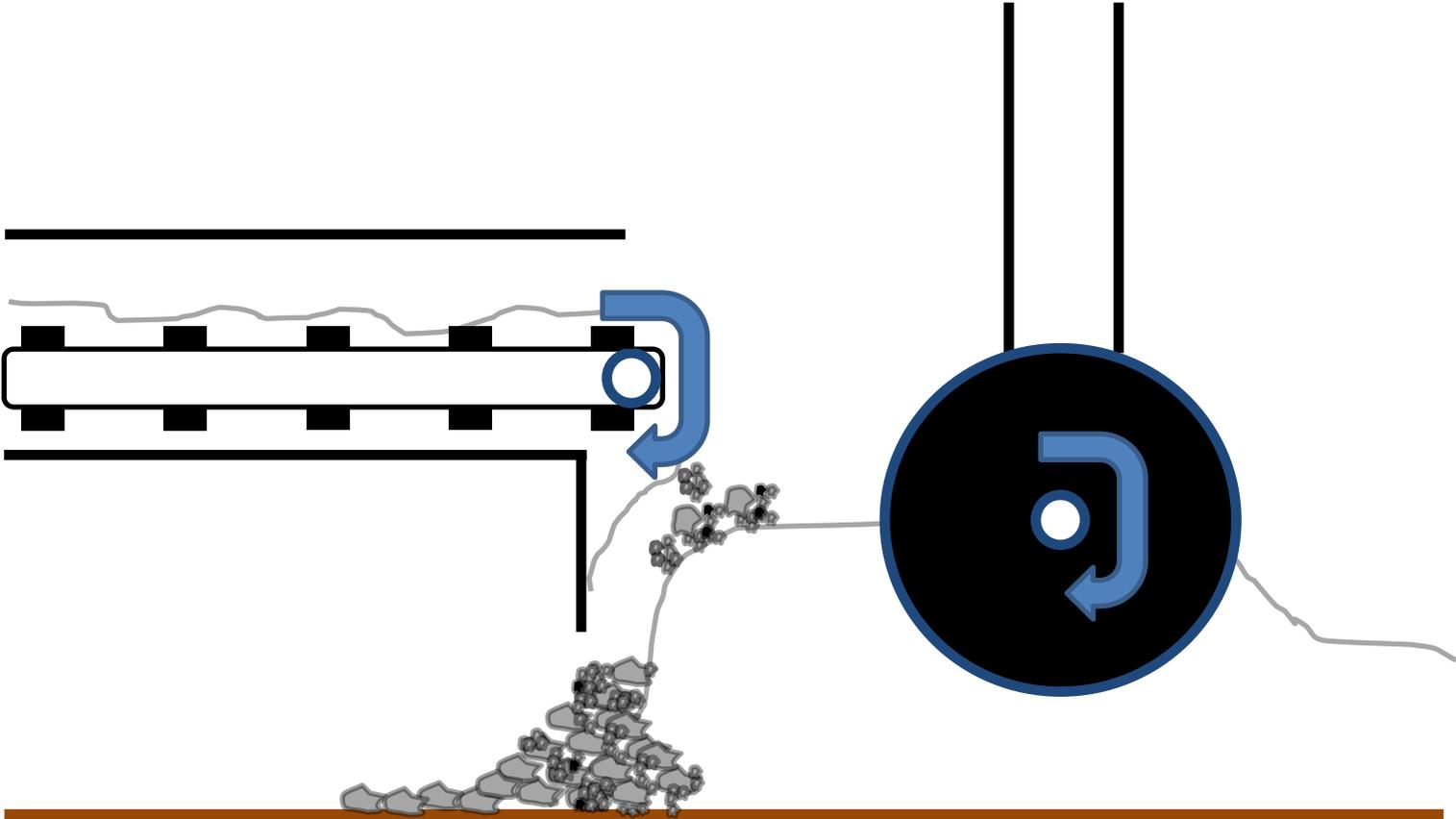


Early 2000's Paver Modifications

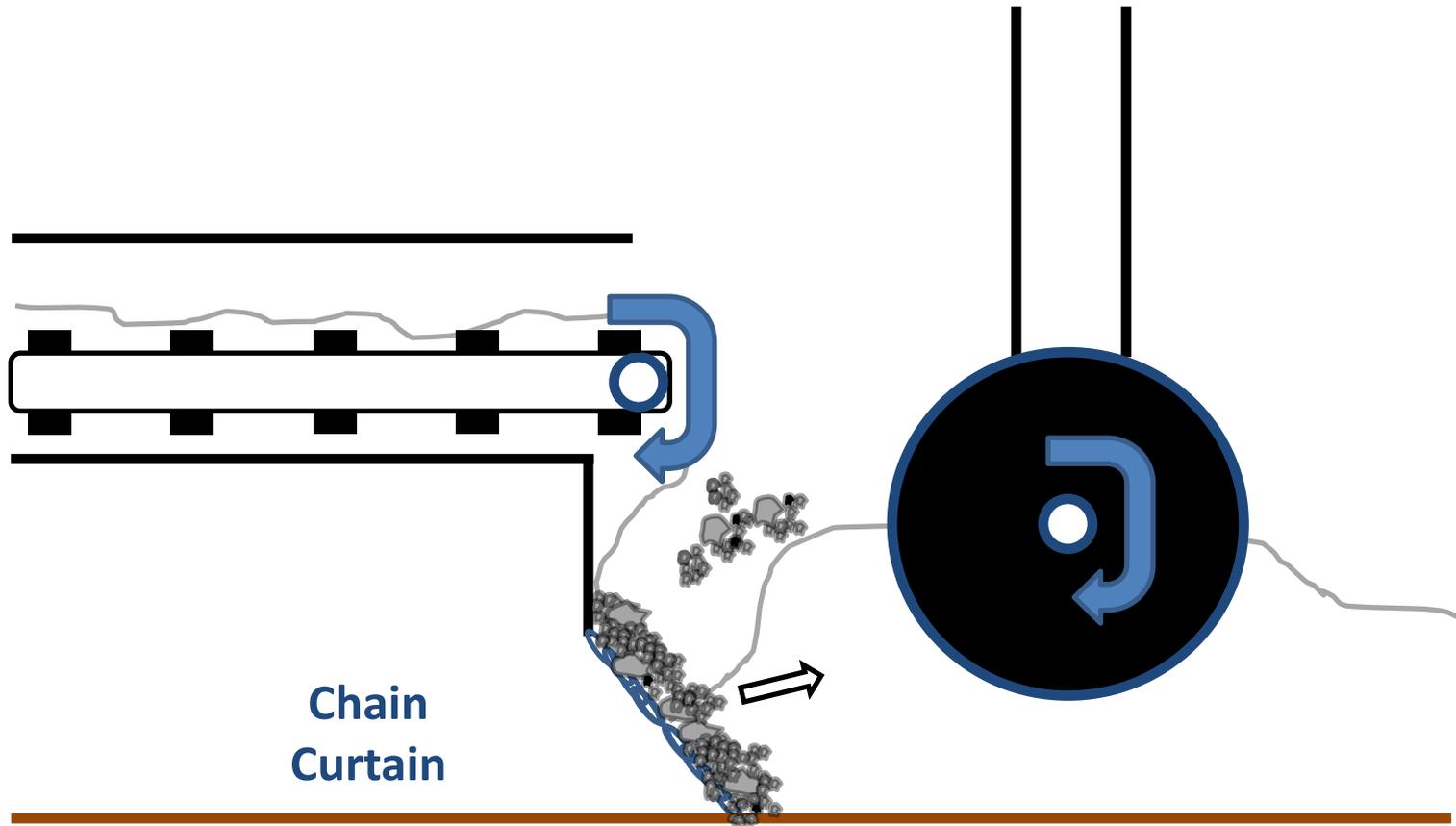
- **Paver Segregation Kit Installation**
- **Paver Manufacturer Check Sheets**
- **Modified Standard Specifications (Art. 1102.03)**
 - Contractor submit cert. kit installed & operational
 - Contractor/RE perform paver inspection prior to paving using manuf. checklist
 - Completed checklist provided to RE

Trepanier, J. (2018) *History of Paver Induced Longitudinal Cracking in Illinois*. Presented at the Illinois Department of Transportation Spring 2018 Hot-Mix Asphalt Technical Working Group Meeting, Springfield, IL.

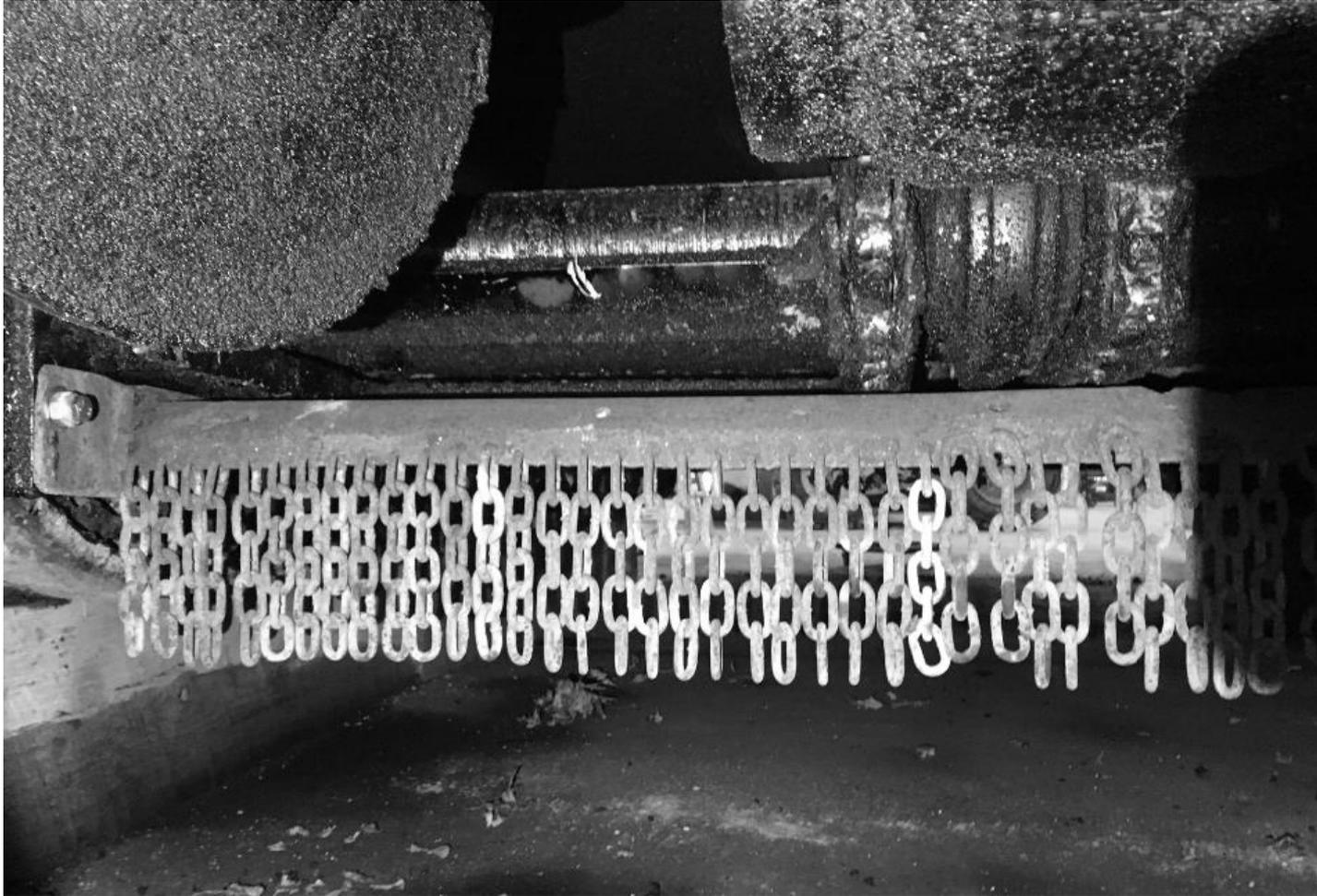
No Paver Modifications



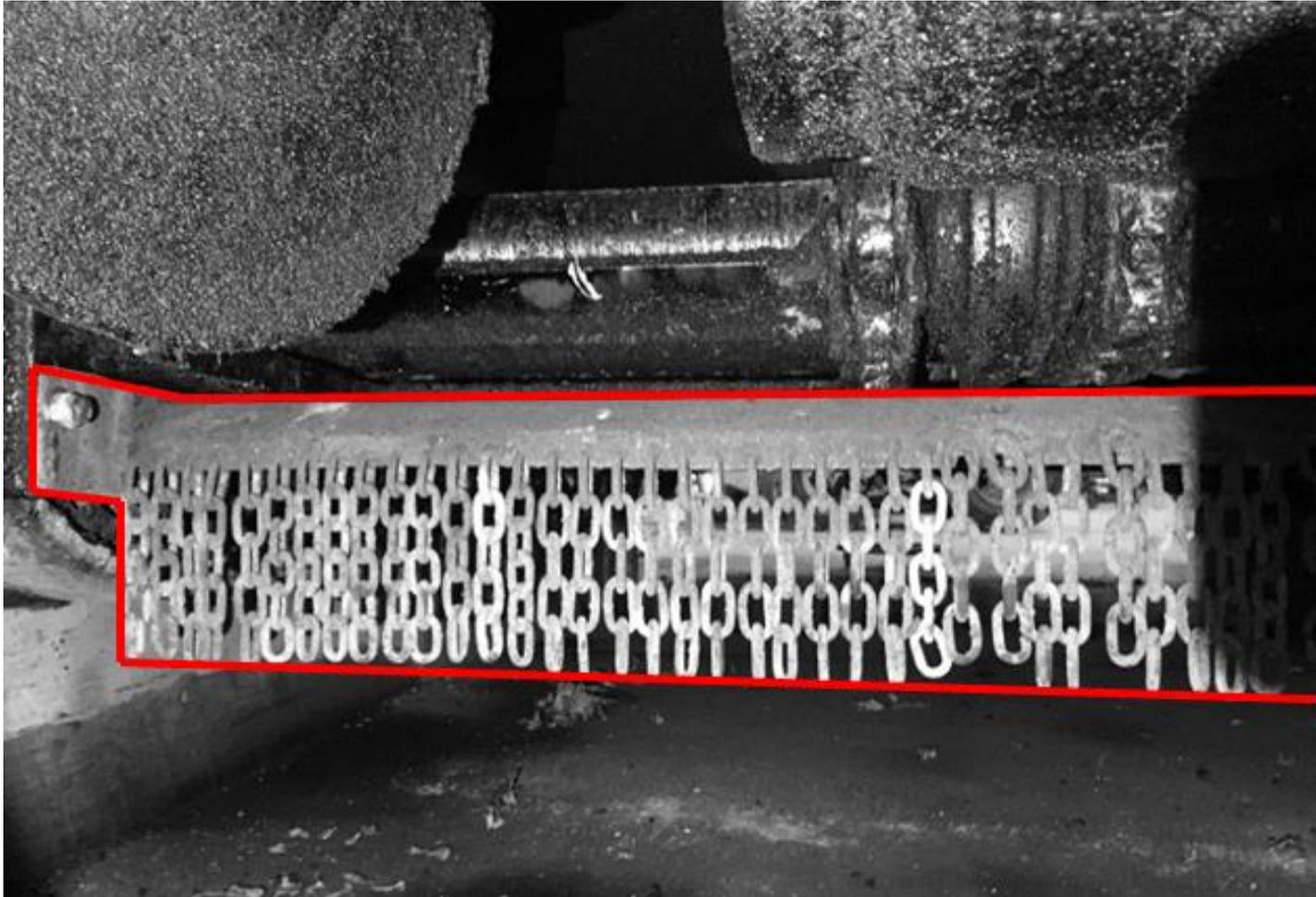
Chain Curtain



Chain Curtain Example

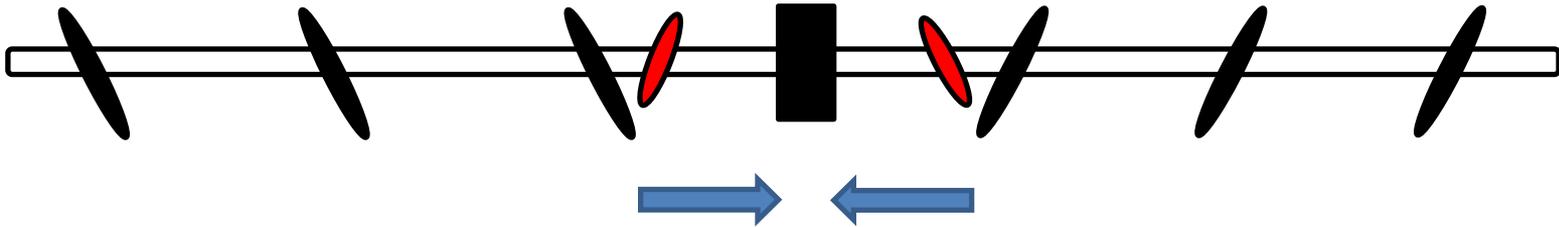


Chain Curtain Example

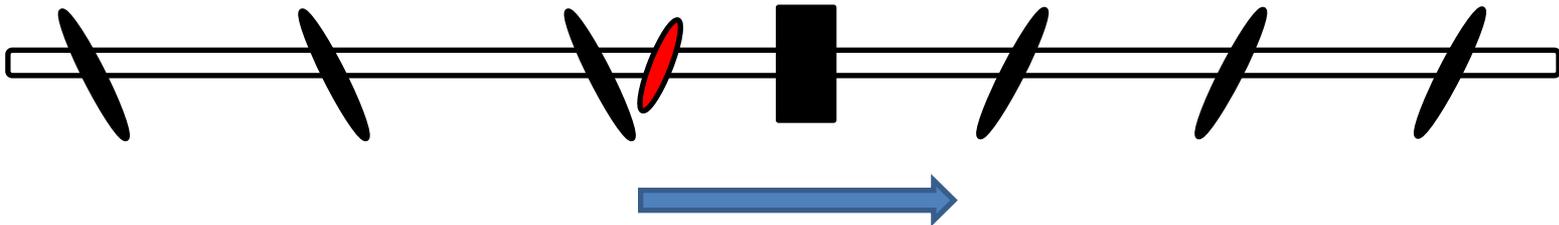


Reverse Augers

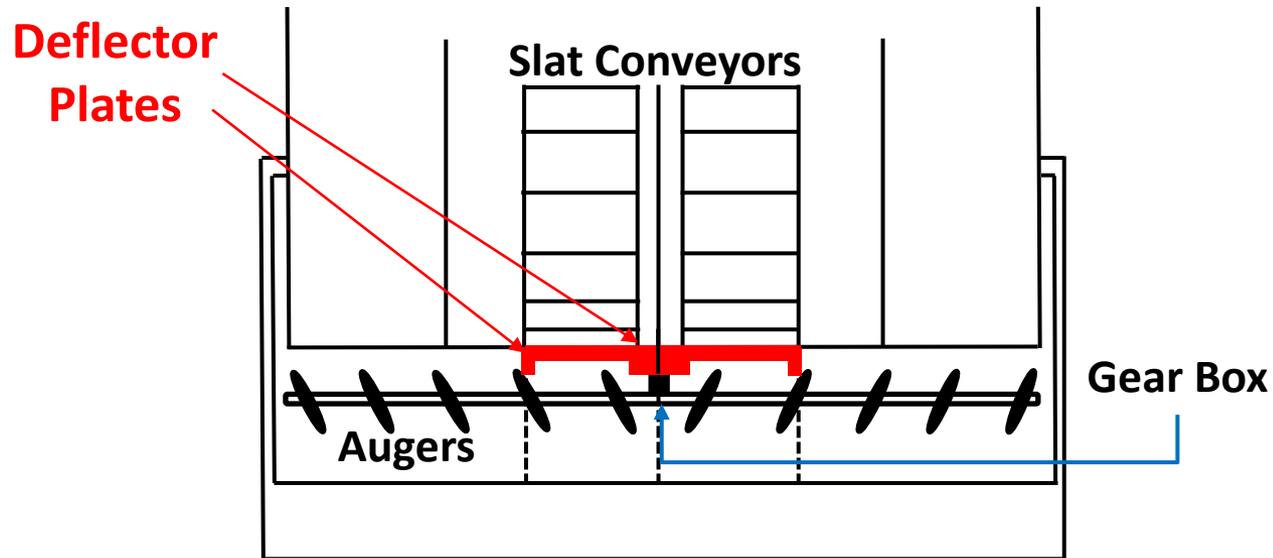
Pushing Material Under Gear Box



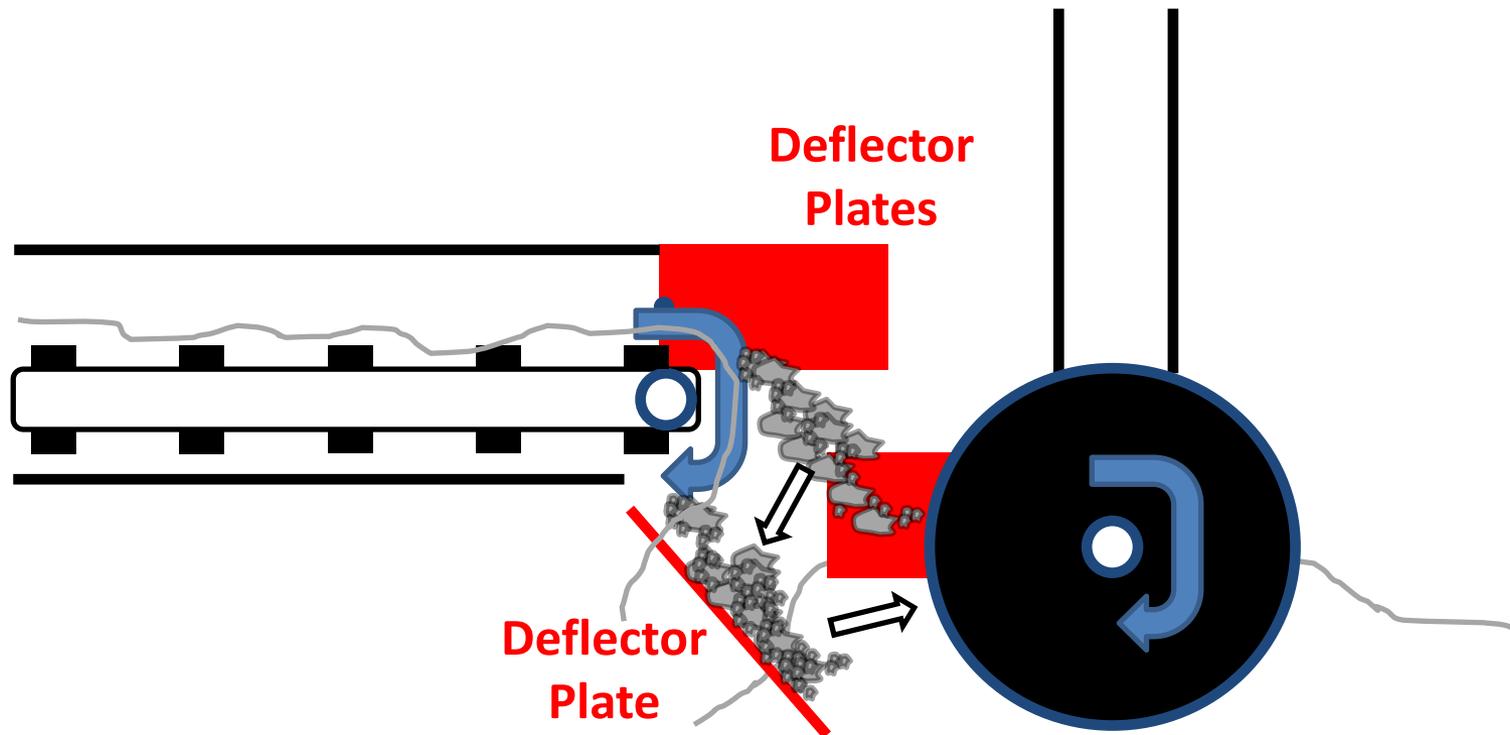
Sweeping Material Under Gear Box



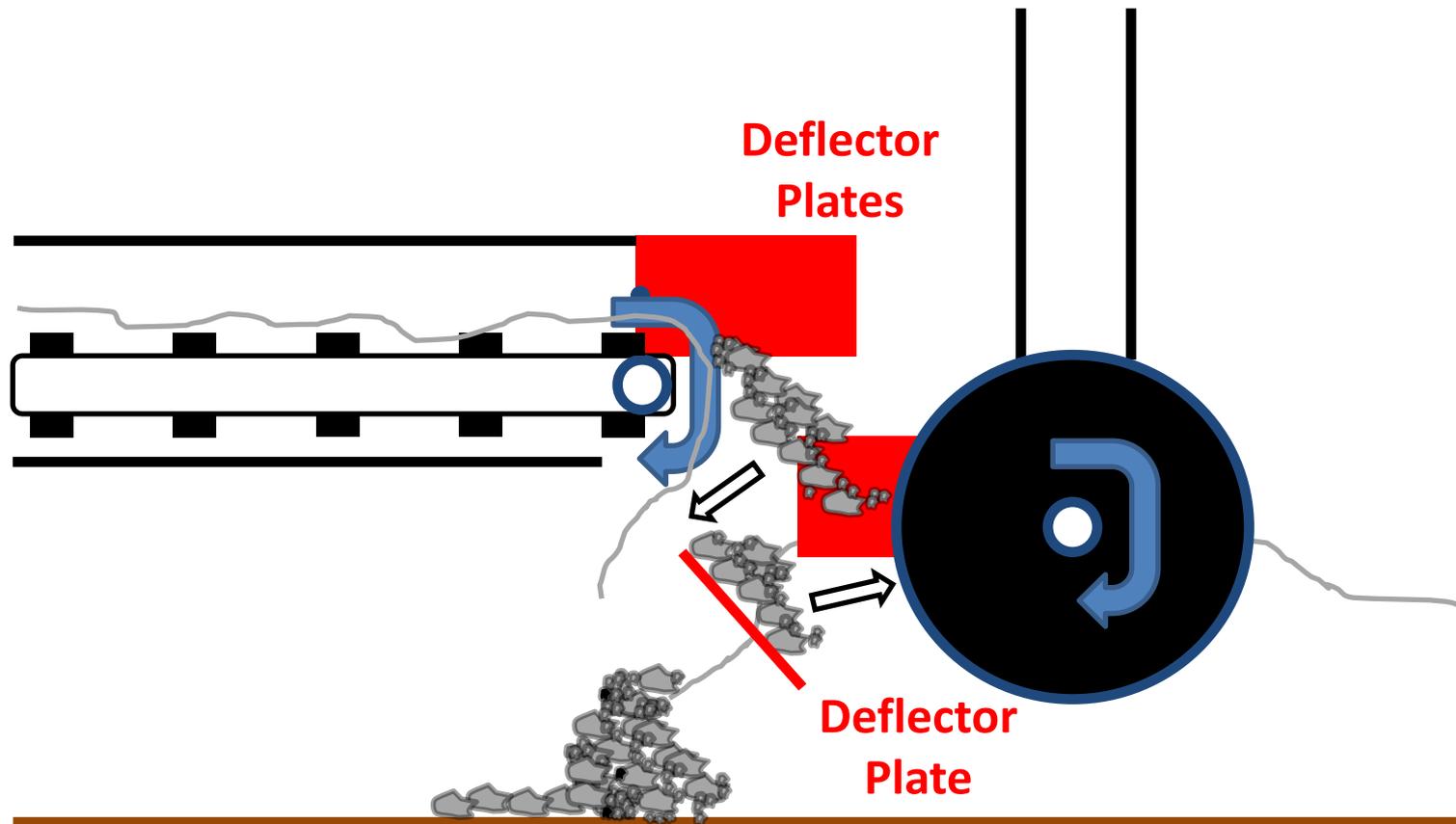
Deflector Plates – Top View



Deflector Plates – Side View



Deflector Plates – Side View



Deflector Plate Example



Paver Segregation Recurrence in Illinois

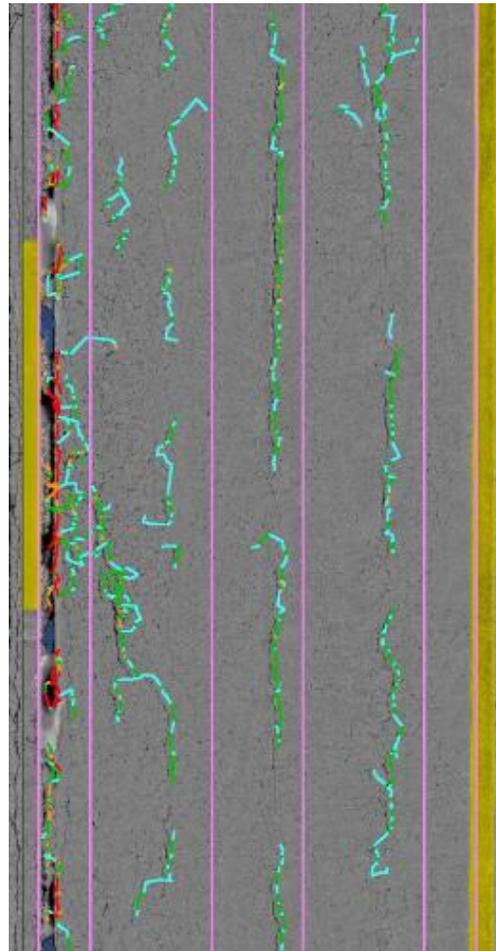
Paver Segregation Example

US-51



Paver Segregation Example

IL 29



FHWA-IDOT Paver Segregation Process Review

Process Review Members

- Dennis Bachman (FHWA)
- Craig Cassem (FHWA)
- Kevin Burke III (IAPA)
- Ryan Sheley (IDOT)
- Jim Trepanier (IDOT)
- Tom Zehr (IDOT)
- Brian Hill (IDOT)

Process Review

- What is it?
 - Evaluation of processes comprising an element of a program
- What are the goals?
 - Evaluate Level of Compliance
 - Recognize Best Practices
 - Pinpoint Areas for Improvement

National Highway Institute Training Course.
Conducting Effective Program Reviews.

Scope and Methodology

- Review Existing Cases of Paver Segregation
- Inspect Pavers, MTD's, and Paver Hopper Inserts at Contractors & Dealerships
- Collect Current Anti-Segregation Part Documents
- Evaluate Existing Specs & Special Provisions
- Identify Best Practices & Recommend Changes

Scope and Methodology

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Core Testing



Core Testing



Core Locations

- District 2 - US-30
- District 3 - US-24
- District 4 - I-74
- District 5 - US-36
- District 6 - IL-29
- District 9 - US-51



Average Core Air Voids

Area	Air Voids (%)
Segregation	6.7
Non-Segregation	5.1

Average Core Asphalt Contents

Area	AB Content (%)
Segregation	5.2
Non-Segregation	5.4

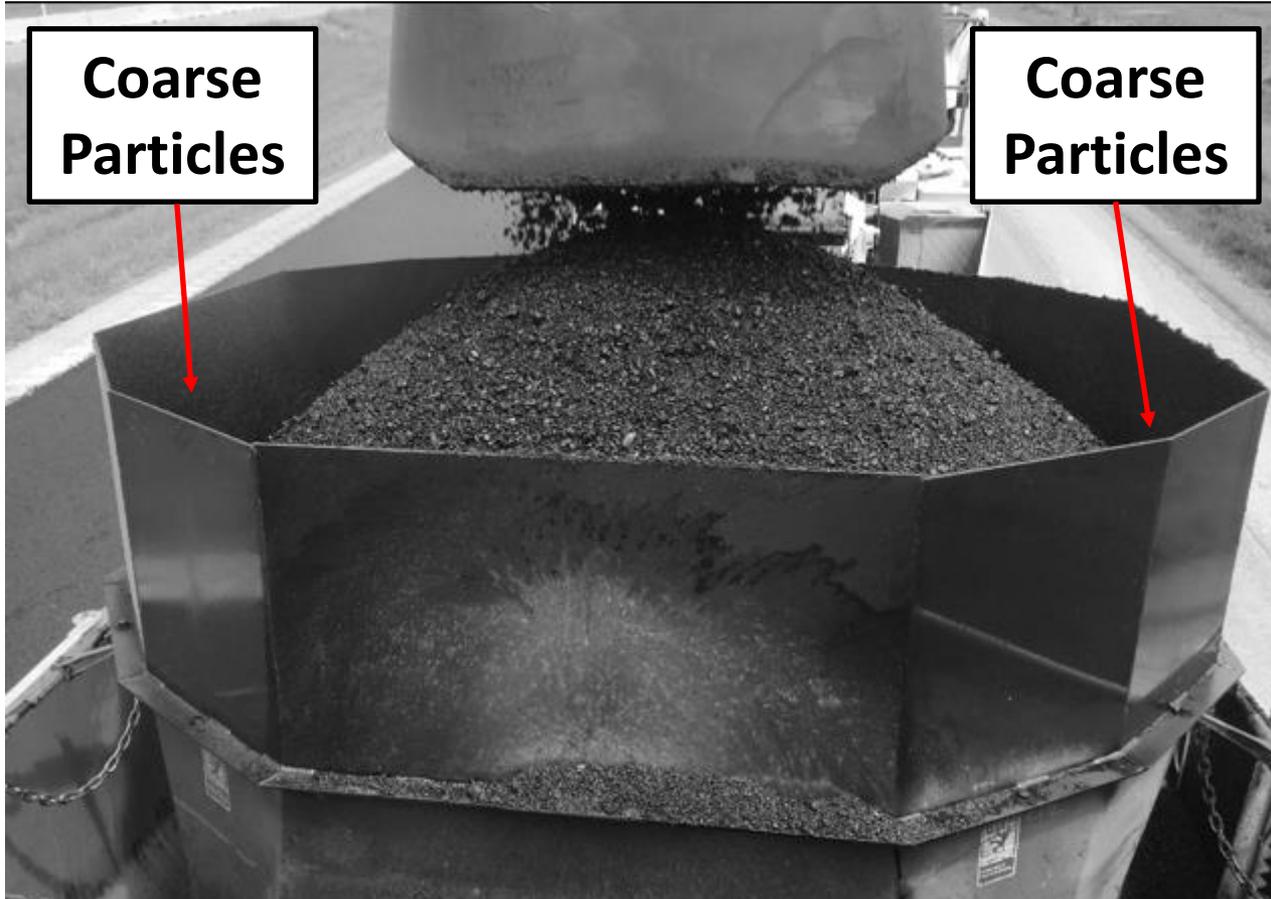
Average Core Flexibility Index*

Area	I-FIT FI
Segregation	1.2
Non-Segregation	2.4

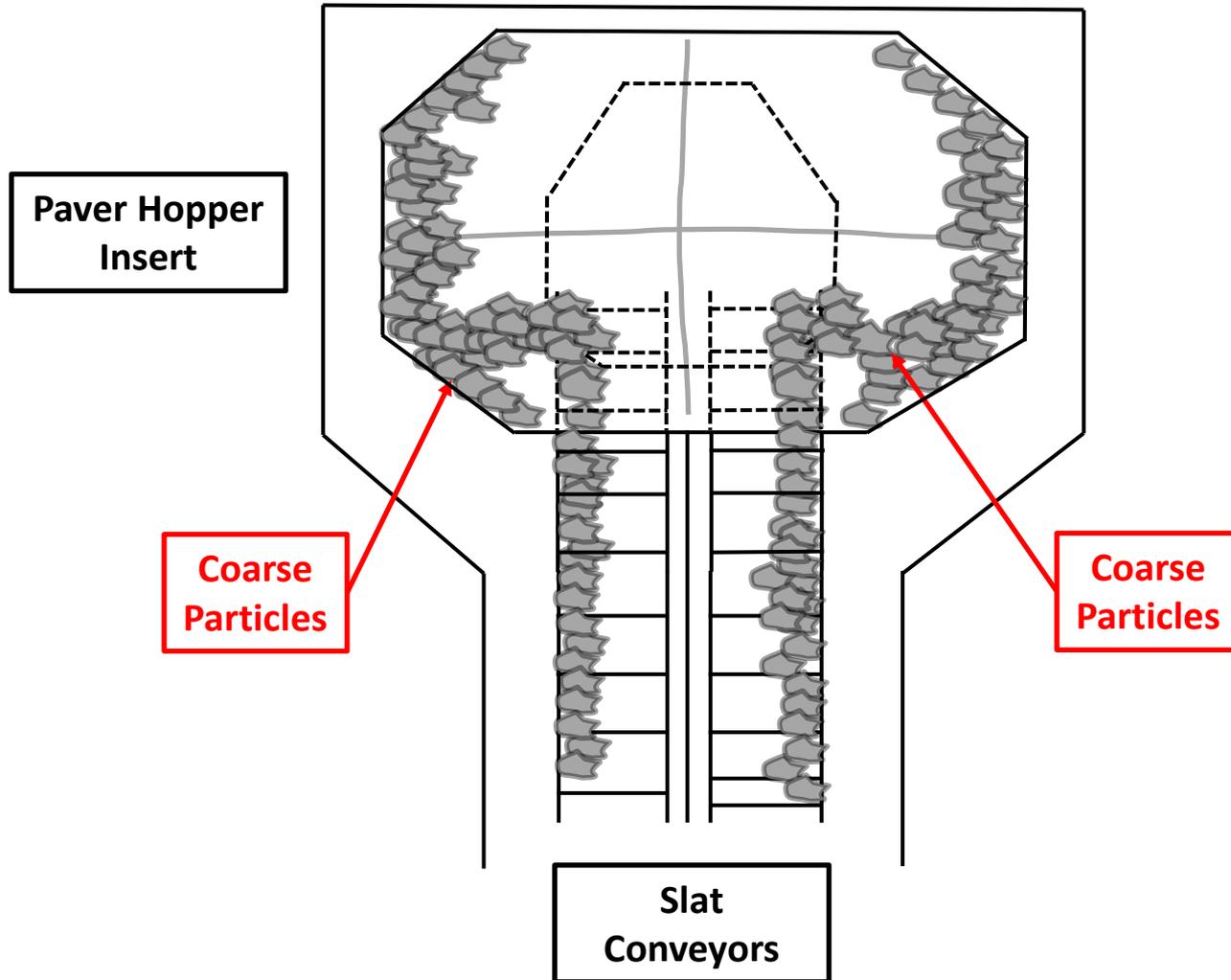
* Core testing was not available with D3 or D4 cores.

Paver Hopper Inserts

Conical Pile in Paver Hopper Insert



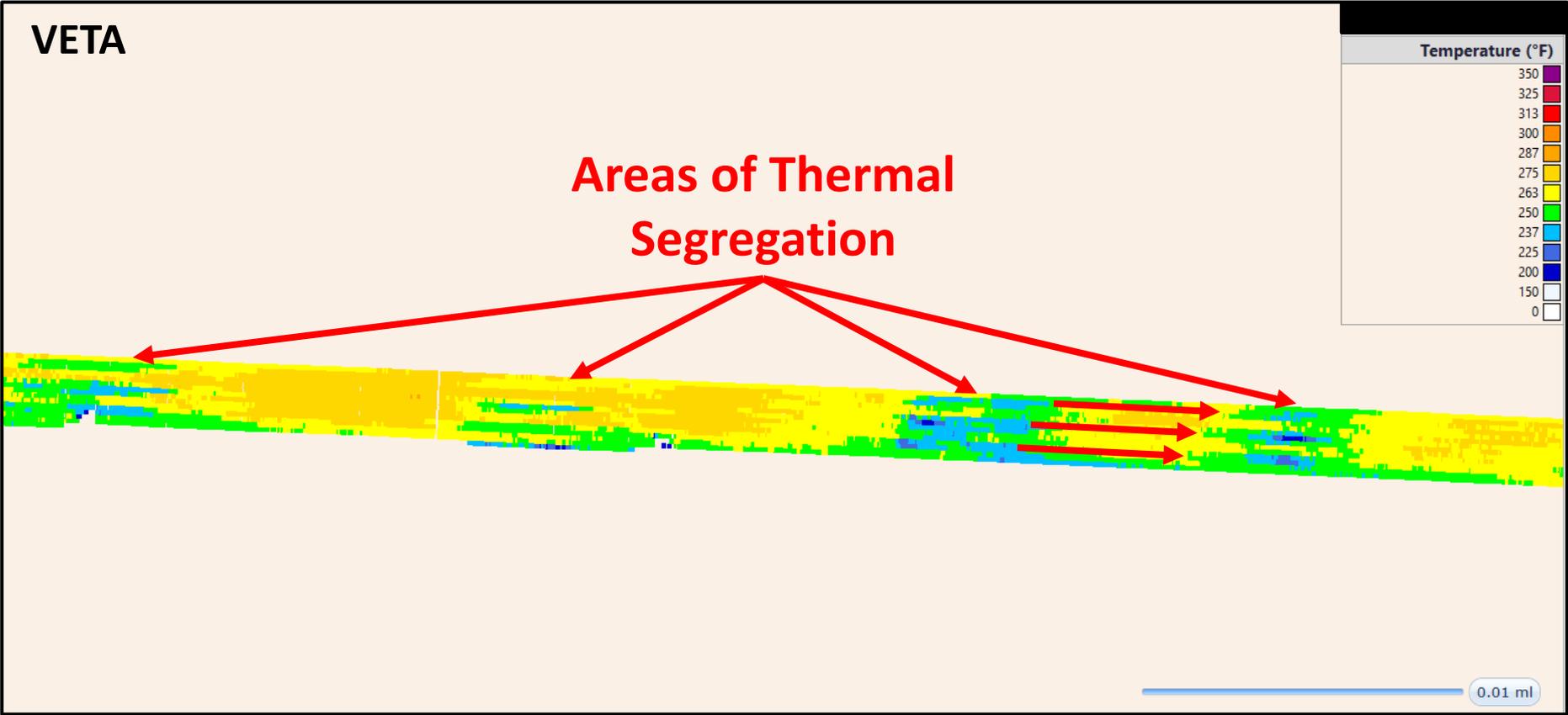
Coarse Particle Movement in Paver Hopper Insert



Best Practices

- **Winter Paver Evaluations/Meetings**
 - Equipment Suppliers/Contractors/Department
- **Contractor Modifications**
- **Use of Thermal Measurement Technology**
 - Paver Mounted or Handheld Thermal Cameras

Paver Mounted Thermal Camera Example



Areas for Future Improvement

- **Communication & Verification of Components**
 - Equipment Suppliers/Contractors/Department
- **Electronic Record of Equipment Use**
 - Daily Paving Records
- **Paver Segregation Distress Identification**
 - Automated Distress Survey Process

Thank You for Your Attention!