

Meeting Minutes: NRRRA Intelligent Construction Technologies (ICT) Team

(Agency & Associate Member Meeting)

Date: December 3, 2020
 Minutes prepared by: Rebecca Embacher
 Location: Skype
 NRRRA Team Webpage: <http://www.dot.state.mn.us/mnroad/nrra/structure-teams/intelligent-construction/index.html>

Attendance

Agency Members

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Associate Members

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Friends

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Other Attendees: Monica Jurado (FHWA)

Decisions Made

- None at this time.

Action items

- Assist with advertisement of NRRRA Phase II
- Finalization of Work Plans by December 15, 2020.
- Schedule a macro-level presentation on Road Doctor.

Agenda

- TPF-5 (334) | Veta Enhancements
- E-Ticketing
- AASHTO Provisional Updates

Next Meeting

Date: January 7, 2020

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

Location: Microsoft Teams

Agenda items: TBD

Meeting Notes

NRRA Update (Worel)

NRRA Executive Committee Meeting

Meeting this month – Date/Time TBD

Discussing NRRA Phase-II direction/spending plan

Let us know if the teams have anything for the agenda

NRRA Phase-I Projects

Review the 10 projects that need to be contracted by Feb 2021 and their current status

MnDOT staff have been working on technical advisory panels (TAP) and work plans but need input from NRRA Teams.

Contracting can take up to 8 weeks or more. Need to allocate money by February 22, 2021.

Need final work plans submitted no later than December 15, 2020.

Embacher will contact the PI on the ARTS and milling projects regarding getting the TAP, ICT and Flexible teams to review the work plan for finalization by December 15th.

MnDOT received 2022 Construction funding (\$4M)

Teams will be developing the ideas for the interstate mainline starting in 2021

Low Volume Road (LVR) will be constructed through the Call for Innovation

NCAT Update

(Dukatz / Kowalski)

Dukatz and Kowalski are both on steering committee for NCAT. Want to ensure that subcommittees understand what is being done with NCAT and NRRRA to ensure collaboration and no-redundancy in work. Noticed that NCAT does not currently bring up what is being done by NRRRA, but NRRRA includes updates on NCAT activities through various venues.

Recommended that both NCAT and NRRRA use “common language” when projects are being described, so everyone understands synergy between the two groups. Sometimes the language is different which makes it difficult to understand that there is collaboration. Additionally, include a listing of all who is involved in given initiatives (e.g., committees, participant names, etc.).

(Worel)

MnDOT has meetings with NCAT every 2 weeks to talk about planning of future efforts. Recommend that steering committee request NRRRA updates at NCAT meetings to ensure transparency.

One study is to be funded by both NRRRA and NCAT (additive group study). Participants can join either group to fund. Currently, there is funding of \$750,000 for 3 years (\$250,000/year) for additive group. Currently in process with NCAT to discuss how to best contribute construction dollars to effort.

Road Doctor

(Dunn) Can the Road Doctor be tried out on projects yet?

(Eyoab)

It is currently being used. Completing winter testing to look at seasonal heave. After purchase of equipment, the system had to be installed and evaluated to ensure that it was working correctly. Just starting to slowly use the system on some state identified issues. For example, roads with tenting problems, assist with determination of later interfaces for older roadways with raveling at the interfaces and the use of asphalt stabilization in the base (i.e., road mix). These older roadways are difficult for states to determine correct layer thicknesses for milling operations.

Validating data and now slowly moving towards other efforts. Need to determine what other priorities there are with data collection using this system (e.g., spring thaw limitations, moisture, stripping, etc.). It is a matter of understanding what problems need to be reviewed and prioritize them for evaluation.

Requested that individuals send areas of interest to him.

(Dunn)

Would like to see the Road Doctor used to collect ride, density, etc. for final acceptance on new roadways.

(Embacher)

The Swedish Roadway Administration did a presentation on this a few years ago for NRRRA. It was interesting how they were using all of the gathered information for such QA after construction. Maybe they could do another presentation for the group via Research Pays Off?

(Eyoab)

Reminded group that US has different site conditions, so we will still need to evaluate the system to determine which feature works best for varying evaluations.

(Worel)

Eyoab and Worel will work on coordinating a presentation.

Veta Enhancements (TPF-5 [334]: Phase I Funding)

(Embacher)

Discussed that contract was executed on October 23, 2020 with the latest available funding.

The following enhancements were included in this contract:

- **D.1: Data Management:** Support on-line webpage for data support & MP-39 technical support of standard file format to vendors.
- **D.2: Data Management:** When downloading data, add ability to select which dates from the range should be used.
- **D.3: Data Management:** Coordinate system engine is no longer actively maintained.
- **D.4: Data Management:** Improve Performance
- **D.5: Data Management:** AASHTO MP39-19 Provision Updates for E-Ticketing
- **D.6: Mapping:** Allow choice between filtered and unfiltered data in the map search tool.
- **D.7: Mapping:** Search Enhancement – Ability to view the spot test, IC and PMTP.
- **D.8: Mapping:** Ability to view location boundaries on maps without having to select location filter.
- **D.9: Analyses:** Add ability to cancel and minimize analysis.
- **D.10: Filtering:** Allow multiple time filters. Add time exclusion filter.
- **D.11: Filtering:** Ability to rename filter group using filter group manager and operation filter. Ability to edit a data lot after creation. Numerically sort operation filters the same way data lots are after lot number edits or creation.
- **D.12: Filtering:** Account for high-accuracy PTMP data when using cold-edge filter.
- **D.13: Spot Tests:** Spot tests manager (add/remove/change test types, define units, include specification requirements, and define legend for spot test values, import/export test types).
- **D.14: Analyses:** Sublot Exclusion Calculations (Similar to the last subplot: Combine with adjacent subplot or keep independently for subplot immediately before and after exclusion).

- **D.15: Analyses:** Complete coverage analyses of data lots (filter groups) that do not have any data associated with it in order to calculate the required area (this can be used for monetary deductions for missing data).
- **D.16: Analyses:** Add heat loss curves chart (paving and rolling temperatures versus time). Add more data as time goes on, such as temperature from E-Ticket.
- **D.17: Reporting:** Thermal profiles: Improve paver stop display (handle overlapping stops, ensure stops align with data to improve readability).
- **D.18: Reporting:** Dashboards/include additional reports (e.g., PMTP-101-102 & IC-108 Form). Bar Graph, Stacked Bar Chart, Thermal segregation Coverage Summary.
- **D.19: Reporting:** Agency Review of Veta Project (PMTP & IC) – Filter Groups.
- **D.20: Reporting:** PMTP Method (e.g. PMTP-101-102) & IC-108 form). PMTP Data Sublot Tab and PMTP Data Lot Tab.
- **D.21: Reporting:** Project Summary (PMTP).
- **D.22: Misc.:** Veta Bug fixes.
- **D.23: Misc.:** Update User's Guide for Current Contract.

Contract Expires: February 13, 2022

Reminder that the TPF-5 (334) pooled fund was established to focus on intelligent compaction (IC) and paver mounted thermal profile technologies (PMTP) and expires December 31, 2020. The second phase will be run through NRRRA Phase II and will be open to other technologies, such as the dielectric profile method (DPM) using ground penetrating radar (GPR), quality assurance review of 3D (automated machine guided) milling, E-Ticketing, import of ride and other ICT technologies.

Reviewed the process that was used by the TPF-5 (334) pooled fund to discern which enhancements to move forward and be added through contracts.

Wish List – a wish list was generated containing all features that individuals would like to see added to Veta. Individuals continue to provide wish list items throughout the year for inclusion in the master list. E-mail Embacher if you have any items to be added to the master wish list.

The wish list is often beyond the amount of available money, and therefore, the states then prioritize their top 10 items. After each state submits their top 10 priorities, the state's meet again to go through the items (in order of highest priority to lowest) and through consensus determine which items to move forward.

The process is similar to that used by AASHTOWare project.

Embacher again discussed that it is difficult to stretch the money far enough and that the NRRRA pooled fund and DPM pooled fund might want to consider collaboration (when and if appropriate) as to the funding to use to move any DPM tasks forward in hopes of trying to optimize funding and the amount of needed tasks to move forward. There are often a lot of structural items that are being incorporated into Veta to assist with ease in project creation by construction staff for all ICT.

(Dai / Hoegh) commented that the DPM pooled fund does not currently have a task for Veta enhancements, but these discussions could be held if warranted.

E-Ticketing (Asphalt)

(Embacher)

- Draft AASHTO Provision written and sent out for review on September 22, 2020
 - Industry
 - Agencies, Associations, Contractors – voiced interest in participating in review process
 - Review Comments
 - Not understanding provisional practice
 - Misunderstanding of Fleet Data
 - Did not read roadmap outlined in E-mail
- 2nd Draft Review Sent – November 6, 2020
- Scheduled Expert Task Group Meeting – December 16, 2020
 - Review AASHTO Provisional & Round Robin Updates
- AASHTO / AASHTOWare Project / AASHTO Subcommittee on Integrated Construction Technologies / Infotech Meeting
 - November 20, 2020
 - Ensure transparency – all parties aware for E-Ticketing provisional practice and intent for pushing data to AASHTOWare project in future and for an agency interface.
- Asphalt Provisional Practice Schedule
 - February 2021 | Submit to AASHTO Subcommittee 5c
 - August 2021 | Balloting
 - April 2022 | Publication

- In the future, additional material types will be added to the provision. Ready Mix and aggregate will be the next material types. The tentative schedule for incorporation of these material types to the provision are:
 - Start adding language in 2021
 - August 2022 | Balloting
 - April 2023 | Publication

AASHTO PP80 (PMTP) & PP81 (IC)

(Embacher)

Updating both provisions – extremely outdated

- February 2021 | submit to Subcommittee 5c
- August 2021 | balloting
- April 2022 | Publication

AASHTO MP-39 (ICT Standardized Files)

- Also updating – see above schedule