

Meeting Minutes: NRRA Intelligent Construction Technologies (ICT) Team

(Agency & Associate Member Meeting)

Date: September 2, 2021
 Minutes prepared by: Rebecca Embacher
 Location: Microsoft Teams
 NRRA Team Webpage: <http://www.dot.state.mn.us/mnroad/nrra/structure-teams/intelligent-construction/index.html>

Attendance

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Associate Members

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Friends

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<input type="checkbox"/>	North Dakota	Nathan Haaland	

Other Attendees: Joseph Podolsky (MnDOT), Jim Schneider (MnDOT), Lynnette Steyn

Decisions Made

- Finalizing MnROAD Reconstruction Construction / Testing Matrix

Action items

- Continue working on contract paperwork for projects approved for funding.
- Continue finalizing MnROAD Reconstruction Construction / Testing Matrix.

Agenda

- Fall Workshop Update
- 2022 MnROAD Construction Timeline
- 2022 Construction Summary
- Working meeting discussing which ICTs to use during construction of the various Test Cells

Next Meeting

Date: October 7, 2021

Time: 10:30-11:30AM Central Time

Location: Microsoft Teams

Agenda items: Finalization of ICTs to use during MnROAD Reconstruction

Meeting Notes

Fall Workshop Update (Worel)

See attached slide 2.

Fall workshop cancelled due to COVID and inability for a large number of individuals to travel yet at this time.

Discussed resulting presentation project results from survey discussed at last month's meeting. See slide 2 for listing of projects. Since, the fall workshop has been cancelled, these presentations will be completed during research pays off seminars in the upcoming months.

2022 MnROAD Construction Timeline (Worel)

See slide 3. Provided an update on the letting schedule.

ICT During MnROAD Construction (All – Working Group Discussion)

See slides 4-6. Worel and Bautista discussed updates to the research being completed in the given MnROAD cells. A few cells have been shifted to different research projects. Bautista started discussions on priorities of given test methods and specification requirements on the given test cells.

Intelligent Construction Technology Team

Meeting | 09/02/21

Microsoft Teams



Fall Workshop: September 13-15

- Cancelled – will be doing RPO seminars instead over the next few months based on voting by our NRRRA members
 - **September 21:** Performance Benefits of Fiber-Reinforced Thin Concrete Pavement and Overlays by Manik Barman, Rigid Team Project Update
 - **October 19** – hold for NCAT/MnROAD Sponsor Meeting
 - **November 16:** Developing Best Practices for Rehabilitation of Concrete with Hot Mix Asphalt (HMA) Overlays Related to Density and Reflective Cracking by Eshan Dave and Katie Haslett, Flexible Team Project Update
 - **December 21:** Improve Material Inputs into Mechanistic Design Properties for Reclaimed HMA Roadways by Bora Cetin, Geotechnical Team Project Update
 - **January 17:** Understanding and Improving Pavement Milling Operations by Eshan Dave, ICT Team Project Update
 - **February 15:** Spray on Rejuvenator Test Sections, Preventive Maintenance Team Project Update
- Working towards a Spring in-person meeting

2022 MnROAD Construction Timeline

Design – Layers – September 3rd

Sensors – October 5th

Special Provisions – December 5th

Plan Set Due – January 2022

Letting – Feb 2022

2022 Construction Summary

HMA Reflective Cracking Study

- HMA and Granular Base Testing – 10 test sections (4,500 ft)

Perpetual Pavement Study

- HMA and Granular Base Testing with wicking layer – 2 test sections (550 ft)

Recycling Study

- CIR with Rejuvenators - 2 test sections (1,200 ft)
- HMA resurface of SFDR 2007 – 2 test sections (1,100 ft)

Thinlay Study

- The Preservation group does not need MnROAD test sections

PCC Test Sections

- PCC mixes with some granular base and subgrade work – 16 test sections (~4,000 ft)
- PCC concrete overlay of HMA – 3 test sections (550 ft)

Diamond Grinding of Whitetopping

- PCC grinding – 4 test sections – (1,000 ft)

Cells 16-23 ICT

Material	Technology
Pre-Milling	<p>3D GPR (thickness), FWD, TSD (traffic speed deflectometer / NCHRP project – completed in September 2021 on all test sections; data also available from 2019, 2020)</p> <p>Smoothness (already being collected as part of standard matrix)</p> <p>Scan road and create 3D existing and milled surface models</p> <p>Is milling texture being looked at and affect on bonding (e.g., drum speed)?</p>
Milling	<p>AMG (Variable Depth) Milling ($\geq 1,000$ feet) – tie Phase I milling study (is need for AMG to support this study?) – Include as Contract Item</p> <p>review thickness to determine if variable depth milling is needed (if uniform thickness – conventional milling can be used, unless Phase I milling study is desiring access the measurements collected by AMG system).</p>
12" Granular Base	<p>IC Pre-Mapping (Phase I project – level 3 ICMV depending upon timing) – include as contract item</p> <p>LWD, DCP (assuming refusal) – collecting by OMRR Research?</p> <p>Scanning of Moisture – tie to Phase I project</p> <p>Corrective Action Needed?...</p> <p>GPR – for correlation with continuous moisture</p>

Material	Technology
Hot Mix Asphalt	<p>Variable Depth Paving – Contract (concern: No paving contractors in MN set up with this technology – pave to depth with AMG milling)</p> <p>Asphalt Real-Time Smoothness (ARTS) (Phase I project – if available) – Add via Change Order if technology ready</p> <p>IC – contract item (special provision)</p> <p>PMTP – contract item (special provision)</p> <p>MDMS – contract item (special provision)</p> <p>Smoothness – contract item</p> <p>FWD – collected by OMRR research</p> <p>DPS – collected by OMRR research (collaboration on cores w/ Flex Team) must collect 3 linear passes of k-measurements (adjacent CL, middle of lane, adjacent to shoulder; data lot labeling must be used and follow other ICT requirements)</p> <p>Seismic – collected by Geotech if system available (phase I project)</p> <p>Road Doctor (include GPR – layer thickness) – collected by OMRR research</p> <p>TSD (Pay for service is available)</p> <p>NRRA Project - Continuous Moisture Meter ? (has not currently been used on asphalt)</p> <p>GPR – correlation with continuous moisture</p>

All spot tests (LWD, Density, etc.) – collect RTK GPS coordinates and/or station and offset

Laser Scanning if AMG milling is completed

As-Builts recorded during AMG milling & paving and done