

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

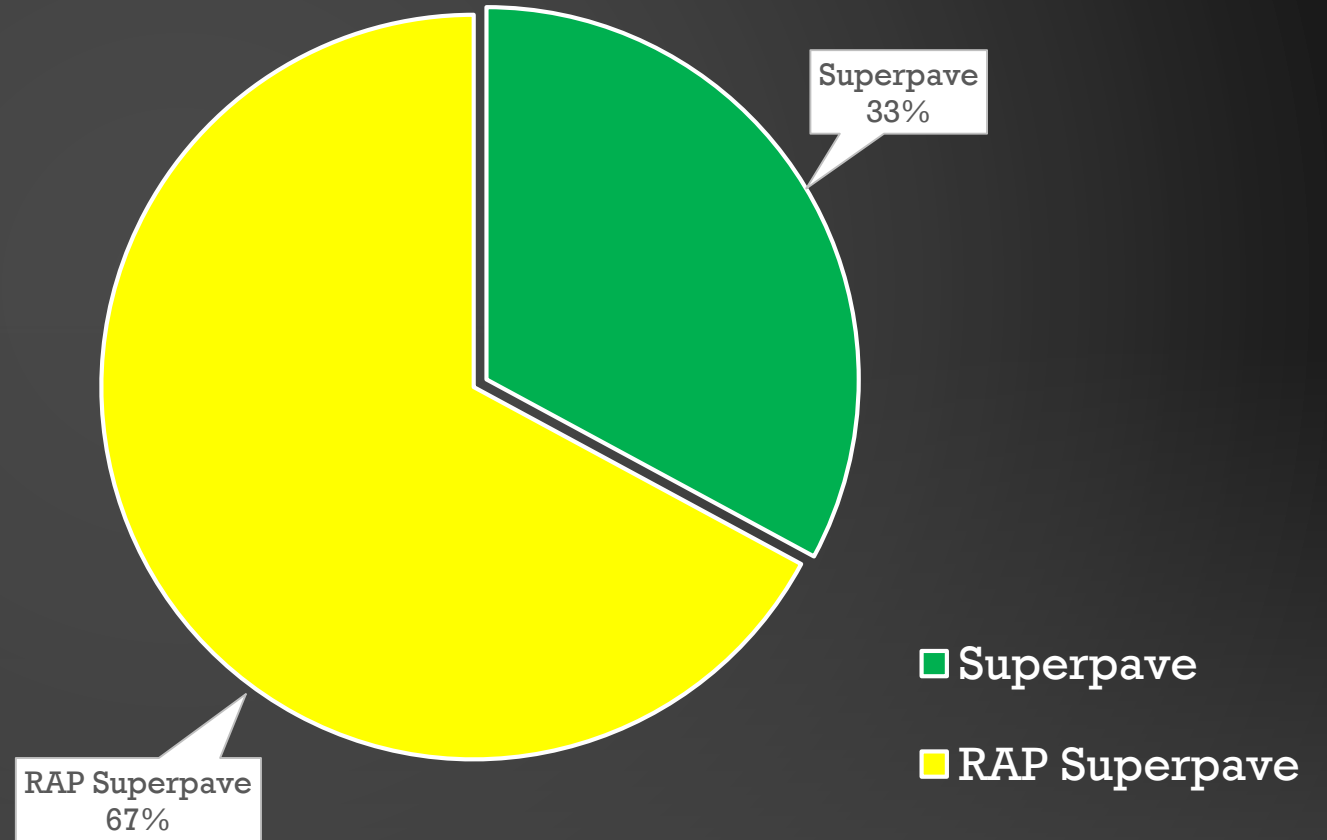
- \$200 Million to DOT
- \$117 Million to Counties & Townships

Other One-time Funding

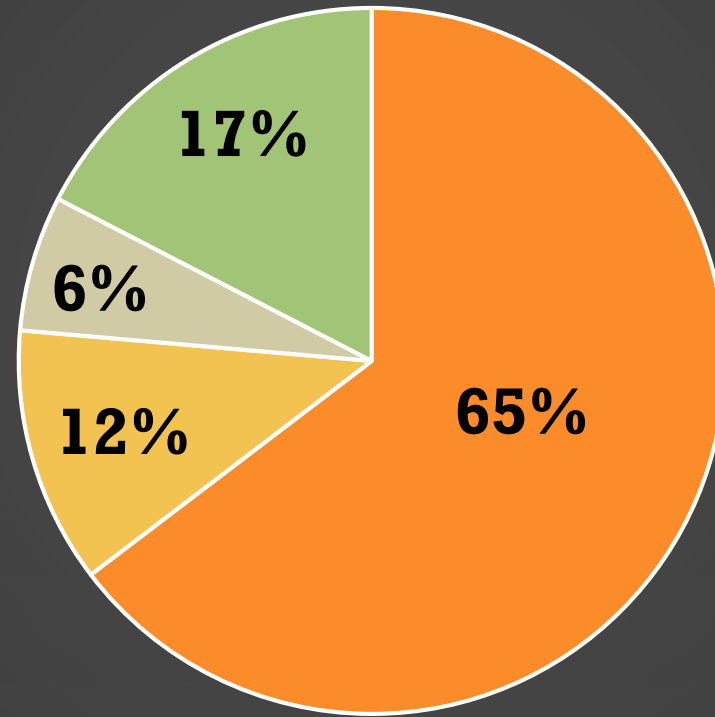
- \$61 Million in Covid relief funds (state, city, and county)
- \$35 Million Bonding from Legislature
- RAISE Grant - \$22 Fed/\$50 million total for Grade Raises
- INFRA Grant – \$17 Fed/\$40 million total for pass lanes on US 52

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



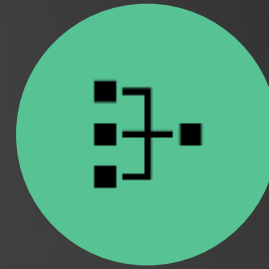
FAA 42, 43 & 45
MORE RAP



MORE -34 AC
BINDER



AIR VOID TARGET
CHANGE



MIX DESIGN
PROCEDURE
CHANGES

HMA SELECTION GUIDE

Superpave FAA Type

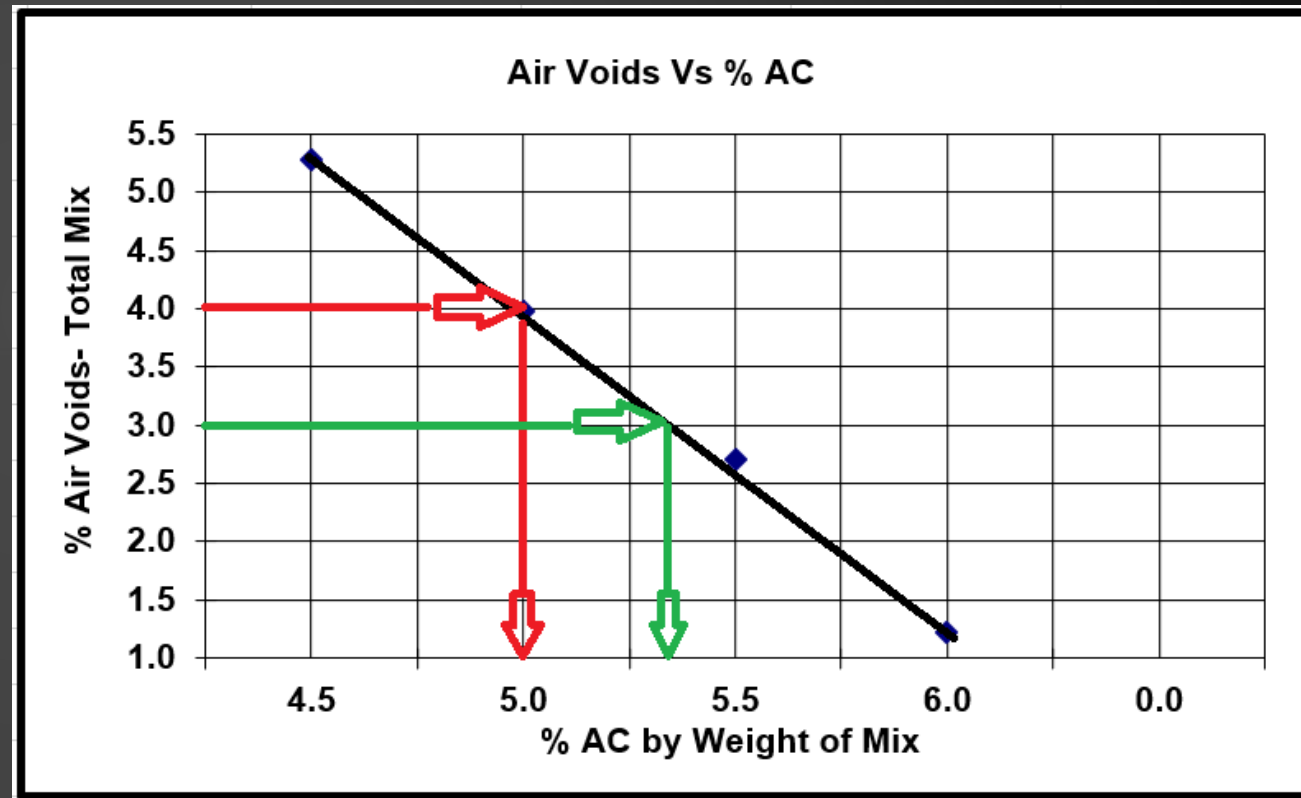
Daily One-way ESAL's	Superpave FAA Type
< 100 & Interstate shoulders	FAA 42
100 – 300	FAA 43
> 300 & Roundabouts	FAA 45

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

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



Current State of the Practice

- Updates to Specifications
- Improve Testing



Future Practice

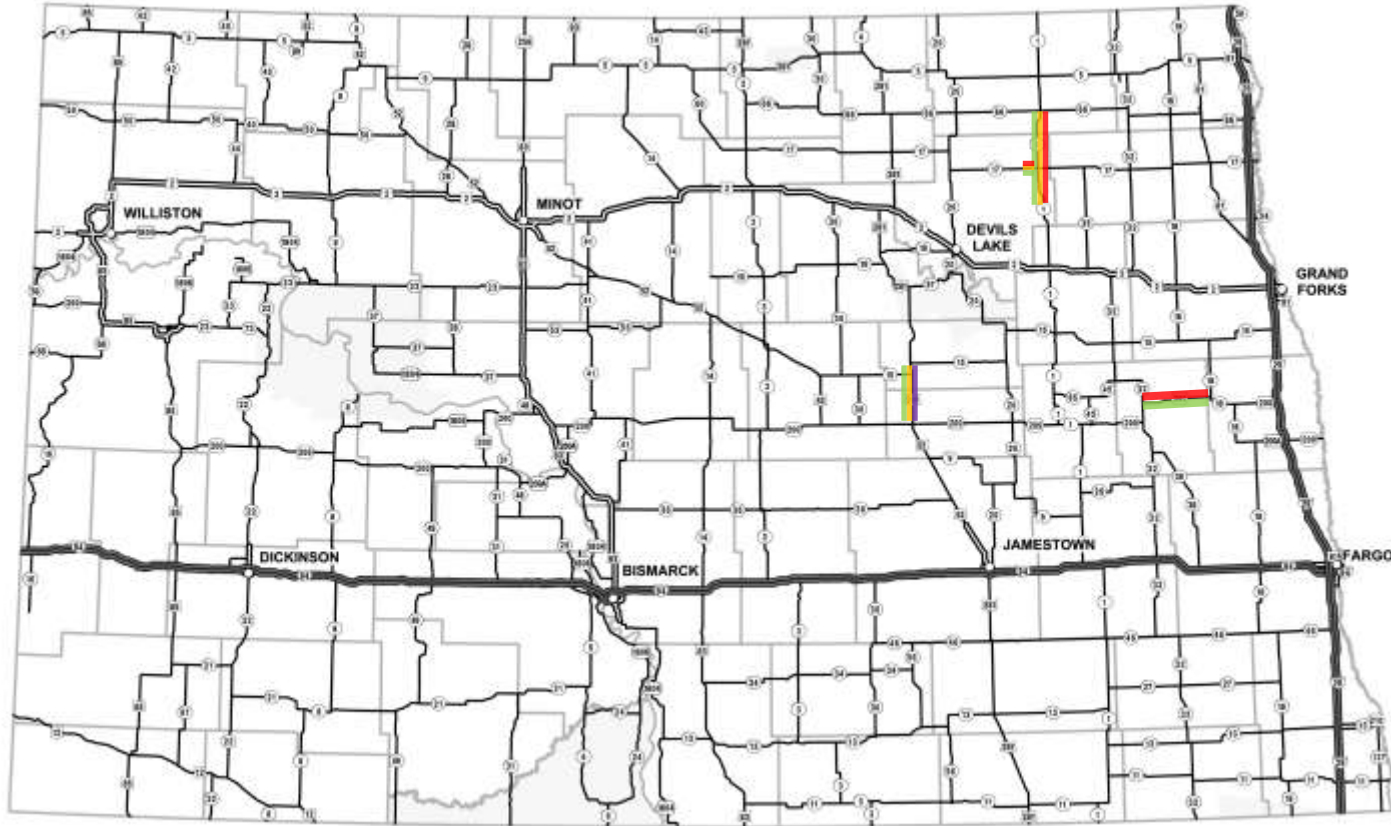
- Materials Improvement
- Identify Research



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

High RAP project

Density profiling for acceptance

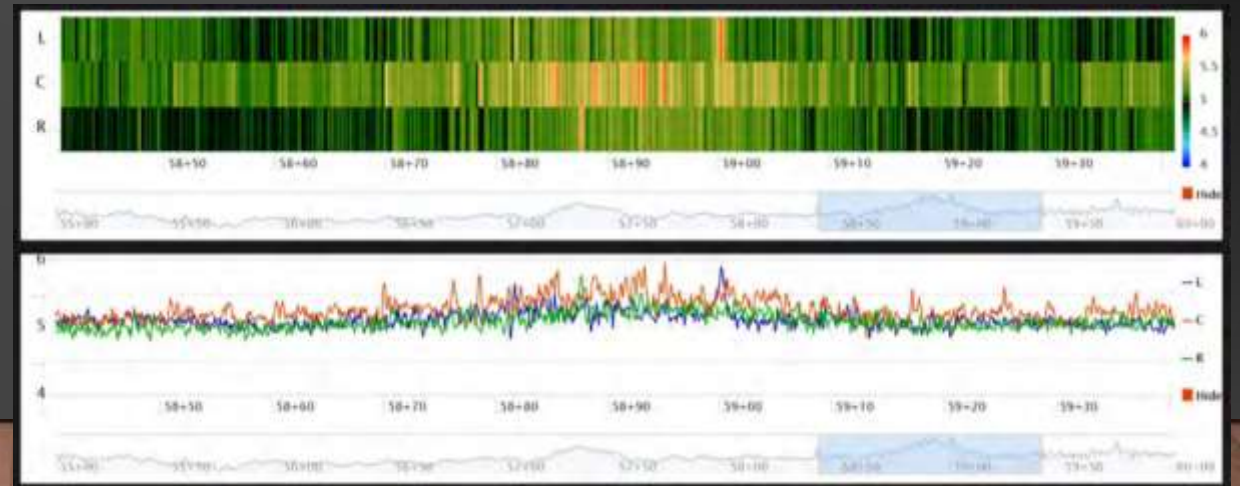
HMA Performance testing

High Performance Thin Overlay



DENSITY PROFILING

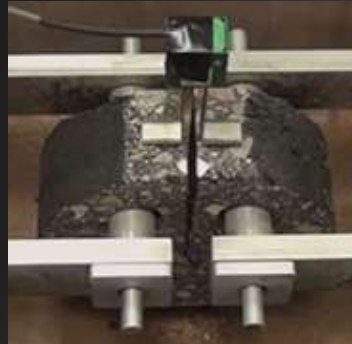
- GSSI PaveScan RDM 2.0
- Member of Pooled Fund TPF-5(443)
- Collect dielectric data in real time
- Correlate dielectric to density



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

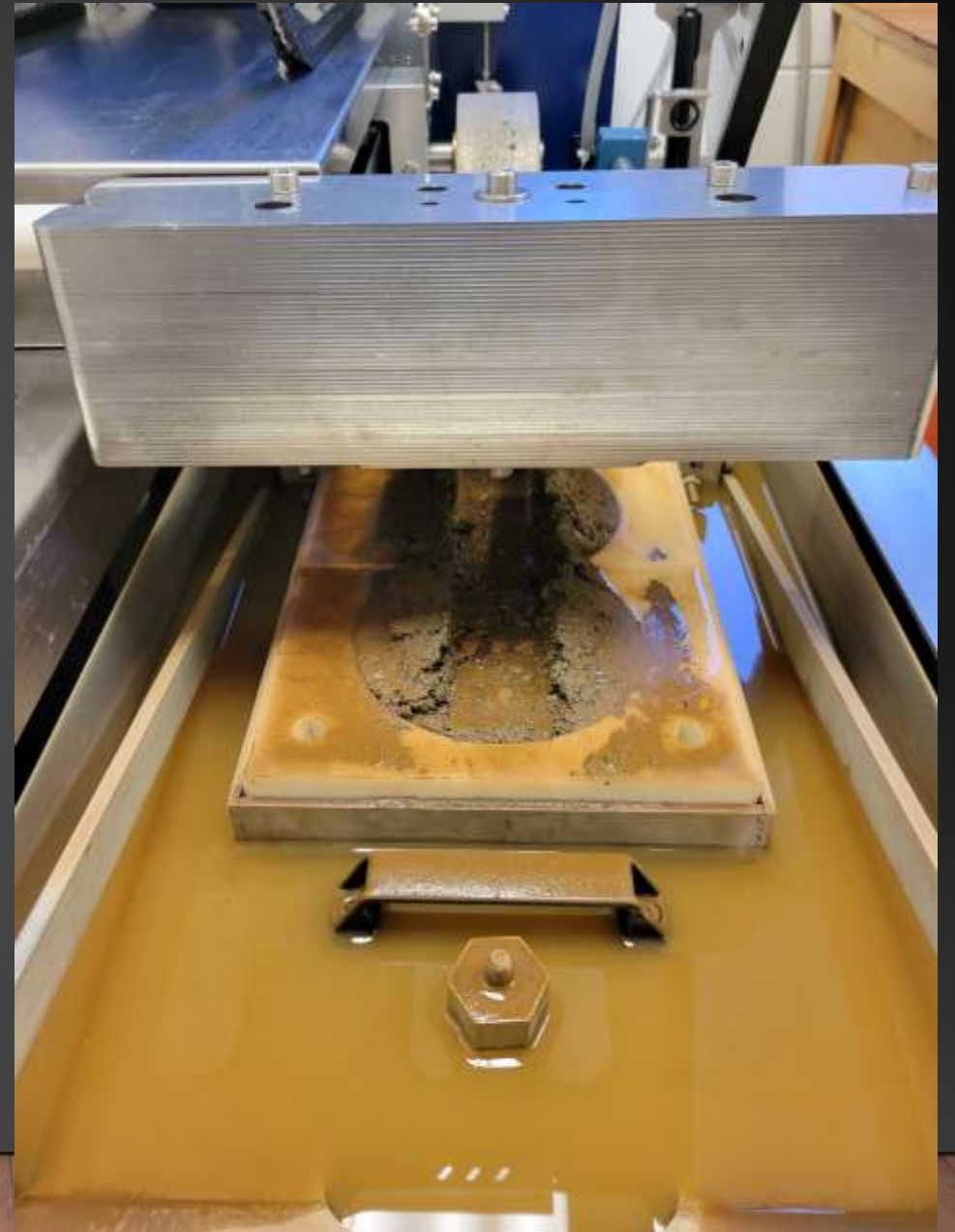
HAMBURG WHEEL TRACKER

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

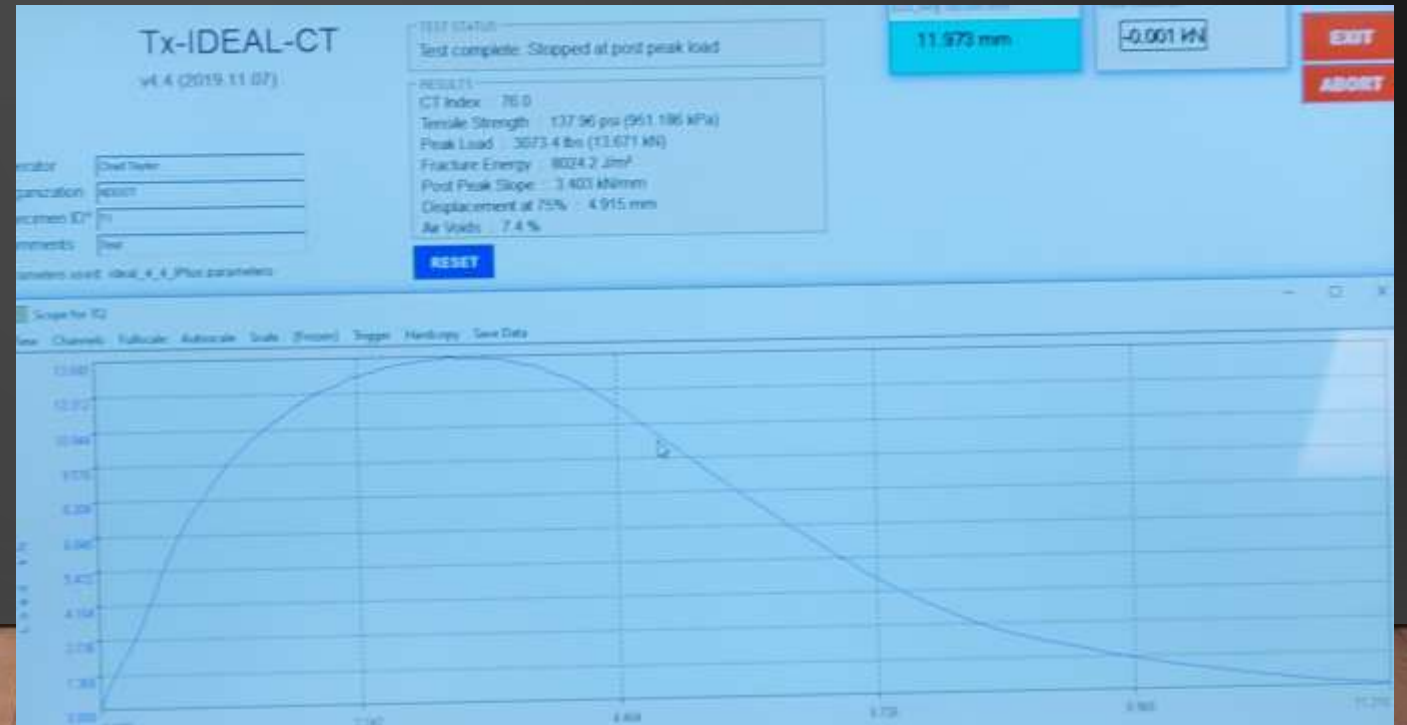


MOISTURE SENSITIVITY

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

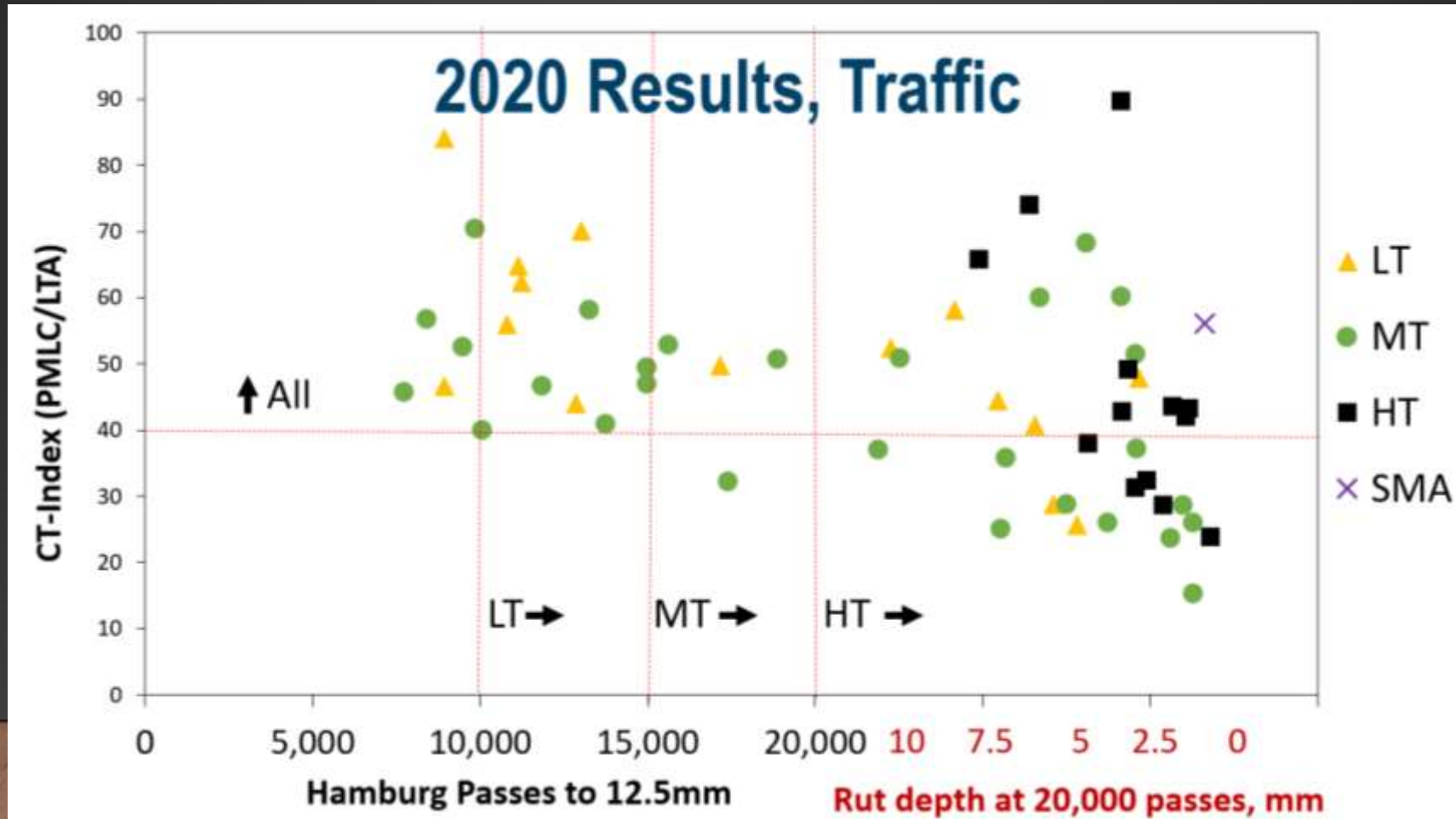


IDEAL CRACKING TEST



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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