



Midwest Bridge Preservation Partnership

Agenda – Monthly Teleconference

Tuesday February 2nd, 2021

1:00 – 2:00 PM CST

• **Roll Call –**

Name	Organization		Name	Organization	
Darlene Lane	NCPP	X	Javier Romero	Cook County, IL	
Ed Welch	NCPP	X	Adam Post	Indiana DOT	X
John Hooks	NCPP	X	Scott Neubauer	Iowa DOT	X
Chris Keegan	NCPP	X	Joe Stanisz	Iowa DOT	X
Bill Oliva (<i>Chair</i>)	Wisconsin DOT	X	Don Whisler	Kansas DOT	
Sarah Sondag (<i>Vice Chair</i>)	Minnesota DOT	X	John Culbertson	Kansas DOT	X
James Leaden (<i>Secretary</i>)	Kansas DOT	X	Joe Molinaro	Missouri DOT	
Jeremy Hunter (<i>Past Chair</i>)	Indiana DOT		Jacob Creisher	Michigan DOT	
Sarah Wilson (<i>Director</i>)	Illinois DOT		Jason DeRuyver	Michigan DOT	
Josh Rogers (<i>Director</i>)	Kentucky TC	X	Paul Pilarski	Minnesota DOT	
Glenn Washer (<i>Director</i>)	U of Missouri	X	Kent Miller	Nebraska DOT	
Patrick Conner (<i>Director</i>)	Indiana LTAP		Mark Traynowicz	Nebraska DOT	
Nick Graziani (<i>Director</i>)	Watson Bowman		Nancy Huether	North Dakota DOT	
Tom Donnelly (<i>Vice Chair Non-State Agency</i>)	Transpo	X	Barry Kinnischtzke	North Dakota DOT	X
John Bunderson (<i>Social Media WG</i>)	Metal Fatigue Solutions		Mike Brokaw	Ohio DOT	
Scott Stotlemeyer (<i>Systematic Preventive Maintenance WG</i>)	FHWA	X	Bradley Noll	Ohio DOT	
Brandon Boatman (<i>Preservation Matrix WG</i>)	Michigan DOT		Walt Peters	Oklahoma DOT	X
Fouad Jaber (<i>Deterioration Modeling WG</i>)	Nebraska DOT	X	Todd Thompson	South Dakota DOT	X
Tim Anderson (<i>Director</i>)	FHWA	X	David Coley	South Dakota DOT	X
Larry O'Donnell	FHWA		Richard Marz	Wisconsin DOT	X
Raj Ailaney	FHWA	X	Tim Woolery	Adv. Chem. Tech. Inc.	
Dick Dunne	GPI	X	Kelly Bengston		
David Heilman	Jet Filter System	X	Pat Martens	Bridge Preservation and Inspection Svcs.	
Greg Heilman	Jet Filter System	X	Nick Graziani		
Ed Liberati		X	Drew Garceau		
Blake Liberati		X	Dave Juntunen	Kercher Group	X
Bobby Scarpitto		X	Drew Storey	Kercher Group	X
LJ Dickens		X	Kyle Bartfay	Phoscrete Concretes	
Larry Budd		X	Mike Stroia		X
Kristen Leier		X	Jennifer Hart		X
Jerry Goodman		X	Nathan Peters	EmSeal	X
Paul Jensen		X	Derrick Castle		X
Mark Swiderski		X	Allen Scarborough		X
Michael Hill		X	Diana Hellman		X

- **Approval of Minutes – January 2021 Monthly Meeting**

Bill Oliva had control of the screen and showed a copy of the Meeting Minutes from the January 5th, 2021 MWBPP Teleconference. He asked if there were any changes or corrections that needed to be addressed. There was no response. Drew Story made a motion to approve the Minutes as written. Bill Oliva seconded the motion. There were no objections. The motion passed, and the Minutes were approved.

- **2021 MWBPP Annual Meeting (TBD) – John Hooks -**

- *Quick update on all four 2021 Annual Meetings (so far, MWBPP still is a go for Sep 28 – 30, 2021).*

John Hooks just wanted to make a quick note or two stemming from the 2021 Midwest Agenda Planning Meeting held earlier this month (January 20th, 2021). It is now a “Definite Maybe” that the 4 Partnerships will be having face-to-face annual meetings in the fall. There is still some uncertainty there.

The Midwest Agenda Planning Committee met a couple weeks ago, on their normal schedule. A draft agenda from the 2020 Annual Meeting was being used as a basis to develop the agenda for the 2021 Annual Meeting. During the Agenda Planning Committee call, several other good ideas materialized. The only status report John has, is that between now and the middle of this month (February) he will be putting together what will probably be a fairly complete draft agenda. For now, the Midwest Agenda Planning Committee will keep moving forward to try to finalize the agenda for the MWBPP Annual Meeting scheduled for September 28th thru 30th, 2021 in Lexington, Kentucky.

- **MWBPP Deterioration Modeling Working Group (Bill Oliva)**

- *Reoccurring monthly meeting Set up – Third Friday of each month at 9:00 AM CST Next is Friday February 19th.*
- *Wood has successfully developed a draft analysis dataset for the project. This is a major step forward.*
- *Jonathon has sent data set to Paul who is “exercising” and reviewing the dataset to make sure it can be used for analysis.*
- ***Task 5 web meeting will most likely be Monday March 1st, 2021 from 1:00 – 3:00 PM CST***

Bill started off by announcing that the next regularly scheduled meeting for the Deterioration Modeling Working Group is Friday February 19, 2021. He continued stating that Wood Environmental has successfully developed a draft analysis dataset for the project, noting that this was a major step forward. This is a development that occurred just last week.

That dataset was forwarded to Paul Thompson who is giving it scrutiny and looking it over for appropriateness and functionality to start the analysis. Paul will look at this and it will be discussed during the February 19th meeting. It will be provided along with some draft analysis to the TAC (Technical Advisory Committee) Members prior to the Task 5 Meeting. This Task 5 meeting, based on the availability of the TAC Members, is scheduled for Monday March 1st, 2021. It will most likely be a 2-hour virtual meeting from 1:00-3:00 CST. Bill Oliva noted that the project is still on track and it is now developing some good information. He asked if anyone had questions... There were none. The Teleconference continued.

- **Monthly Preservation Topic –Latest update on Hydro-demolition and some of the big projects we did around the country in 2020 - Edward M. Liberati, P.E., Hydro-Technologies, Inc.**

Ed Liberati took control of the screen to present on his topic. He introduced himself stating that he has worked the past 20 years with Hydro-Technologies (a company that has been around for almost 50 years doing hydro-demolition across the United States). He said that his presentation will include the latest technologies in hydro-demolition, and it will spotlight some of the larger projects they performed in 2019 and 2020. Ed said that his presentation will also include how they handled water control on those projects. Ed said he was excited to present to the MWBPP, because some of the biggest users of hydro-demolition are the States in this Partnership.

Hydro-demolition defined: It is a mechanical process that uses machines that control a high-pressure water jet to selectively remove concrete from reinforced structures (mainly bridges). This process replaces the need for jackhammers. This process is cost-effective, efficient and precise. Rapid erosion occurs, washing away the cement matrix and fine aggregates. This work is done using robots which can be calibrated achieving precise movements so that concrete of uniform strength can be removed to a specific depth. It can also remove any unsound concrete in the deck or slab. This is known as “Selective Removal”.

The equipment consists of a Pump and Power Unit, a Hydro-Demolition Robot, and a Vacuum Truck. It can easily be mobilized to any project. Set-up time is quick and easy. The typical hydro-demolition operation is administered using a three-person crew.

The first piece of equipment is the Hydro-Demolition Pump Unit. It is the “powerpack” of the operation. It can receive water from tankers, a hydrant, and now, using filters, it can receive water from a stream or a lake. These pump units filter and pressurize the water and supply it to the hydro-demolition robot in a range of 12,000 to 20,000 psi at a minimum flow rate of 55 gallons per minute. The hydro-demolition pump unit communicates with the robot with a multitude of safety devices linked up (shut-off switches, sheaths around hoses, etc.). It is imperative to specify the proper type of equipment for the application. An undersized pump will not get the bad concrete out.

The Second piece of equipment is the Hydro-Demolition Robot. It is computerized and self-propelled and takes water from the power unit and sends it through a ¼” jet nozzle. The robot controls allow the operator to regulate the removal depth. This can be done by adjusting many parts of the robot: the step, the speed of the jet, the pressure, and the flow rate.

Ed then showed a series of photos depicting work from recent jobs they have completed. Ed stated that Hydro-Technologies Inc. only uses “Direct Impact” equipment. Ed said that you should know what kind of cutting unit the contractor is using. “Direct Impact” is a jet with a ¼” hole shooting water into the concrete deck from 2” away. Other contractors use spinning heads. Spinning heads are more suited for membrane removal and paint stripe removal, it is not suitable for true hydro-demolition. Ed said to make sure you have the right specifications for the work needs you are contracting.

The third piece of equipment is the Vacuum Truck. Ed showed various vacuum units that keep the deck clean through the hydro-demolition process. These units can be driven on the hydro-demolitioned deck over the rebar. They also have a unit used for deeper hydro-demolition that doesn’t drive on the prepared surface, which would deform the rebars.

The #1 hydro-demolition application in the United States is “Fast Track Hydro-Demolition”. It is surface preparation of the entire bridge area prior to placement of a thin overlay.

Deep-Cut Hydro Demolition provides rebar exposure and selective removal of the bridge deck. Production is about 1/3 of what Fast Track Hydro-Demolition can do. It involves more shifts to do the work, and more water to control. Thus the cost for Deep-Cut Hydro-Demolition is significantly higher.

Other hydro-demolition applications include: patching, full-depth removals, expansion joint removals, deck removal over beams with shear connectors, vertical applications (retaining walls, piers, abutments, tunnel walls).

Ed then went over some costs for the various applications of hydro-demolition along with other details and he spotlighted on some recent projects they performed. This information can be found in the PowerPoint presentation that we hope will be added to these notes.

Ed wanted to give a shout-out to TSP2. As a vendor and part of industry, Ed said he can't say enough good about this program and all those who make it tick. He also wanted to give a shout-out to the Latex Modified Concrete Working Group (Hydro Technologies Inc. does a lot of demolitions in front of Latex Modified Concrete overlays). He is proud of the efforts of all the experts in this industry who get together once a month to find ways to make the latex modified concrete and hydro-demolition industries better at serving the needs of their customers. He invited all who are interested, to reach out to him if they would like to sit-in on future meetings of this working group.

Ed then opened it up for questions. Bill Oliva asked what the psi of the jetted water used in hydro-demolition? Ed said - you can't really answer that. In the system, it is at 12,000 to 25,000 psi. But as it exits the jet, the velocity increases so much that it can't be determined. Bill Oliva asked another question: On smaller jobs, what is your practice for filtering or dealing with water? From the presentation, the larger jobs use a mobile treatment facility. Is the same used on all jobs, regardless of size? Ed responded by saying that the smaller jobs depend on what the State regulations will allow.

Bill thanked Ed for presenting on this topic, and said if there are additional questions, please reach out to Ed Liberati via email (eliberati@hughesgrp.com).

- **Update and discuss the focus for the National Bridge Deck Preservation Working Group – Sarah Sondag & Pat Martens**

Sarah Sondag took control of the screen and began using a PowerPoint presentation to provide an update on The National Bridge Deck Preservation Working Group and ask for input on focus areas for 2021. This Working Group is co-chaired by Sarah Sondag (Minnesota DOT) and Pat Martens (Bridge Preservation and Inspection Services). The Working Group's Mission is to "Promote development and adoption of best practices for bridge decks that extend the service life and demonstrate the value of preservation".

Sarah went over some of the Working Group's deliverables accomplished so far:

One deliverable is The National Bridge Product Database. It has lists of products used for Overlays, Sealers and Patching (<http://bridgeproductdb.com/>). Sarah continued by walking through an example of accessing a product on the database. There are lists of products along with characteristics and information of those products. If you create an account, then you are able to view comments from other agencies on their use of those products.

Another deliverable from the Working Group is the Concrete Bridge Deck Preservation Resource Guide. The idea was just to be an introduction to bridge deck preservation activities, along with a compilation of some relevant resources. She demonstrated how one would access the guide and talked about some actions within the guide (typical preservation actions include: flushing and washing, sealing, expansion joint maintenance, concrete repair, overlays, and other actions). The idea was to provide a basic introduction to each activity in a one-page format. There is a description of the activity, then they talk about the benefits of performing that activity, some of the best practices, and a link to resources that provide additional information. Right now, it's undergoing a review by the Working Group. They would also like to run it through the 4 Regional Partnerships for their review, and incorporate those comments, and then ultimately distribute this through TSP2 to the Partnerships, and also through the Local Agency Outreach Working Group (they feel that the Local Agencies would benefit using this introductory guide).

Sarah is asking the MWBPP and each Regional Partnership to review the Resource Guide and give input, thoughts and opinions on it. Sarah asked if there were any questions on the Resource Guide? Bill Oliva asked if any attention has been given to specifications that you might use to get the work done? Sarah responded that there are a few “best practices” listed which could tie into the specifications, but it also ties into some of the Working Group’s Focus Areas for 2021. Which was part of her prepared presentation, so Sarah moved on to that topic.

The National Bridge Deck Preservation Working Group had a discussion in their January meeting and they’re trying to identify Focus Areas relating to the Resource Guide. **1. advocate for synthesis of bridge deck preservation research** so that its easier to find these resources. There some listed in this guide, but its hard to list them all. It might be helpful if there was a research project that would bring together research that other States have accomplished (a great place to go to see what has already been done. **2. Identify triggers for bridge deck preservation actions.** **3. Work with the construction quality working group** to identify and highlight “best practices” for bridge deck preservation activities. **4. Update the Resource Guide based on outcomes.** Another person asked about the product database; there is a section for attachments, and some products also have the specifications attached as well... Is that correct? Sarah said she believes there is... if not attachments... you can put in links to that information for those types of products. Sarah reiterated that the Working Group wants your thoughts. Are these appropriate? Does this align with what the Regional Partnerships would like to focus on? Let her know. Bill Oliva said that “The Synthesis of Bridge Deck Preservation Research” could be a topic to develop in the Bridge Preservation Committee. He could work with that committee to get an endorsement to further the focus areas for 2021 in The National Bridge Deck Preservation Working Group.

Sarah asked if anyone had additional comments on the focus areas for 2021, they could reach out to her. If you’re interested into listening in on some of the Working Group discussions, to also let her know.

- **Discussion on Concrete Overlays and Equipment used by industry – Bill Oliva**

- *Currently, WisDOT specification 502.3.7.8 and the equipment requirements limit the types of equipment (and as a result, several potential contractors) from doing Concrete Overlay work on WisDOT projects.*
- *WisDOT believes our current spec being used has resulted in desirable performance of the overlays. Vibration (vibra-screed) is key to the current Type E (low slump) overlay for consolidation. Without vibration the concrete surface will not close-up and there will be honey combing in the finished overlay. Bidwell (roller type) lacks vibration.*
- *It is our understanding that some DOTs (Ohio DOT for example) use a vibrating drum type of finisher.*

The Question is what are the state’s experience with low slump overlays and finishing equipment and do they have restrictions on finishing machine types or have issues with finishing quality of low slump overlays?

Bill Oliva started a brief discussion on concrete overlay equipment used by Industry. Currently, Wisconsin DOT’s rigid concrete overlay specification for their “Type E” low slump concrete overlay requires contractors to use a vibra-screed for vibration for finishing the surface of the overlay. This is 1970s, 1980s type of vintage equipment. Only a few contractors have operational equipment of this type. It limits the number of bidders that can do the work. Wisconsin DOT’s main concern with their low-slump overlays is that- not using a vibra-screed or vibration in finishing the surface (and it is just a roller

drum) it forces the surface to “honeycomb” and open up. Bill’s question to the other DOTs out there is what is your experience, when using low-slump concrete overlays, do you have requirements for the finishing machines, or do you have a limited number of contractors that can perform that type of work because of the requirements for the finishing machines? This was directed to MWBPP Agency Members.

Scott Neubauer of Iowa DOT noted that in Iowa they do a lot of the low-slump overlays. Scott is not sure what the contractors are using right now. He said they do have enough contractors that are familiar with the process and have been doing these overlays for a long time.

Josh Rogers of Kentucky said that they had that old specification for low-slump overlays, but they haven’t used it for probably 20 years. It has been out of their standard specifications book for several years now because not too many people use it in Kentucky anymore. The reason why may be that everybody is using latex modified concrete on most of their overlays.

Bill O. noted that they heard that Iowa DOT specified a vibrating drum machine for low-slump overlays. Scott Neubauer said he believed that is true but had to check on that.

Bill O. said Wisconsin DOT will have to address this because they only have a couple contractors that can meet their specs. In 2021 they may consider modifying their “Type E” low slump concrete mix design to get it to match with contemporary equipment. If anyone comes across information or experiences with issues concerning vibra-screed vs. roller, let Bill Oliva know. Till then, the saga continues.

- **Other New Business**

- *Monthly Preservation Topics for March - volunteers*

Bill Oliva asked MWBPP Members to be thinking of topics; an emerging issue, a new product, a preservation concern, or a lesson learned. Any ideas you have should be forwarded to Bill Oliva to be considered for future MWBPP Monthly Teleconferences.

A “new business” item was brought up by Greg Heilman. He sent an email out a few days ago to MWBPP Members asking for specifications for weepholes. What he is looking for is if any State DOTs have specifications for weepholes (eg; size, spacing, etc.). Weepholes have been around forever, and Greg was wondering if any of the Agency Members have worked with weepholes, or if they have specifications for weepholes, or is this just something that depends on the Engineer’s judgement.

Bill Oliva stated that he knows that in Wisconsin they have weepholes on various structures, but he hasn’t looked at any specifications yet. Greg would like to see what is out there. Bill added that a lot of the treatments in Wisconsin that deal with water are centered around underdrains (behind walls / abutments). Bill noted that they HAVE used weepholes on culverts in Wisconsin. Bill said he would forward what he can find to Greg. Greg would like other State DOTs to send him what they find as well.

Sarah Sondag asked the MWBPP Members a question (she also asked the Deck Preservation Working Group the same thing). The Minnesota DOT is looking into opportunities to have a better process for tracking their research and innovation trials. They are looking into different ways that they might try something (eg; a design standard, a construction technique, or a product). It can take the form of a formal research project, or it may be for a certain bridge, or in a certain district. They’ve tracked some things before on a spreadsheet, but they are looking for a better, more transparent process. Do other agencies have a good process that they would like to share that might provide guidance, or lessons learned.

Bill Oliva said that in Wisconsin’s Bridge Management System, they record innovative features. They can document that they are there and then query that they are there and make awareness in that manner. Bill Oliva suggested giving Wisconsin DOT’s Ryan Bowers a call. He could show what Wisconsin has and how they use it.

- **Next Monthly Meeting**
 - *March 2nd, 2021*

Bill Oliva thanked Sarah Sondag in advance for the efforts she will provide in recording and preparing the Meeting Minutes for the March 2nd, 2021 MWBPP Teleconference.

Meeting Adjourned

Bill Oliva thanked everyone for their participation. He thanked Ed Liberati for his presentation on Hydro-demolition. He reiterated to be thinking for a topic for the March 2021 call. There is a lot of stuff going on out there, and this is a wonderful opportunity to share it with your agency and industry peers. He wished everyone a happy and healthy February and is looking forward to the next call in March. With that, the Meeting adjourned at 2:01 PM in the Central Time Zone.