

NRRA PM Minutes
July 7, 2021 (2:30 – 3:30pm, CDT)

PM Team link - <http://www.dot.state.mn.us/mnroad/nrra/structure-teams/preventive-maintenance/index.html>

Subscribe to the NRRA Channel - <https://www.youtube.com/channel/UCPqdt93L6aIOyPDCLiHvDug>

Project Pages: Visit for updates on individual projects

1. **Welcome** – Joel Ulring, Chair 28 attendees during of the meeting
2. **Current Membership** – see [NRRA PM Team Members](#) Web Page
 - A. DOT Agency Members: CA, IA, IL, MI, MS, MN, MO, ND, WI,
Other Agency Members: IL Tollway, MN LRRB
 - B. 25 Associate members
 - C. 14 Friends and Support Staff
3. **New Members or First Time Attendees**, none
4. **Member Agency Sharing moment** – MoDOT Phillip Ruffus, Jeff and Paul are CO staff, Phil is in maintenance. They now have MONEY (for PM). Now setting up chip, cape, and crack fill - Fixed price/variable scope program. 188,000 sy of cape per year for 3 years. Doing micro with fibers, 2' wide on deteriorated/raveling longitudinal joints. Doing more preservation type projects similar to this project. Projects are located in the St. Louis District area.
5. **NRRA Update – Ben Worel (see attachments A & B)**
 - MnROAD 2022 Construction Schedule
 - 2022 MnROAD Construction Designs/Special Provisions (attachment – shared before)
 - Contract Development for approved phase-II projects (attachment)
 - TAP Development for each project, See PM team page
 - Ben mentioned EPD may be part of many projects
6. **Phase II Research** Go to PM Project page and “join the TAP” IL and MO and IA (high performance mix) all have thin mixes.
 - A. **PM Team Projects**
 1. **Thinlay as a PM Treatment**, Likely a direct select contracting process.
 - TAP – Any volunteers? Suggested; Illinois, Missouri, North Dakota, Mississippi, Minnesota, Illinois Tollway
 - Discuss MoDOT 048SMA mix; binder grade, aggregate gradation, ??
 - Work scope development
 - 5-year study period is proposed
 - ¾" to 1" thick SMA test section proposed on a high-volume roadway
 - There has been a significant number of these projects including work at MnROAD
 - Expecting to direct select consultant to perform work.
 2. **Surface Treatments Design on MnROAD Cells 2 & 3 – Emil & Ben**

PM and Flex Teams need to coordinate and work together to develop treatments to be constructed on MnROAD cells 2 & 3. These cells have a good performing SFDR base. Looking at a thinlay plus another treatment.

 - Suggestion was placing a two lift micro-surface directly over existing UTBWC. Could this be micro milled and a single lift microsurfacing placed?
 - Another suggestion is replacing the existing UTBWC after micromilling off the existing UTBWC.
 - Other options?

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3. Road resiliency, PM and Extreme Events (flooded roadways) – Raul Velasquez (Geo Team) Work may be done by Univ of NH. **GeoTech is looking for TAP members**

B. Timeline & Next Steps The timeline below has been slightly modified. An update will be out by August meeting.



7. Update on Active Projects:

- **Spray on Rejuvenator Test Sections** – Michael Vrtis, **12 products will be installed.** Using MnROAD for coring and physical testing. 15th street for friction, reflectivity and performance. NCAT doing research and LRRB (MSU – Michigan State) involved.
Tollway shoulder study evaluated Reclamite, biorestore and others in Sept of 2020, Contact Maxwell Barry of State Testing at: mbarry@statetestingllc.com for copy of information.
- **Bio-Materials Maintenance Treatments** – Chris Williams **Chris not in attendance. No update report.**

8. NRRA and MnDOT/NCAT Sponsor Meeting

Minneapolis, MN - **September 13-17, 2021**

See Attachment “C” **Lauren sent out a “Save the Date” email with details to follow.**

9. Round Robin

Questions/comments. Please email Joel Ullring at: joel.ullring@state.mn.us

MK from WI asked if September Sponsor Meeting will be online? – MnDOT says yes, likely a hybrid meeting.

10. Next Meeting

August 4, 2021 at 2:30 PM (CDT)

Attachment A

Study - HMA Reflective Cracking Study

(tied to NCAT additive and Missouri test sections)

- Existing Test Sections: 16-23 (4,487 feet)
- Construction:
 - Remove 5” HMA – Replace with 6” HMA mix on 12” class-6 granular base
 - 10 test sections (400 feet with 25’ before and after for coring ~450 feet total of each mix)
- Action Needed:
 - Flexible Team determine what 10 HMA mixes are needed?
 - GeoTechnical Review (at a later time) base materials (we need a consistent base for study)
 - ICT Team – what technology could be utilized in this ~4,500 ft of granular base or HMA paving?

Study - Use of Carbon Dioxide for Sustainable and Resilient Concrete Pavements

Study - Reduced Cement in Concrete

Study - Alternative Cementitious Materials – Geopolymer Concrete

(three studies – Rigid team determines the number of cells for each)

- Existing Test Sections:
 - First Grouping - 506, 606, 706, 806, 7, 8, 9 (2,074 feet)
 - Gap
 - Second Grouping - 96, 70 (648 feet), 71, 73, 72 (945 feet), 12 (499 feet)
- Construction:
 - Remove existing concrete and base materials varying depths
 - Pave 7.5” PCC with common drainable granular base – 15’ panels - input from Geotech team
 - 1.25” Dowels and 11 dowels – see MnDOT standard plate
 - First Grouping - 8 test sections (~250 feet each with no transitions)
 - Second Group – 8 test sections (~250 feet each with no transitions)
- Action Needed:
 - Rigid Team determine the number and concrete mixes for each study from the above utilizing the 16 test section locations.
 - Rigid Team discuss the need for a consistent base support (can the geotechnical have variations built into the test sections and not effect the surface material studies)?
 - GeoTechnical Review (at a later time) base material
 - ICT Team – what technology could be utilized in this granular base or PCC paving?
 - Assume a common control mix could be shared as one test section leaving 15 test sections.
 - Note that cells 71,73,72 do not have to be reconstructed due to pavement condition. Could be withheld from the contract if costs come in high.

Study - Reclamation and Recycling Techniques to Achieve Perpetual Pavements Characteristics

Study - Thinlays as a PM Treatment, Will be a direct select process

Study - Performance Evaluation of Wicking Geotextiles for Improving Drainage and Stiffness of Road Foundation (ties to 4 and 15 SFDR)

- Existing Test Sections: 2 (575 feet), 3 (575 feet), 4 (575 feet), gap to, 115, 215 (573 feet)
- Construction:
 - Cell 2,3 (minimal repair of SFDR) – split into 4 test sections with minimal PM treatment and thinlay as other treatment. Flex group designs if any milling is done and the mix designs. Example 102 PM treatment, 202 thinlay, 103 thinlay, 203 PM treatment.

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- Cell 4 (extensive repair of SFDR) – Flex and Geotech team design section. How can the wicking geotextile be used to improve system from the past (full depth section with no base was the original roadway before SFDR in 2007)
- Cell 115,215 (New reclamation of a ~14 inch full depth roadway with no granular base) – Flex and Geotech team to design section. How can the wicking geotextile be used to improve system?
- Action Needed:
 - PM and Flex design surface treatments for cells 2 and 3 good performing SFDR (thinlay and another surface treatment). Note cell 4 and 115-215 also will need surfaces.
 - Flex and Geotech design repairs to cell 4 – highly distressed SFDR
 - Flex and Geotech design a perpetual type of recycled cell to replace 115 and 215.
 - ICT Team – what technology could be utilized in this area?

Study - Perpetual Pavements in Wet Freeze Climate

- Existing Test Sections: 101,201 (500 feet)
- Construction:
 - Flexible Team design needed
 - 1 or 2 test sections – match Wisconsin plus?
- Action:
 - Flexible Team – Designs needed for two perpetual pavements
 - Can a 250 foot section work?
 - ICT Team – what technology could be utilized in these test sections?

Study - Recycled Binder Availability (not sure if MnROAD sections are needed)

- Construction:
 - Use non-MnROAD test sections in Minnesota or other state.
- Questions:
 - Flex team – what variables for mix designs?

Not in NRRA approved list – but should be discussed/considered – note duplicates for recycled binder study that needed to be discussed with Tom Burnham

(NEEDS TO BE REPLACED)

- Existing Test Sections: 114,214,314,414,514,614,714,814,914 (520 feet)
- Non funded Study - BCOA “Whit topping” with Fibers?
- Construction:
 - Remove existing 6” PCC + mill 1” HMA
 - Construct 5” FRC, 6’x6’ panels BCOA. Use fibers intended to enhance joint LTE (ranked #6)
- Question:
 - MnDOT would do the needed research at our costs

Study - Use of performance engineered concrete repair mix (Rigid Rank #4)

- Existing Test Sections: 505,605,705,805 (551 feet)
- Existing Test Sections: 160-162 (1000 feet)
- Construction: UBOL life extension (patching) with diamond grind
- Questions: Fairly inexpensive construction costs / Test sections need work – place to save funding / MnDOT would do the needed research at our costs
- Existing Test Sections: 160,162 (447 feet)
- Construction: BCOA life extension (patching) with diamond grind

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- Questions: Fairly inexpensive construction costs / Test sections need work – place to save funding / Minnesota Washington County is going to do similar work for satellite test sections / MnDOT would do the needed research at our costs

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Attachment B

NRRA Phase-II Funded Research Development Tracking

June 30, 2021

NRRA Team	NRRA Contract Idea	Funding Approved	Changes Funding*	Update / Action Items
Flex	MnROAD Reflective Cracking Challenge Tied to NCAT Additive Group Experiment Tied to Companion Sections in Missouri	225,000		RFP going into its final review with the flex TAP in July
	Recycled Binder Availability	200,000		RFP going into its final review with the flex TAP in July
	Validation of Loose Mix Aging Procedures for Cracking Resistance Evaluation in Balanced Mix Design	100,000		RFP going into its final review with the flex TAP in July
	Perpetual Pavements in Wet Freeze Climate Tied to WI test section construction	200,000		Should these be combined to one RFP (ask each team)? Otherwise each
Flex-PM	Reclamation and Recycling Techniques to Achieve Perpetual Pavements Characteristics	150,000		RFP will be going into its final review with the TAPs in July
PM	Thinlays as a PM Treatment	50,000		PM final review of the tasks in this effort. Then PM team (state members) direct select contractor for this effort.
Rigid	Reduced Cement in Concrete	150,000		Should these be combined to one 450K RFP? Otherwise each RFP will be going into its final review with the TAPs in July
	Use of Carbon Dioxide for Sustainable and Resilient Concrete Pavements Supported with FHWA for this contract 150K	150,000		
	Alternative Cementitious Materials – Geopolymer Concrete	300,000	150,000	
	Technical Expert Guidance on PCC Mixes and Construction	Discuss	100,000	MnDOT working to develop this support needed and expect this to be a direct select contract – will report to the rigid team
	Sampling and Testing Contract (construction)	Discuss		Direct Select contract with AET – construction funding source might be possible at ~100K
All	EPD Development for 2022 MnROAD Construction	Discuss	150,000	Need to discuss with all teams – Use construction funding or NRRA to accomplish this effort. Estimated at 150K
PM-Geo	Flooded Pavements Assessment App–Phase 2	200,000		Contract with University of New Hampshire because they did phase-1 and can most efficiently accomplish phase-2 – working to develop this contract. Share team outline for university to develop contract and get TAP ok
Geo	Performance Evaluation of Wicking Geotextiles for Improving Drainage and Stiffness of Road Foundation	150,000		RFP going into its final review with the Geo TAP in July
ICT	Convert Desktop Version of Veta to a WebBased Application and Standardized Material Delivery Management System Platform (Phase-1 and 2) Support with FHWA	800,000 + FHWA \$		Transtec is in the process of being contracted under a sole source contract

- Discuss the funding changes with Executive Committee

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Attachment C

NRRA and MnROAD/NCAT Sponsor Meeting (Draft) Agenda
Minneapolis, Minnesota
September 13-17, 2021
Location: MSP Accessible Hotel TBD

NRRA National Road Research Alliance Meeting	<p><u>Sept 13 – Monday (2-6 Hotel)</u></p> <ul style="list-style-type: none"> • NRRA Focus <ul style="list-style-type: none"> ○ (2:00-6:00) NRRA Topic or Training, implementation efforts, discuss at NRRA meetings for topics/need? ○ (4:00-6:00) NRRA Executive Meeting ○ (6:30) NRRA reception <p><u>Sept 14 - Tuesday</u></p> <ul style="list-style-type: none"> • NRRA Full Day (9-5 Hotel) <ul style="list-style-type: none"> ○ Executive and Teams will provide input for agenda
Combined Tours	<p><u>Sept 15 – Wednesday (9-5 offsite)</u></p> <ul style="list-style-type: none"> • AM - Tour of MnROAD • Northern Lights – NRRA construction and PG deeper study focus / Lunch Northern Lights • PM - Tour (TH-169, CSAH-8) • MnROAD/NCAT Sponsor Dinner (hotel)
MnROAD/NCAT Sponsor Meeting	<p><u>Sept 16 - Thursday (9-5 Hotel)</u></p> <ul style="list-style-type: none"> • MnROAD/NCAT Sponsor Full Day <ul style="list-style-type: none"> ○ Work with NCAT on agenda items <p><u>Sept 17 - Friday (8-11 Hotel)</u></p> <ul style="list-style-type: none"> • NCAT Focus Topic(s) <ul style="list-style-type: none"> ○ (9:00-11:00) PG Technical advisory panel next two years?, training?, Discuss with NCAT/need?