

# Meeting Minutes: NRRRA Intelligent Construction Technologies (ICT) Team

(Agency & Associate Member Meeting)

Date: December 9, 2019  
 Minutes prepared by: Rebecca Embacher  
 Location: Skype

## Attendance

---

### Agency Members

Participated	Affiliation	State Contact	e-mail
<input checked="" type="checkbox"/>	California	Deepak Maskey	<a href="mailto:deepak.maskey@dot.ca.gov">deepak.maskey@dot.ca.gov</a>
<input type="checkbox"/>	California	Ragu Thangavelautham	<a href="mailto:raguparan.thangavelautham@dot.ca.gov">raguparan.thangavelautham@dot.ca.gov</a>
<input checked="" type="checkbox"/>	Illinois	Brian Hill	<a href="mailto:Brian.Hill@illinois.gov">Brian.Hill@illinois.gov</a>
<input checked="" type="checkbox"/>	Minnesota	Rebecca Embacher	<a href="mailto:rebecca.embacher@state.mn.us">rebecca.embacher@state.mn.us</a>
<input checked="" type="checkbox"/>	Minnesota	Kyle Hoegh	<a href="mailto:kyle.hoegh@state.mn.us">kyle.hoegh@state.mn.us</a>
<input type="checkbox"/>	Missouri	Jen Harper	<a href="mailto:Jennifer.Harper@modot.mo.gov">Jennifer.Harper@modot.mo.gov</a>
<input type="checkbox"/>	Missouri	Dan Oesch	<a href="mailto:Daniel.Oesch@modot.mo.gov">Daniel.Oesch@modot.mo.gov</a>
<input checked="" type="checkbox"/>	North Dakota	Curt Dunn	<a href="mailto:cdunn@nd.gov">cdunn@nd.gov</a>
<input type="checkbox"/>	North Dakota	Amy Beise	<a href="mailto:abeise@nd.gov">abeise@nd.gov</a>

### Associate Members

Participated	Affiliation	Contact	e-mail
<input type="checkbox"/>	American Engineering and Testing, Inc.	Derek Tompkins	<a href="mailto:dtompkins@amengtest.com">dtompkins@amengtest.com</a>
<input checked="" type="checkbox"/>	Braun Intertec	Mohammad Sabouri	<a href="mailto:msabouri@braunintertec.com">msabouri@braunintertec.com</a>
<input checked="" type="checkbox"/>	Braun Intertec	Heidi Olson	<a href="mailto:holson@braunintertec.com">holson@braunintertec.com</a>
<input checked="" type="checkbox"/>	California State University, Los Angeles	Mehran Mazari	<a href="mailto:mmazari2@calstatela.edu">mmazari2@calstatela.edu</a>
<input type="checkbox"/>	Caterpillar Global Paving	Bryan Downing	<a href="mailto:Downing_Bryan_J@cat.com">Downing_Bryan_J@cat.com</a>
<input checked="" type="checkbox"/>	Caterpillar Global Paving	Todd Mansell	<a href="mailto:mansell_todd_w@cat.com">mansell_todd_w@cat.com</a>
<input type="checkbox"/>	Concrete Paving Association	Matt Zeller	<a href="mailto:mjzeller@cpamn.com">mjzeller@cpamn.com</a>
<input type="checkbox"/>	The University of Texas at El Paso	Nazarian Soheil	<a href="mailto:nazarian@utep.edu">nazarian@utep.edu</a>
<input type="checkbox"/>	GSSI	Roger Roberts	<a href="mailto:roger@geophysical.com">roger@geophysical.com</a>

<input type="checkbox"/>	GSSI	Rob Sommerfeldt	<a href="mailto:sommerfeldtr@geophysical.com">sommerfeldtr@geophysical.com</a>
<input type="checkbox"/>	Infrasense	Ken Maser	<a href="mailto:kmaser@infrasense.com">kmaser@infrasense.com</a>
<input type="checkbox"/>	Leica Geosystems	Brad Adams	<a href="mailto:brad.adams@leicaus.com">brad.adams@leicaus.com</a>
<input type="checkbox"/>	Mathy Construction	Erv Dukatz	<a href="mailto:ervin.dukatz@mathy.com">ervin.dukatz@mathy.com</a>
<input type="checkbox"/>	Mathy Construction	Matt Oman	<a href="mailto:matt.oman@mathy.com">matt.oman@mathy.com</a>
<input type="checkbox"/>	Midstate Reclamation & Trucking, Inc.	Dan Schellhammer	<a href="mailto:dans@midstatecompanies.com">dans@midstatecompanies.com</a>
<input type="checkbox"/>	Midstate Reclamation & Trucking, Inc.	John Peterson	<a href="mailto:johnp@midstatecompanies.com">johnp@midstatecompanies.com</a>
<input type="checkbox"/>	Minnesota Asphalt Paving Association	Brandon Brever	<a href="mailto:bbrever@mnapa.org">bbrever@mnapa.org</a>
<input checked="" type="checkbox"/>	Moba	Paul Angerhofer	<a href="mailto:pangerhofer@moba.de">pangerhofer@moba.de</a>
<input type="checkbox"/>	The Transtec Group, Inc.	George Change	<a href="mailto:GKChang@TheTranstecGroup.com">GKChang@TheTranstecGroup.com</a>
<input type="checkbox"/>	Topcon Positioning Systems, Inc.	Evan Monroe	<a href="mailto:emonroe@topcon.com">emonroe@topcon.com</a>
<input type="checkbox"/>	Topcon Positioning Systems, Inc.	Jim Preston	<a href="mailto:jpreston@topcon.com">jpreston@topcon.com</a>
<input type="checkbox"/>	Trimble	Kevin Garcia	<a href="mailto:kevin_garcia@trimble.com">kevin_garcia@trimble.com</a>
<input type="checkbox"/>	Trimble	Devin Laubhan	<a href="mailto:devin_laubhan@trimble.com">devin_laubhan@trimble.com</a>
<input type="checkbox"/>	Wirtgen Group	Tim Kowalski	<a href="mailto:Tim.Kowalski@wirtgen-group.com">Tim.Kowalski@wirtgen-group.com</a>
<input checked="" type="checkbox"/>	Wirtgen Group	Nars Laikram	<a href="mailto:Laikram.Narsingh@wirtgen-group.com">Laikram.Narsingh@wirtgen-group.com</a>
<input type="checkbox"/>	WSB & Associates	Mike Rief	<a href="mailto:mrief@wsbeng.com">mrief@wsbeng.com</a>
<input type="checkbox"/>	WSB & Associates	Andrea Blanchette	<a href="mailto:ablanchette@wsbeng.com">ablanchette@wsbeng.com</a>

## Friends

Participated	Affiliation	State Contact	e-mail
<input type="checkbox"/>	FHWA – MN	Kevin Kliethermes	<a href="mailto:Kevin.Kliethermes@dot.gov">Kevin.Kliethermes@dot.gov</a>
<input checked="" type="checkbox"/>	Minnesota	Curt Turgeon	<a href="mailto:curt.turgeon@state.mn.us">curt.turgeon@state.mn.us</a>
<input checked="" type="checkbox"/>	Minnesota	Ben Worel	<a href="mailto:ben.worel@state.mn.us">ben.worel@state.mn.us</a>
<input checked="" type="checkbox"/>	Minnesota	Lauren Dao	<a href="mailto:Lauren.Dao@state.mn.us">Lauren.Dao@state.mn.us</a>
<input checked="" type="checkbox"/>	Minnesota	John Siekmeier	<a href="mailto:john.siekmeier@state.mn.us">john.siekmeier@state.mn.us</a>
<input type="checkbox"/>	Minnesota	Shongtao Dai	<a href="mailto:shongtao.dai@state.mn.us">shongtao.dai@state.mn.us</a>
<input checked="" type="checkbox"/>	North Dakota	Jordan Nehls	<a href="mailto:jnehls@nd.gov">jnehls@nd.gov</a>

<input type="checkbox"/>	North Dakota	Darin Lindblom	<a href="mailto:dlindblom@nd.gov">dlindblom@nd.gov</a>
<input type="checkbox"/>	North Dakota	Carey Schreiner	
<input type="checkbox"/>	North Dakota	David Bruins	
<input type="checkbox"/>	North Dakota	Nathan Haaland	

Other Attendees: none

## Decisions Made

---

- To hold Veta Hands-on Demonstration on Monday, May 18, 2020 from 2-4PM at the Arden Hills Training Center.

## Action items

---

- Embacher | Start calling proposed state DOT presenters for Day 1 of NRRRA Workshop.
- Embacher | Circle back with Greg Rhyby regarding potential topics for the BIM session on Day 1 or NRRRA Workshop.

## Agenda

---

- NRRRA 2020 Workshop
- Round Robin

## Next Meeting

---

Date: January 9, 2020

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

Location: Skype

*(no conference call will be used; skype audio is also available via smart phone application if needed)*

Agenda items: TBD

## Meeting Notes

---

### NRRRA 2020 Workshop Update (Worel)

Room at TRB has been reserved. NRRRA meeting is scheduled for **Wednesday (January 15) from 6:30PM to 8:00PM in Chinatown (M3) – Marriott Marquis**. It is open to all members and non-members. A general update

will be provided and details related to the goals of NRRA. One of the goals of this meeting is to try to get non-participating individuals to attend and possibly gain interest in joining.

Booth at TRB: Corner booth was reserved from Sunday, January 12 through Tuesday, January 14. Looking for NRRA members to help volunteer at the booth. The link to reserve a volunteer slot is on the NRRA website, or can be directly found at:

<https://signup.com/client/invitation2/secure/3029445/false#/invitation>

There is interest from the Rigid and Geotechnical teams to have a ½ day breakout session on day 1 of the workshop. Possible topics from these teams are listed below.

Rigid	Geotechnical
<p>FHWA is in the process of updating their “Guidance on Highway Preservation And Maintenance” Memorandum dated Feb 25, 2016. It could be a good time to inform participants what the changes may be as well as recent project updates:</p> <ul style="list-style-type: none"> <li>• Updated checklists (16 for HMA and 7 for PCCP) <a href="https://www.fhwa.dot.gov/pavement/preservation/ppcl00.cfm">https://www.fhwa.dot.gov/pavement/preservation/ppcl00.cfm</a></li> <li>• App for inspectors for the checklists series: will be available by the end of 2019</li> <li>• NHI Web-Based Training for PCCP: will be loaded soon, modules complete, NHI-134207 Rigid Pavements A-E</li> <li>• Updated Pavement Preservation Roadmap: will be published in Jan 2020.</li> </ul>	<p>Fundamentals of Unsaturated Soil Mechanics</p> <p>Unsaturated Properties for Infrastructure (pavement in particular) Design</p> <p>Measurement of Unsaturated Soil/Geomaterial Characteristics</p> <p>Environmental Cycles in Engineering Infrastructure for Unsaturated Soil Engineering</p> <p>Correlation between water content-matric suction-soil/geomaterial stiffness</p> <p>Effects on Design of Unsaturated Soils Practical Solutions (Bora and Bill)</p> <p>½ Day</p>
-- Lunch --	

## Day 1 – May 19, 2020 “Real World Intelligent Construction Technologies Available Today”

(Nars Laikram)

- Coordinated presentation and presenters for “Session 1 – Paver Technology to Solve Segregation and Smoothness Issues”. Presenters will be the following:
  - Bomag – Bert Erdmann
  - Caterpillar – Todd Mansell
  - Wirtgen-Group America – Laikram Narsingh
- Contacted Ed Morison with Shelly and Sands to see if willing to present on “Improving Workmanship using the Paver Mounted Thermal Profile Method”. Ed Morison is interested and confirmed to be a presenter. Shelly and Sands has just recently received a highest award for an asphalt paving project that they had used the PMTP method.

- (Worel) – confirmed that NRRRA will pay for travel expenses for state DOT presenters.
- (Embacher) – will start contacting some of the proposed states to determine availability to present at conference.
- NRRRA team all agreed that Veta Hands-On demonstration will be held on the afternoon of Monday, May 18, 2020 from 2-4PM. It will be held at the Arden Hills Training Center (Room 5).
- (Embacher) – discussed the latest version of day 1 of the workshop. See draft at end of notes.
- (Embacher) – Ben Worel previous requested presentation ideas for day 3 of the workshop. The following ideas were submitted to Embacher:
  - Update on the FHWA “IC for Foundation Study” (full title: **Feasibility of Utilizing Intelligent Compaction Equipment to Ensure Uniformity and Quality of Pavement Foundation**) – George Chang
  - The **findings of NCHRP 24-45 (Intelligent Compaction)** Phase II and III. – Soheil Nazarian
  - **The findings of NCHRP 21—11 (Improved Test Methods and Practices for Characterizing Steel Corrosion Potential of Earthen Materials)** – Soheil Nazarian
  - **“Best Practices of AMG Milling from Design to Construction”**
    - What’s in the design?
      - GPR, Calibration Cores, LiDAR scan and processing (minimum number o location of control points, minimum number of nodes to extract, breaklines, etc.), building the model (model density requirements, processing for smoothness, effects of template drops, station equations, etc.)
    - General Information about AMG Milling Equipment and Best Practices for Equipment Setup, Calibration and more...
      - Presentation by vendor
    - Best Practices for Use and Monitoring of AMG-Milling Systems
      - Contractor presentation

## Round Robin

(Embacher) – e-ticketing there is national interest in also capturing truck driver information for use in monitoring labor compliance, Civil Rights and DBE participation and connecting this to AASHTOWare.

(Dunn) – Amy and Curt will be putting together a poster session at TRB about intelligent construction experience this season with IC and PMTP.

(Mansell) – Caterpillar is putting together a user guide to assist with identification of workmanship issues (related the PMTP method) during the asphalt paving operation and possible causes of these issues. Plan to share this document to others for use and guidance.

(Dao) – will e-mail group in the next couple of days with TRB and pavement workshop activities.

(Hoegh) – Dielectric Profile (DP) Method pooled fund meeting kick off meeting was held the beginning of December. The pooled fund is working on developing a work plan. MnDOT recently provided an update to Missouri DOT on coreless calibration of the DP method.

**(DRAFT) 2020 NRRRA Pavement Workshop**  
**“Real World Intelligent Construction Technologies Available Today”**

Shoreview, MN

Tuesday, May 19, 2020

7:30 AM – 8:00 AM	Registration and Continental Breakfast
8:00 AM – 8:30 AM	Welcome and International Society for Intelligent Construction – Northern America Chapter (ISIC-NA) <span style="float: right;">Tim Kowalski, Wirtgen Group</span>
<b>8:30 AM – 10:00 AM</b>	<b>Session 1 – Paver Technology to Solve Segregation and Smoothness Issues</b>  <b>Moderator – NRRRA DOT (TBD)</b>
8:30 AM – 10:00 AM	Joint Presentation by:  Bomag <span style="float: right;">Bert Erdmann</span> Caterpillar <span style="float: right;">Todd Mansell</span> Wirtgen-Group America <span style="float: right;">Laikram Narsingh</span>
<b>10:00 AM – 10:30 AM</b>	<b>Break / Vendor Exhibits</b>
<b>10:30 AM – 12:00 AM</b>	<b>Session 2 – Intelligent Construction Technologies (ICT) and What we Learned</b> <span style="float: right;"><b>Moderator – Curt Turgeon</b></span>
10:30 AM – 11:00 AM	e-Ticketing Pilot Projects <span style="float: right;">TBD</span>
11:00 AM – 11:30 AM	Continuous Asphalt Compaction Assessment using Dielectric Profile Method  State Update (Maine DOT? Ohio DOT? Alaska DOT?)
11:30 AM – 12:00 PM Method	Improving Workmanship using the Paver Mounted Thermal Profile  <span style="float: right;">Ed Morison, Shelly and Sands</span>
<b>12:00 PM – 1:00 PM</b>	<b>Lunch / Vendor Exhibits</b>
<b>1:00 PM – 3:30 PM</b>	<b>Session 3 – Independent Owner Verification of Contractor Supplied Intelligent Construction Technology (ICT) Data</b> <span style="float: right;"><b>Moderator – Steve Cooper, FHWA</b></span>

1:00 PM – 1:30 PM	23 Code of Federal Regulations (CFR) Part 637 Overview FHWA?	Dennis Dvorak,
1:30 PM – 2:00 PM	Update on Independent Verification Methods for Intelligent Compaction (IC), Paver Mounted Thermal Profiling (PMTP) and e-Ticketing Technologies	Rebecca Embacher, MnDOT
2:00 PM – 2:30 PM Method	Update on Independent Verification Method for the Dielectric Profile	Kyle Hoegh, MnDOT & Richard Giessel, Alaska DOT?
<b>2:30 – 3:00</b>	<b>Break / Vendor Exhibits</b>	
<b>3:00 – 4:15</b>	<b>Session 4 – Implementing Building Information Modeling (BIM) during Pavement</b>	<b>Moderator – Greg Hruby</b>
3:00 PM – 3:30 PM	TBD	TBD
3:30 PM – 4:15 PM	TBD	TBD
<b>4:30 PM – 6:00 PM</b>	<b>MnROAD Site Visit (optional)</b>	

\*\*\*\*\*

**Monday, May 18, 2020**

**Arden Hills Training Center (Room 5)**

**2:00PM to 4:00PM**

**Veta Hands-On Demonstration**

*Overview of features available within Veta, hands-on view of PMTP examples illustrating varying types of thermal segregation and focus on the use of the AASHTO PP80 & PP81 standardized data lot naming convention in construction and within Veta.*