

LEARN • EVOLVE • IMPLEMENT

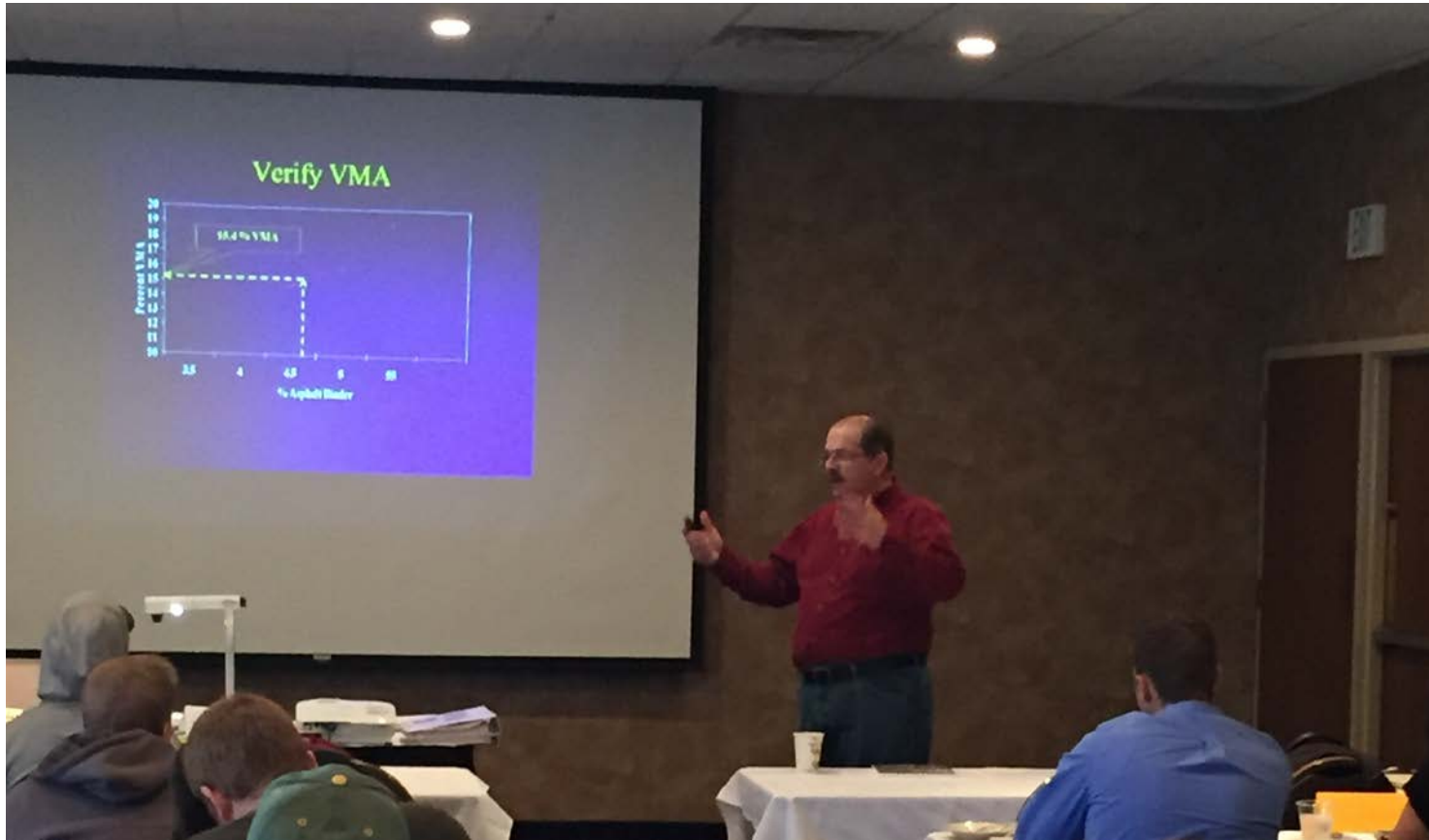
NORTH DAKOTA ASPHALT CONFERENCE

APRIL 3-4, 2019 (WED-THURS) • RAMADA BISMARCK HOTEL

NDDOT Update

Matt Linneman, PE

NDDOT Materials & Research Engineer



- Basics
- Advancements
- Innovations
- Research

Learn



- More Research
- Peer Exchange
- Pilot Projects

Evolve



Implement

- Make Decisions
- Write Specifications
- Discuss with Industry
- Incorporate into Contract Documents

NDDOT Updates



- Field Sampling & Testing Manual Update
- Longitudinal Joint Density Specification
- Intelligent Construction
- Percent Within Limits (PWL) for Density
- Rolling Density Meter



Implement: Field Sampling &
Testing Manual

- Density Core Locations
- Sampling in Front of the Paver
- Clarification on IA Procedures
- April 2019 Bid Opening



Implement: Longitudinal
Joint Density

- Poor Density at the Joint
- Decreased Service Life
- Rumble Strips

Longitudinal Joint Density



- Pilot Projects
 - Control – 83.3%
 - Maryland Joint Method – 89%
 - Specified Density – 89.7%
- Additional Information
 - NRRRA [Longitudinal Joint Construction](#) – Sept 2018
 - ND Asphalt Conference [Longitudinal Joints - FHWA](#) Spring 2012

Longitudinal Joint Density



- Draft Special Provision
 - Density Cores for Longitudinal Joints
 - Pay Factor Table
 - Confined vs Unconfined Joints
- 2020 Construction Season



- Intelligent Compaction (IC)
- Paver Mounted Thermal Profiler (PMTP)

Evolve: Intelligent Construction

Intelligent Construction – Pilot Projects

- Three Completed with IC (one with PMTP)

- Seven projects planned for 2019

HMA Overlay over Concrete

Full Depth Reclamation & HMA Overlay (Density Pay Factor)

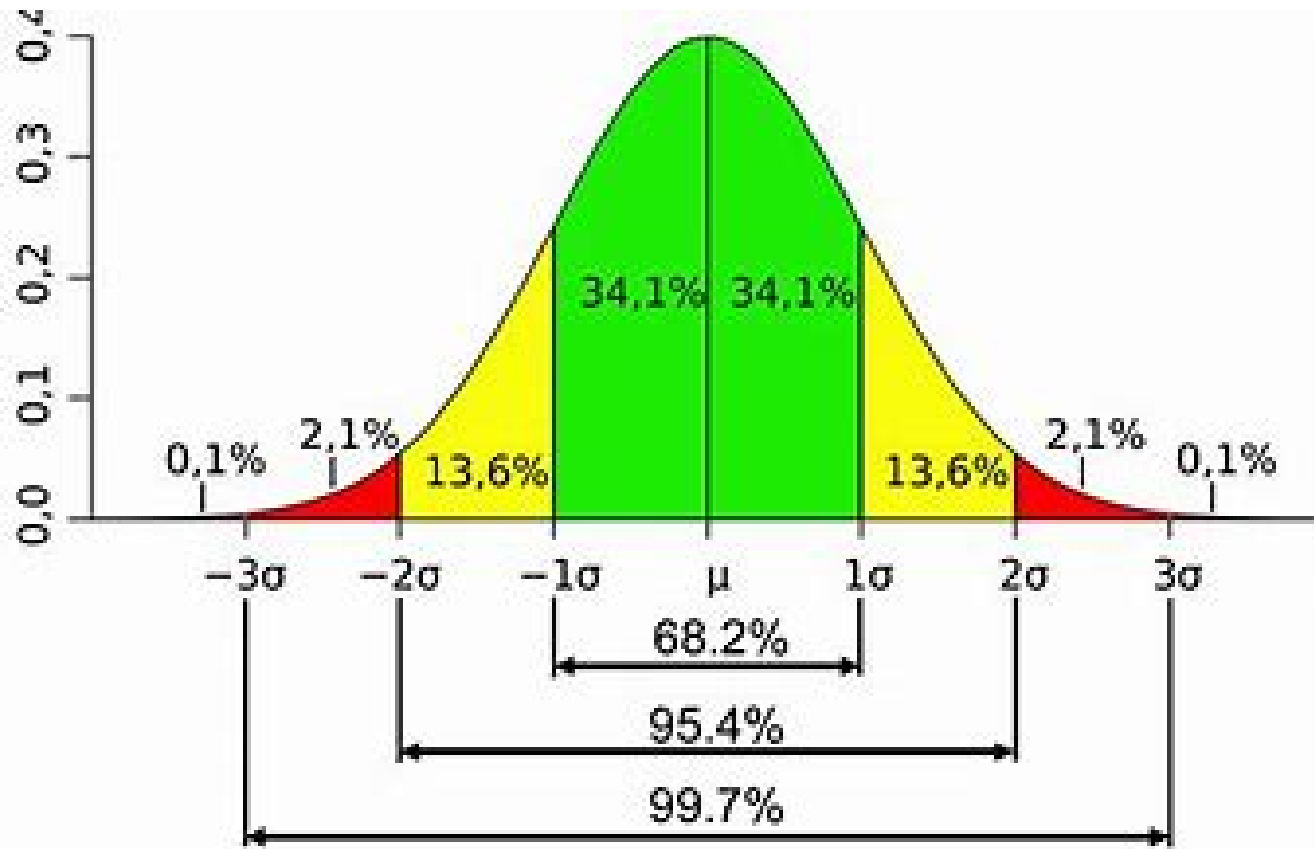
Four – Mill & HMA Overlay

Sliver Grading, Mill, & HMA Overlay (PMTP)

- Identifying 2020 projects

Intelligent Construction

- ND Working Group
 - Project Selection
 - Development of Specifications
 - Developing a Vision and Roadmap for IC
- National Road Research Alliance - Intelligent Construction Committee
David Bruins and Nathan Haaland
- Pooled Fund on *Enhancement to the Intelligent Construction Data Management System (Veta) and Implementation*
Curt Dunn

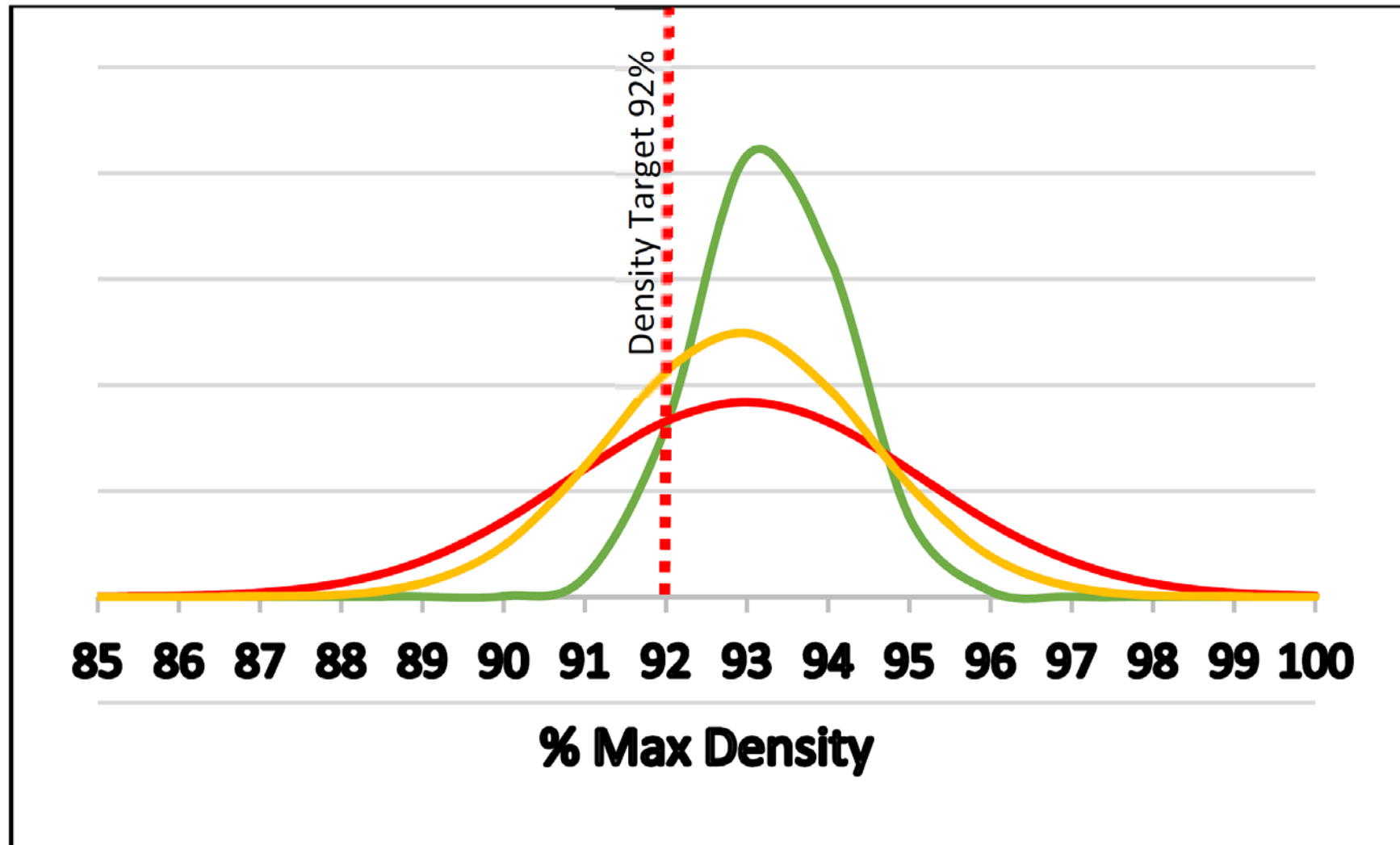


- Statistical Method to measure both average & range.

- Density Testing Data

Evolve: Percent Within Limits

Percent Within Limits



Percent Within Limits

- Draft Special Provision
 - Lot Sizes
 - Where to set limits
 - Pay Factor Table
- 2020 Pilot Projects
 - One Control Project
 - One with Intelligent Compaction specification



Learn: Rolling Density Meter

- Ground Penetrating Radar
- Correlated to Density
- Continuous Full Width Coverage

Rolling Density Meter



- Data Collection in 2019
NRRA Partners
- Pilot project for 2020 or 2021.

Pulling It All Together

How can all these new technologies be used in seamless, user-friendly manner to create the best quality and add value?

How to write specifications to allow innovation and flexibility, but ensure quality and economy?

How do we embrace the New Technologies and let go of some traditional methods?

Learn, Evolve, Implement in Action

- Take time to Learn
- Get involved and get comfortable about new ideas.
- Be intentional about Implementation.
 - Evaluation
 - Feedback



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