



Asphalt Seminar 2020

# 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**

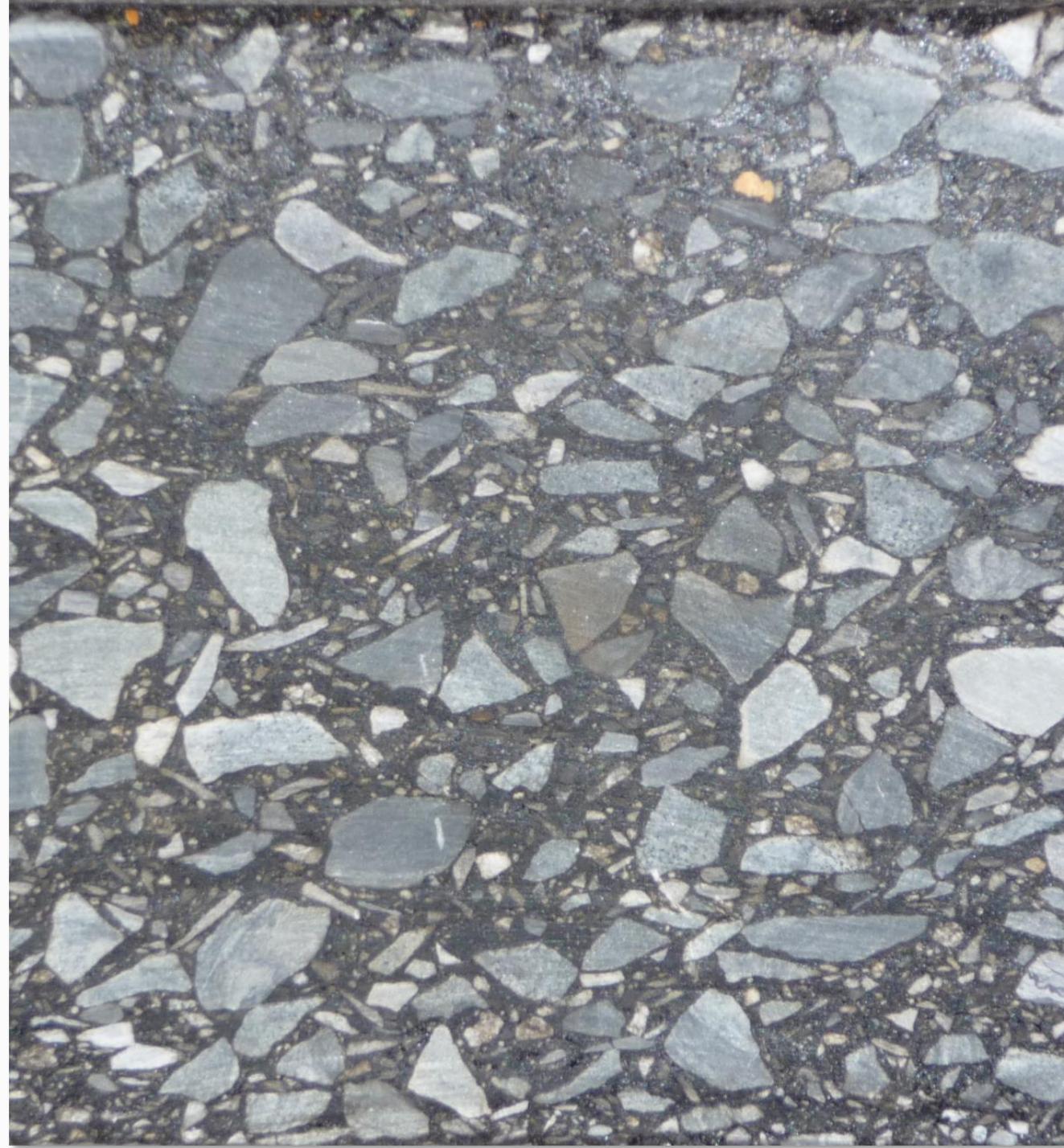
Thick enough

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

---

## ASPHALT CEMENT BINDER



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

## AGGREGATES



- Gradation in the mix design
- Percentage of #200's
- Gap vs. Dense Graded
- Consistency of virgin and recycled aggregates





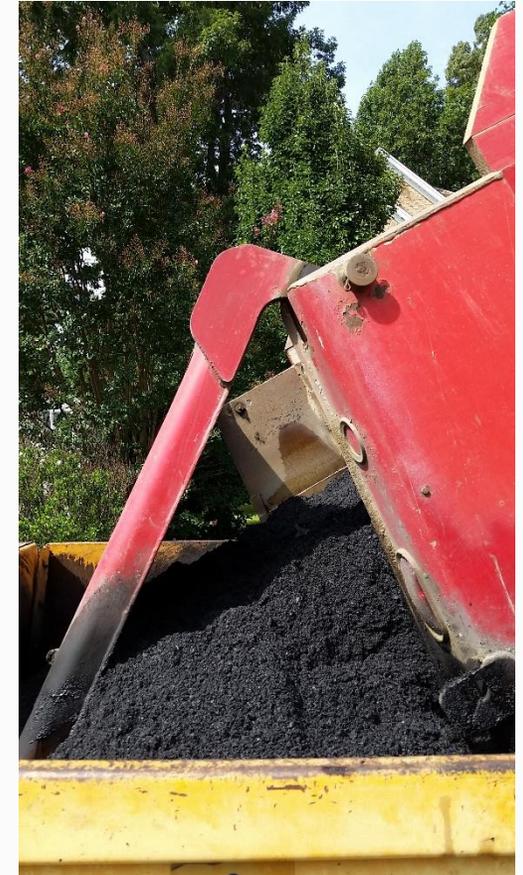
# Temperature – Mix, Air and Base

- ❖ 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

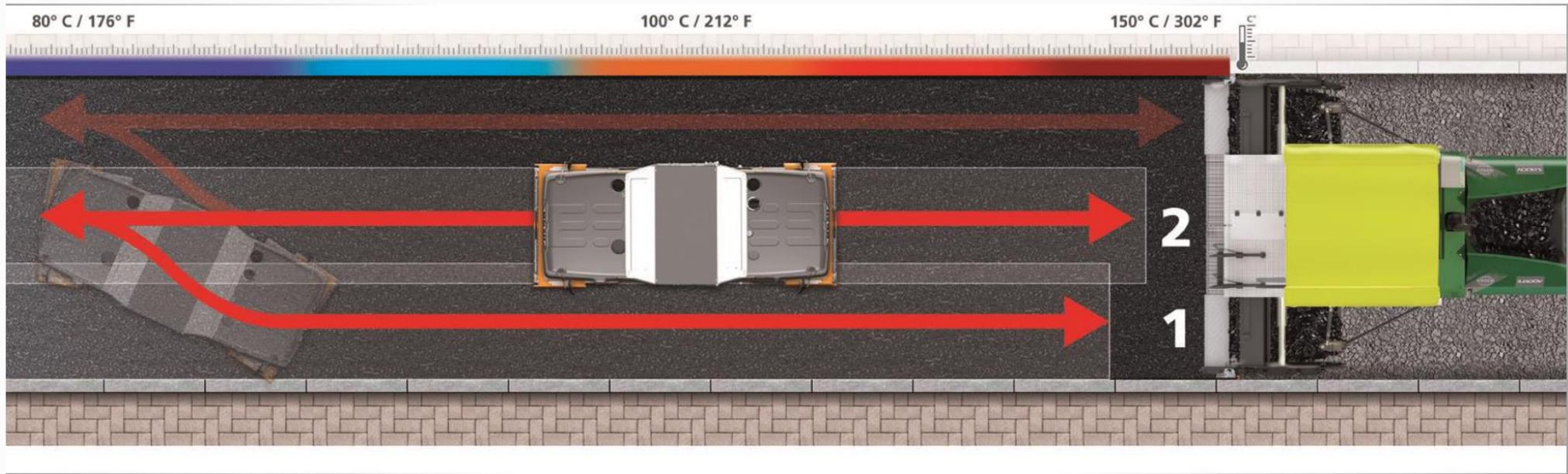


Image Courtesy of Wirtgen America  
– VECAT Asphalt Field I School





# 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

---

TRENTON CLARK, P.E.  
Executive Vice President

VIRGINIA ASPHALT ASSOCIATION  
tclark@vaasphalt.com  
804-929-2331

