Compaction: Keys to a Consistent and Dense Mat
Presentation Topics

BEFORE THE PAVER

AT THE PAVER

AFTER THE PAVER
Before We Get Started

https://www.surveymonkey.com/r/Compaction
Poll Question #1

Which of the following decisions impact compaction the greatest?
Underlying Assumptions for Presentation
Decisions made by VDOT, but Contractor SHOULD Voice any Concerns

- **RIGHT MIX WAS SELECTED**
  - NMAS vs. lift thickness
  - Binder grade

- **PAVEMENT FAILURES REPAIRED**
  - Proper patching of the pavement
  - Scabbing Removed

- **PAVEMENT STRUCTURE IS ADEQUATE**
  - Thick enough
  - Stiff enough
What Factors Before the Paver will Impact Compaction?
Poll Question #2

Prior to the asphalt mix ever reaching the paver hopper, what factors will impact compaction?
Three Factors Before the Paver

- Mix Design
- Temperature
- Mix Discharge
Mix Design

- Stiffness of the virgin binder
- Percentage of recycled binder
- Use of binder additives
- Total asphalt cement binder in the mix

ASPHALT CEMENT BINDER

AGGREGATES

- Gradation in the mix design
- Percentage of #200’s
- Gap vs. Dense Graded
- Consistency of virgin and recycled aggregates
Temperature – Mix, Air and Base

- Mix too hot – impact the binder properties
- Mix too cold – stiff and difficult to compact
- Air too cold – draws heat out of mix reducing compaction time
- Base too cold – same as the air, but worse
Mix Discharge into Paver or MTV Hopper
Poll Question #3

At the paver, what has the biggest impact on compaction?
Three Factors at the Paver

- HOPPER MANAGEMENT
- AUGER OPERATIONS
- SCREED SETTINGS
Paver Hopper Management

- Proper loading
- Consistent quantity
- Uniform drawdown
Auger Operations

Consistent Head of Material

Slow Rotation of the Augers
Screed Settings

- Proper Angle of Attack
- Vibratory or Tamping On
Poll Question #4

Which of the following is the most important?
Three Factors After the Paver

- Number and Size of Rollers
- Mat Coverage
- Quality Control
Number and Size of Rollers
Mat Coverage

Image Courtesy of Wirtgen America
– VECAT Asphalt Field I School
Quality Control

DONE IN ADDITION TO ACCEPTANCE

TARGETS MAT AND JOINT COMPACTION

SPOTS ISSUES BEFORE THEY BECOME PROBLEMS
Poll Question #5

So, which of the 9 factors plays the largest role in compaction?
Questions

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