

NDDOT UPDATE

ND ASPHALT  
CONFERENCE 2022

TYLER WOLLMUTH  
NDDOT - M&R



NORTH  
**Dakota** | Transportation  
Be Legendary.

# FUNDING UPDATE

## IIJA (Infrastructure Investment & Jobs Act)

- 5-year Highway bill
- About 32% increase in Federal formula funds per year for ND

## ARP (American Rescue Plan) - \$317 Million total for ND

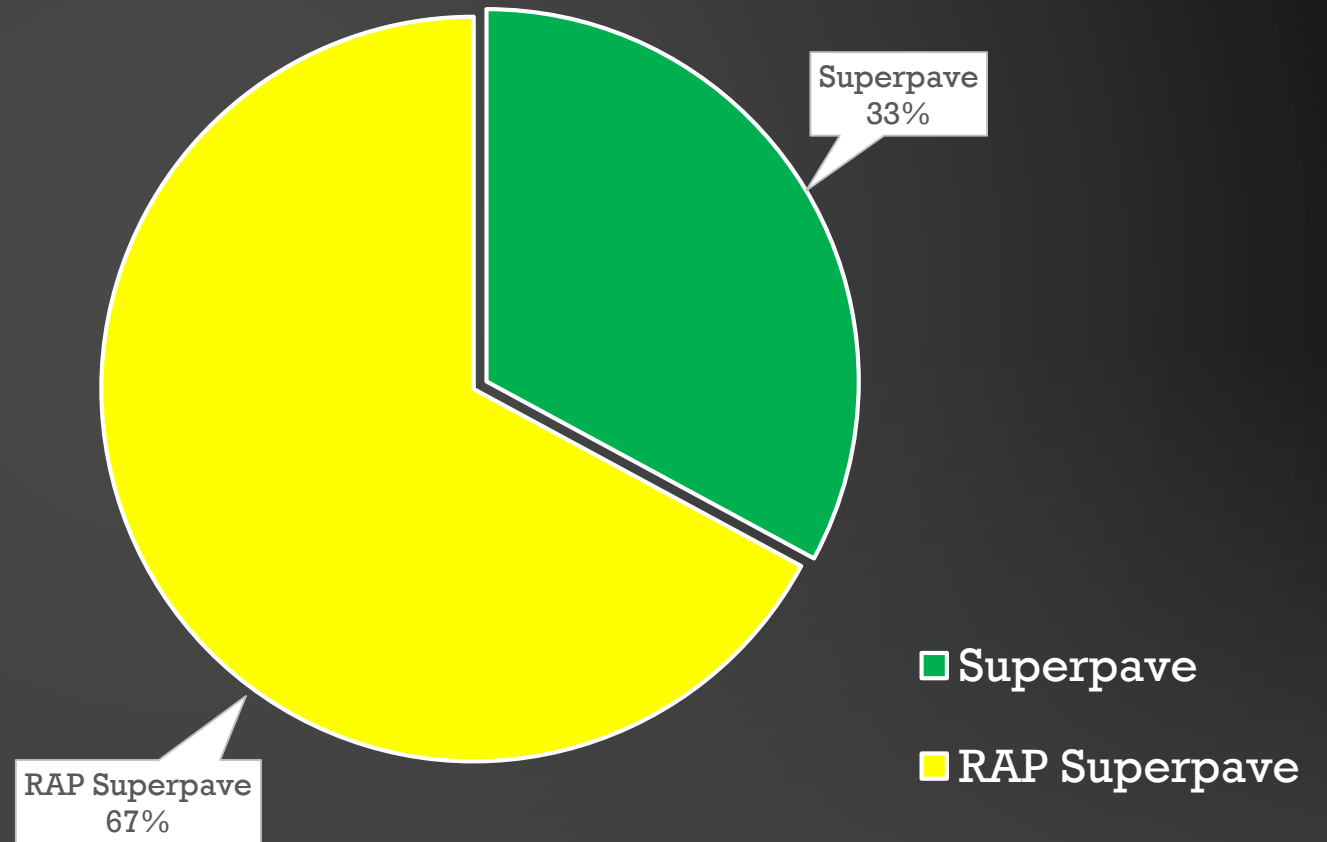
- \$200 Million to DOT
- \$117 Million to Counties & Townships

## Other One-time Funding

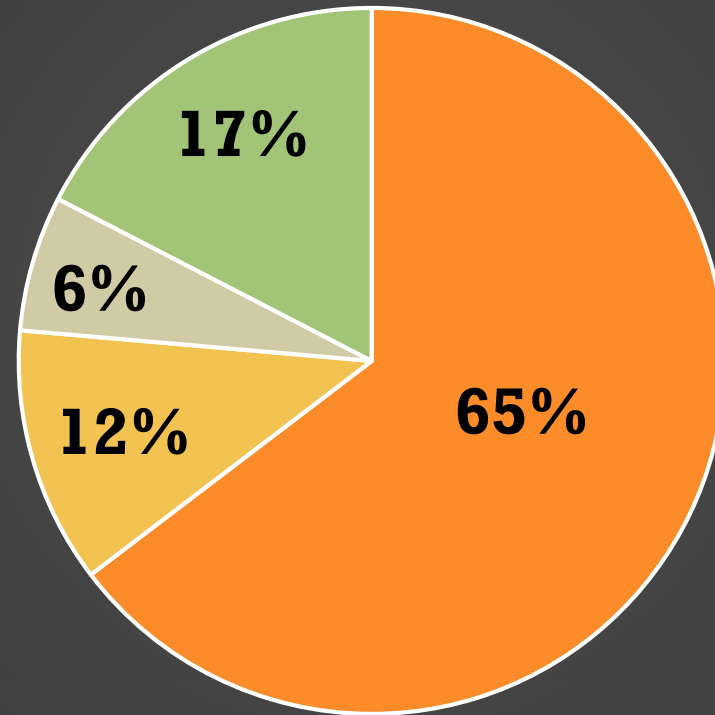
- \$61 Million in Covid relief funds (state, city, and county)
- \$35 Million Bonding from Legislature
- RAISE Grant - \$22 Fed/\$50 million total for Grade Raises
- INFRA Grant – \$17 Fed/\$40 million total for pass lanes on US 52

# 2021 ASPHALT STATS

- HMA: 1.32 million tons bid
- Included RAP: 884,487 tons



# AC BINDER 2021



■ PG 58S-28   ■ PG 58H-28   ■ PG 58S-34   ■ PG 58H-34

# DENSITY

- 2021 Density Incentives
  - \$1.2 Million Paid in Incentives
  - Avg. Density: 93.4

Higher Density = Quality Pavement



# RIDE



- 2021 Ride Incentive/Disincentive – 17 Projects
  - \$460,000 Ride Incentives
  - \$(43,000) Ride Disincentive

# HMA UPDATES

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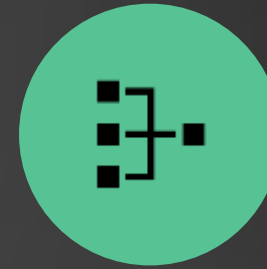
FAA 42, 43 & 45  
MORE RAP



MORE -34 AC  
BINDER



AIR VOID TARGET  
CHANGE



MIX DESIGN  
PROCEDURE  
CHANGES

# HMA SELECTION GUIDE

## Superpave FAA Type

Daily One-way ESAL's	Superpave FAA Type
< 100 & Interstate shoulders	FAA 42
100 – 300	FAA 43
> 300 & Roundabouts	FAA 45

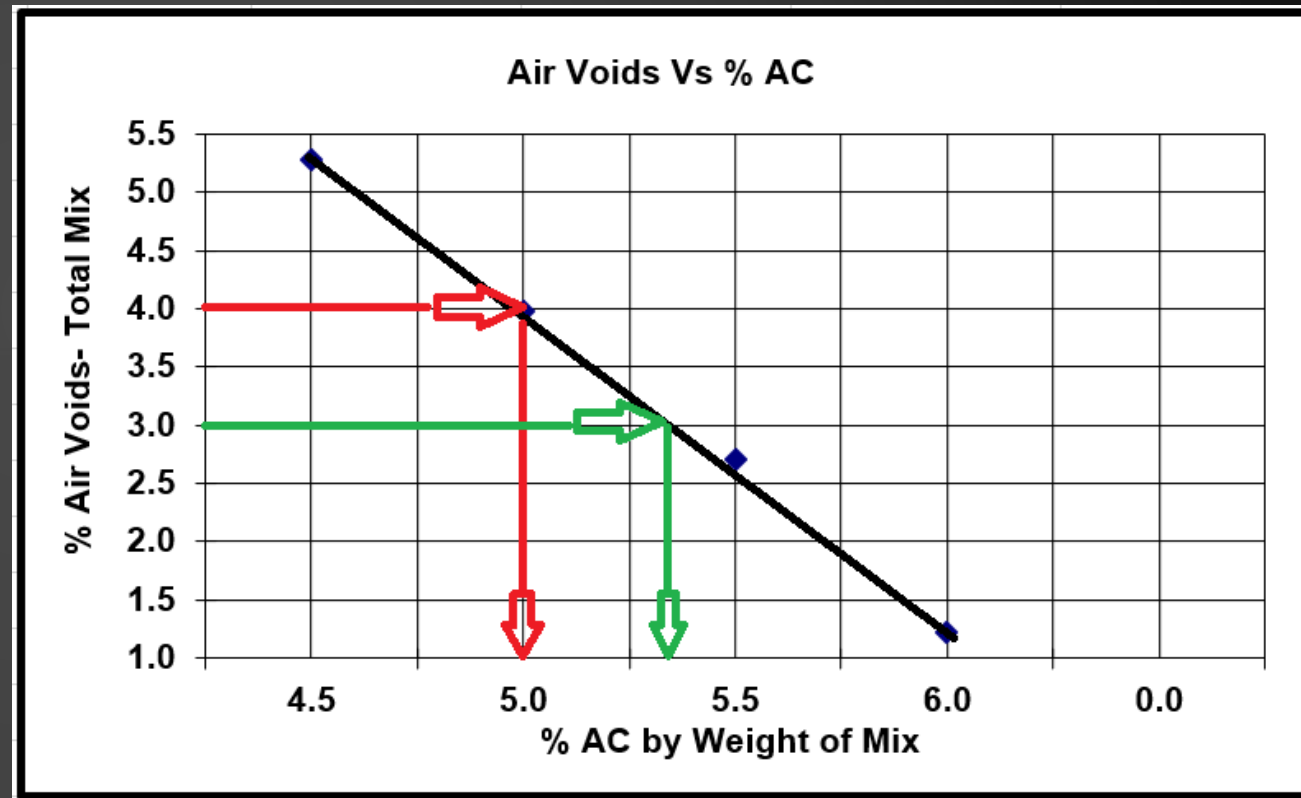
## Performance Graded (PG) Asphalt Binder Selection Guide with MSCR

Daily One-way ESAL's	PG Binder Grade
< 100 & Interstate shoulders	PG 58S-28
100 – 200	PG 58S-28 with < 20% RAP PG 58S-34 with $\geq$ 20% RAP
200 – 1000	PG 58H-34
> 1000 & Roundabouts	PG 58V-34



# AIR VOID TARGET CHANGE

- 2022 Spec Book
- Start mix design at 4%
- Add binder content to 3%
- Production air void target = 3%



# HMA MIX DESIGN PROCEDURE

- New guidance for 2022
  - More testing of RAP properties
  - Incorporate RAP results into mix design
  - Increase AC binder content with 3% Air Voids



# HMA ADVANCEMENT GROUP

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## AGC & Industry

- HMA Contractors – Construction and QC testing
- Aggregate Suppliers – Aggregate Production
- AGC – Facilitate

## NDDOT

- Districts – Inspection and QA testing
- ETS – Specifications
- Construction – Bidding and Administration
- M&R – Research and Testing

# HMA ADVANCEMENT GROUP

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## **Current State of the Practice**

- Updates to Specifications
- Improve Testing



## **Future Practice**

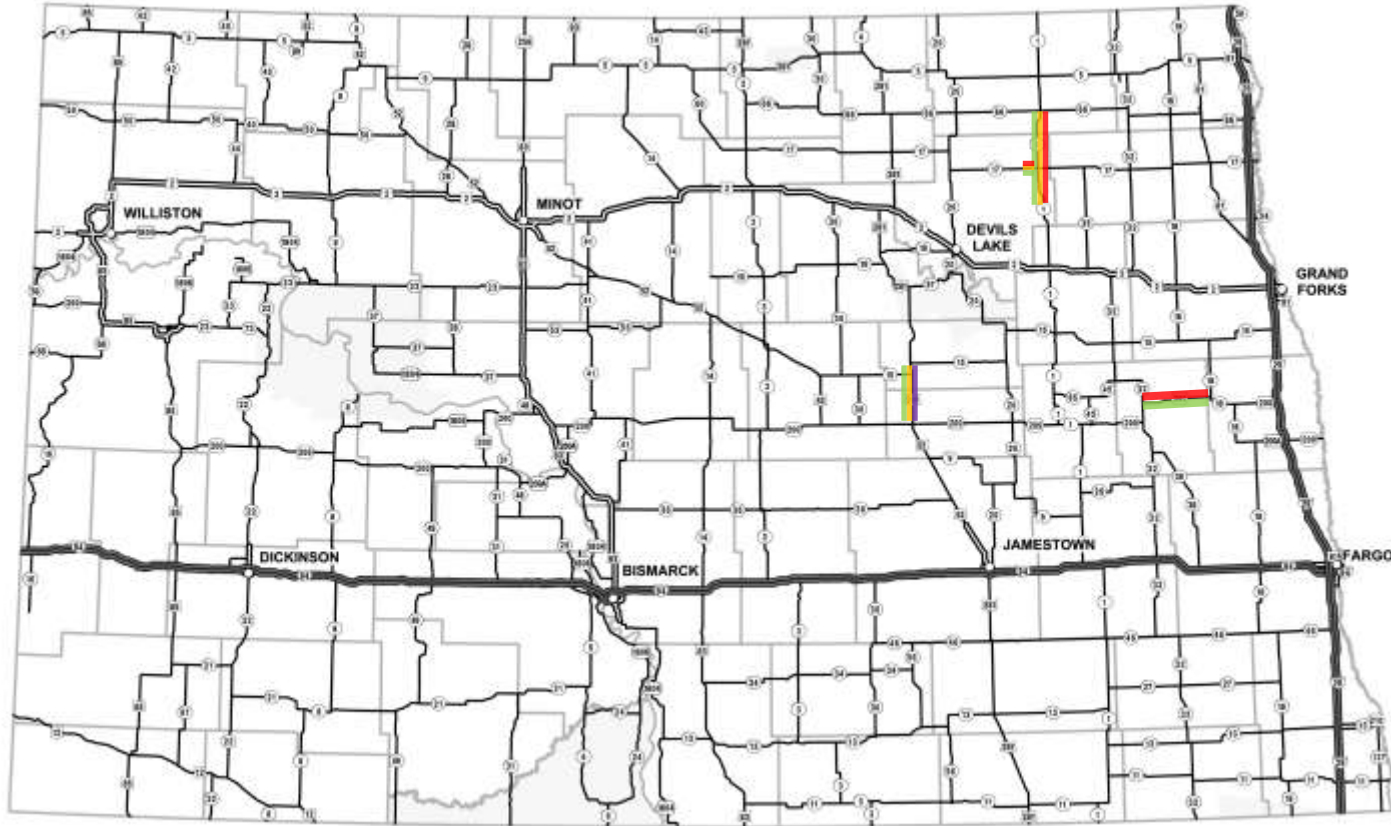
- Materials Improvement
- Identify Research



## **Advance New Technology**

- Pilot Projects
- Performance Testing

# 2022 PILOT PROJECTS



## Pilot Types

- Intelligent Compaction (4)
- Paver Mounted Thermal Profiler (3)
- Superpave 5 (1)
- HMA Compaction Adjustment (1)
- Percent within Limits (3)

## SUPERPAVE 5

- Superpave 5 project – Minot District 2022
  - Design at 5% Air Voids
  - Compact in the field to 95% density
  - Rutting requirement during mix design

# COLD IN-PLACE RECYCLING



ND 8 in the Dickinson District

- CiR 3" & 4" depths,
- HMA 3" overlay



# FUTURE PILOT PROJECTS

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High RAP project

Density profiling for acceptance

HMA Performance testing

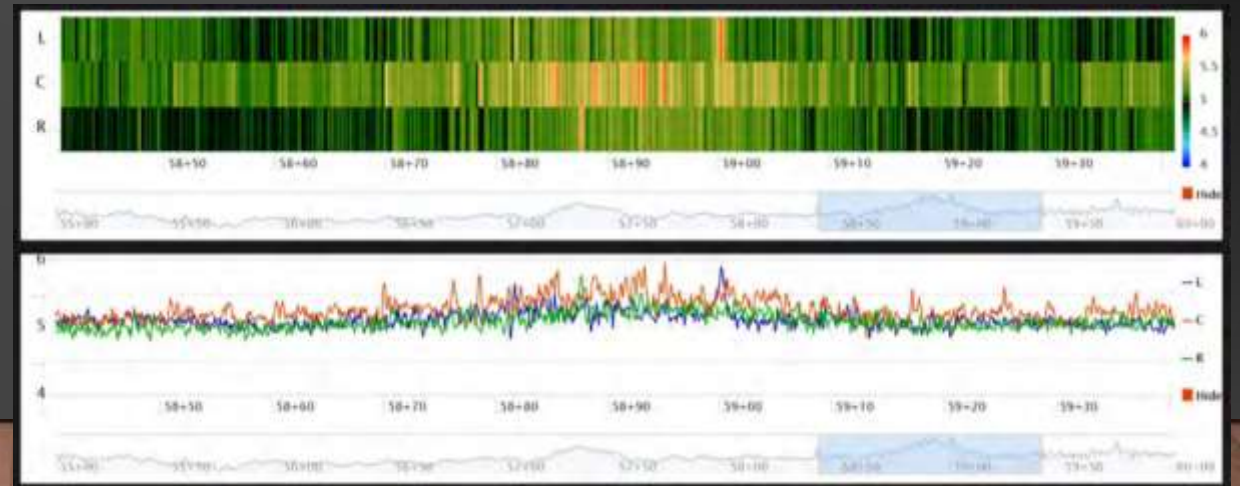
High Performance Thin Overlay





## DENSITY PROFILING

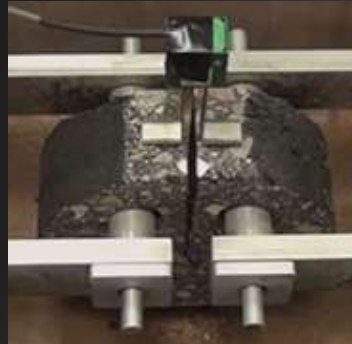
- GSSI PaveScan RDM 2.0
- Member of Pooled Fund TPF-5(443)
- Collect dielectric data in real time
- Correlate dielectric to density



# BALANCED MIX DESIGN

- BMD utilizes performance testing rather than volumetrics
  - Measure rutting and cracking resistance
  - Allows for innovative use of materials
  - Less reliance on aggregate specific gravity
- TPF-5(478) Demonstration to Advance New Pavement Tech

Hydraulic Driven IDEAL Plus



## PERFORMANCE TESTING

- Equipment NDDOT is purchasing:
  - Hamburg wheel tracker – rutting
  - Indirect tension cracking test (Ideal CT) – cracking
  - Disc shaped compact tensile (DCT) – thermal cracking
  - Indirect tension rutting test (Ideal RT) – rutting
  - Illinois flexibility index test (I-FIT) – cracking
  - Overlay test (OT) - cracking

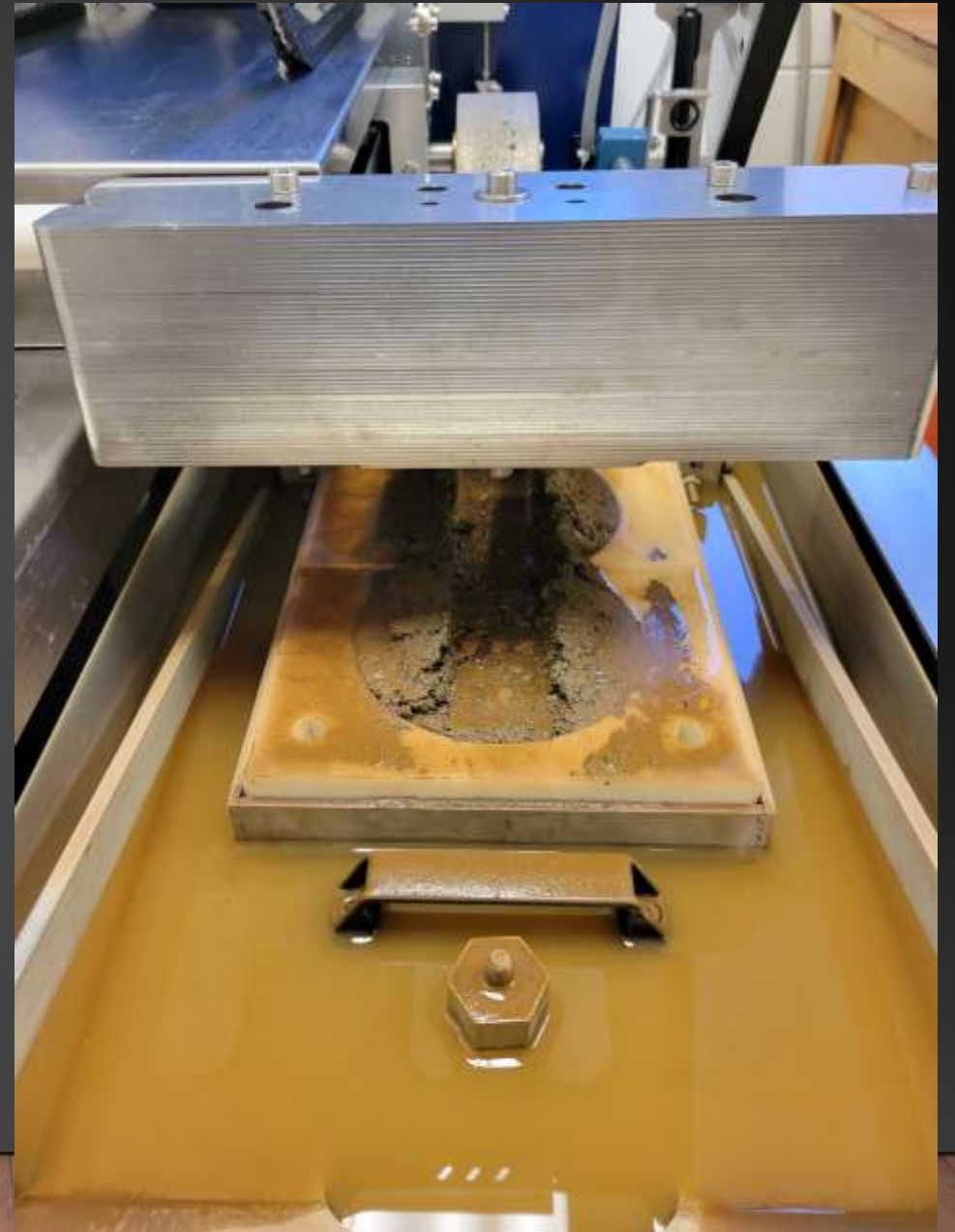
# HAMBURG WHEEL TRACKER

- M&R currently running tests on asphalt mix from 2021 projects
- Will be collecting mix from 2022 HMA project to create a database

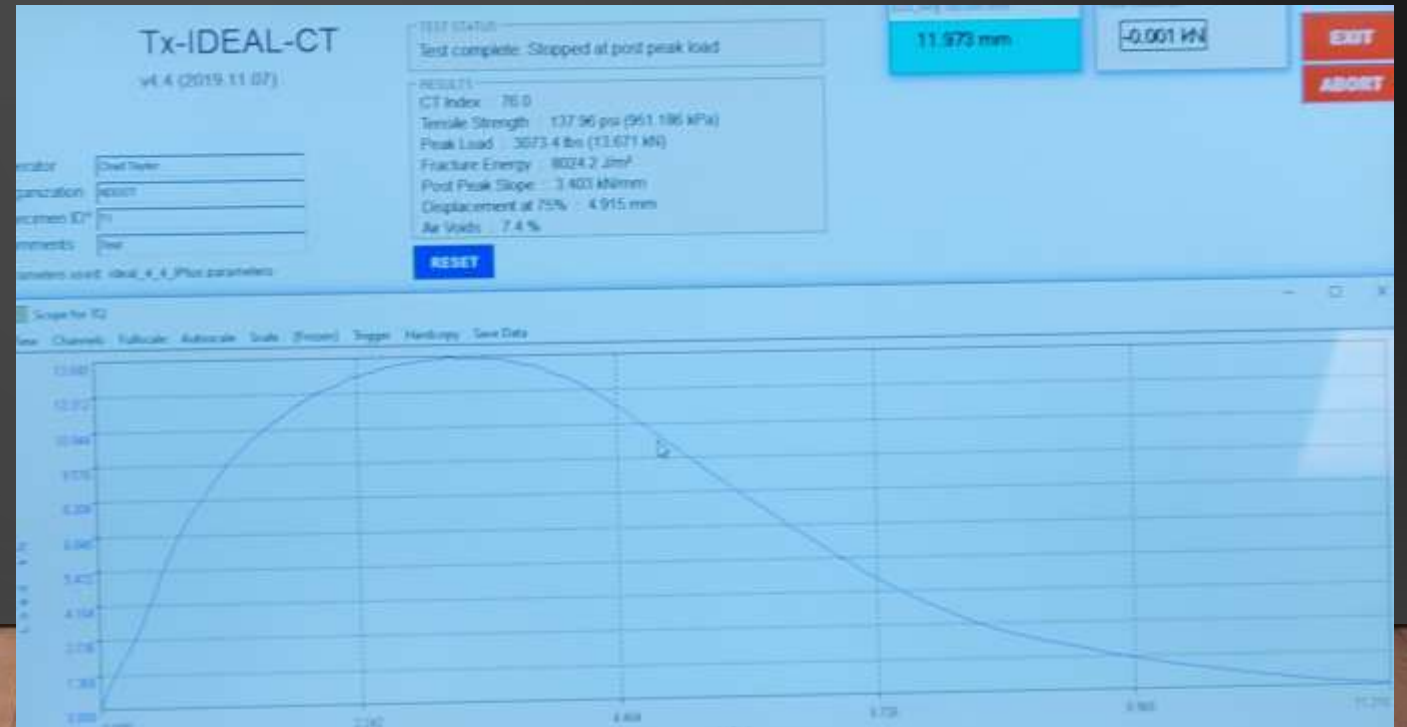


# MOISTURE SENSITIVITY

- Hamburg Wheel Tracker will teach us about Moisture Sensitivity & Stripping

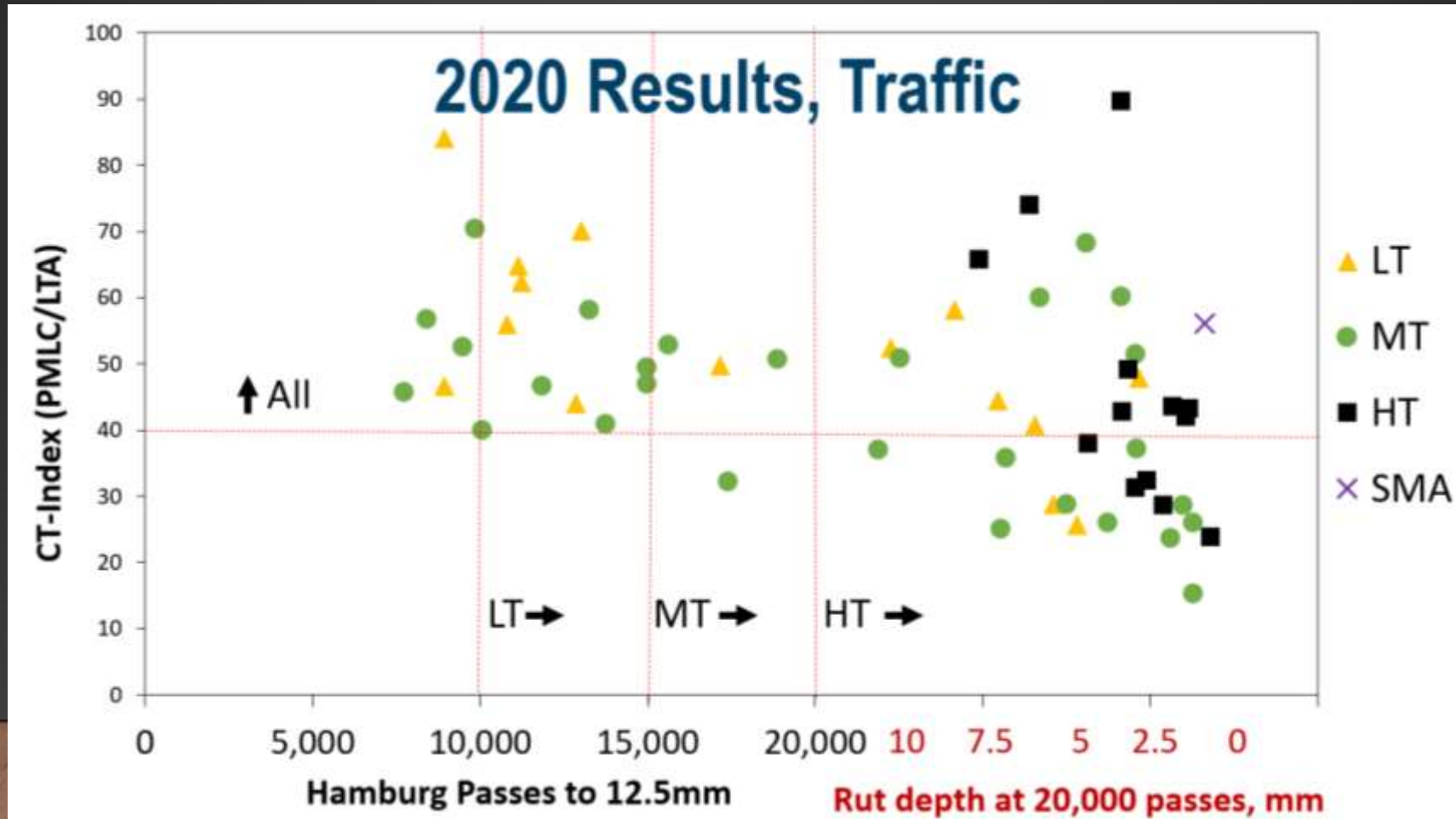


# IDEAL CRACKING TEST



# PEER EXCHANGE WITH WI AND MT

- Wisconsin and Montana have the same Ideal CT and Hamburg Equipment



# TEST SECTION PROJECT

- Pavement Preservation Test Sections – 2023
- ND 1804 S of Bismarck – 8 sections each 3 miles
  - Cape Seal
  - Double Chip Seal
  - Double Micro-surfacing
  - Bonded Wearing Course
  - 9.5 mm NMAS Thin Overlay
  - 4.75 mm NMAS Thin Overlay
  - Use of RAP in Preservation



# QUESTIONS?

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