

Meeting Minutes
North Central Pavement Research Coordination Partnership (Frozen Four)
Engineering Centers Building 1055
1405 Engineering Drive, Madison, WI
April 3rd, 2008

Attendees:

Mike Eacker	MDOT (Conf Call)	Erol Tutumluer	UIC
Maureen Jensen	MNDOT (Conf Call)	Marguerite Lafky	WisDOT
Roger Olson	MNDOT (Conf Call)	Hussain Bahia	WHRP
Shongtao Dai	MNDOT (Conf Call)	Andrew Hanz	WHRP
Laura Fenley	WisDOT	Pat Casey	CTC and Assoc.
Irene LeBarca	WisDOT	Matt Mullins	CTC and Assoc.

I. Approval of October Minutes

- Minutes from the October meeting following the Resilient Modulus Workshop were reviewed and approved pending.

II. Website Update

- Kim gave an update of recent changes to the website, including:
 - Posted the Phase II Work Plan
 - Created a Workshops Tab: Currently contains the Resilient Modulus Report and all supplementary information including the presentations given at the workshop and related publications by each of the invited authors.
 - Updates to the Research Activities Tables, databases of finished research and research in progress.
- The panel felt the website was a valuable repository of information on the states' research, the workshop and the roadmaps.
- A similar pooled fund website was mentioned and recommended, Pavement Interactive at <http://pavementinteractive.org/index.php?title=PTC>. The website is a product of the Pavement Tools Consortium, TPF-5(090). Additional details are on the pooled fund website at <http://www.pooledfund.org/projectdetails.asp?id=323&status=6>.

III. Resilient Modulus Workshop Report

Potential Pilot Project

After much discussion regarding the methodologies of different states and how they compare to each other and current standards, the group decided that there were two main areas that required further investigation.

- Sample Conditioning before the test is run
- Quality Control Measures
 - # of LVDT's on each sample (2 vs. 3)
 - Position of LVDT's (on the sample vs. on the mold)
- The group reached a consensus that data sampling rate was not a pertinent variable for consideration in the design.

The experimental design referenced above was identified as a potential candidate for the first Phase II Pilot project. The general thought was that evaluating the effects of procedural differences on resilient modulus would provide information in regards to the feasibility and meaning of comparing the catalogues developed in each state. Furthermore, the results of the study could allow the states to reach consensus on a unified method, making future catalogues of resilient modulus values more robust.

Pooled Fund Opportunity (TPF 5177)

Mn/DOT brought to the group a pooled fund study regarding resilient modulus sponsored by FHWA. It was decided the findings of the report should be communicated to the pooled fund lead with the recommendation that these variations need to be investigated. The FHWA lead is Mike Moravec.

Resilient Modulus Report

The report should be revised in the following ways:

- Incorporation of Dr. Hodek's comments. Submitted to Mike Eacker.
- More detail on presentations, i.e. conclusions and findings.
- Incorporate notes of discussion during the workshop (Andrew has notes and will submit to Matt)
- Include summary of work by Dr. Edil for Mn/DOT (Comparison of external vs. internal LVDTs)
- Correct Gilbert Baladi affiliation
- Reformat table to delete section on sampling rate, and separate sections for Condition and for Quality Control

Action Items

- The potential pilot project described above will be put together in a formal proposal and submitted to the Frozen Four Group for review before the next meeting/conf call.
- The resilient modulus report will be revised as specified by the group and sent to the Frozen Four Panel for review.
- Upon acceptance of the Resilient Modulus Report, WHRP will submit proposal and report to Mike Moravec of FHWA to evaluate his interest of including these considerations in the pooled fund project.
- If there is interest from FHWA in pursuing the suggested MR work in the pooled fund, encourage academic Frozen Four Partners to collaborate in putting a proposal together.

IV. Phase II Work Plan

The Phase II Work Plan and participation by the founding members of the group was discussed. WI has already made the annual \$20,000 commitment and will continue to work as the lead state. Representatives from IL and MI remained supportive and will work with IDOT and MDOT management to continue participation in Phase II. MN has decided not to continue participation due to a lack of available funding. MN provided the following thoughts on the direction of the group and where it could best fit in:

- MN and many other states are moving towards implementation. The group should dedicate more resources towards implementation efforts, with a focus on synthesizing research that has been done and filling the gaps to facilitate implementation

The group agreed this would be a useful area of work and decided that the implementation practices of each partner state should be summarized for next meeting. The summary will include both a description of the process and identification of institutional barriers and stakeholders present in the implementation process. The analysis of implementation should be included under task 3 of the work plan.

Marketing and Solicitation

- Title of group needs to be changed to include implementation activities and to accommodate all members of the group. Frozen Four seems exclusive.
- The following states/provinces were identified as potential partners: North Dakota, South Dakota, Nebraska, Iowa, Indiana, Ohio, Manitoba, and Ontario. A cover letter and the work plan will be sent to the research directors and pavement engineers from each state.

Action Items

- Implementation will be incorporated into Task 3 of the work plan. Specifically the Frozen Four will be focused on summarizing the process of implementation for each partner, institutional barriers to implementation, and the role/identification of project champions.
- The title of the group will be changed to allow participation to be broader and to include implementation. In the fourth paragraph of the letter, the word membership will be changed to participation.
- The modified letter and work plan will be sent out to the states specified above. The results of solicitation will be reported to the group at the next Frozen Four meeting.

IV. Discussion of TSR – WisDOT Efforts that Support Implementation of the MEPDG

Matt presented a Transportation Synthesis Report prepared by CTC and Associates that summarizes the research efforts and level of funding for each interest area (Rigid, Geotech, Flexible Pavements). The report also provides a brief summary of each project. The discussion that followed is recapped below:

- Is it time to start to focus on this topic? Research is focused on material characterization, not limited to ME Design Guide considerations.

- Group should not limit itself to the ME Design Guide, but instead use a theme of Materials Characterization for Design and Construction, with a specific focus on the relationship between design inputs and field.
- This item was identified as a future workshop topic.
- Laura Fenley suggested edits to Wisconsin information.

Action Items

- Group will begin to focus on Materials Characterization for Design and Construction with the topic being discussed in greater detail in future meetings.
- The topic will be noted as a potential 2009 or 2010 workshop item.
- Contact ARA for an update on WisDOT MEPDG Implementation Efforts. If the timing is appropriate organize a project update meeting for ARA to present results to WisDOT Regional Pavement Designers, Statewide Bureaus Staff, and interested industry partners.

V. Update on New Research Projects

Each state gave an update of the new developments or research projects started since last year's update.

- MN: Majority of funding and resources committed to MNRoad projects, Roger Olson also brought to the "EPA Region 5 Resource Conservation Challenge Grant" RFP to the attention of the group. It was decided the due date for the proposal was too soon for the group to try to participate. However, it was noted that the group should remain aware of these opportunities in the future.
- IL: Illinois gave an update of the projects and ideas not funded over the last few years. The full project list was provided in the meeting handout.
- WI: WHRP provided a summary of projects ideas funded for FY 09 (Oct 1, 2008 start date) and also provided a summary of implementation efforts underway.
- MI: Is on a two year cycle and did not have any new solicitations to report. A list of projects was provided at the business meeting after the resilient modulus workshop. That list has been scanned and included as a supplement to the minutes.

Matt Mullins also gave a presentation of a preliminary analysis as to where the partner states have overlapping research activities; three areas were identified:

- Whitetopping
- Overlay Repair
- Open Graded Friction Course

The preliminary analysis will be finalized by incorporating current activities from Michigan and collaboration interests/opportunities identified. Frozen Four should focus on summarizing common interest areas and identifying opportunities for collaboration. The Frozen Four can also facilitate conference calls between the researchers.

Action Items

- Summarize the work plans for the overlapping research activities above to facilitate prioritization of the topics and development of workshop agendas.
- Summary table will be completed by WHRP and sent to Frozen Four Group members for review. Review will include recommendations for projects that require more in-depth summary of information and potential conference calls between researchers.

VI. Brainstorming Regarding Phase II Pilot Projects

The group discussed potential workshop topics and pilot project opportunities. It was decided that since Wisconsin is the lead state, they will be in charge of the research administration process for any future pilot projects. The following potential projects were defined:

- **Potential Pilot Projects**
 - Field Measurement of Soil Stiffness
 - Evaluation of Differences in Regional Resilient Modulus Test Methods
 - Need input from Pooled Fund Study (TPF 5177)
 - Incorporate Dr. Edil's results from the Mn/DOT project in the work plan.
- **Potential Workshop Topics**
 - Field Measurement of Soil Stiffness and Implementation of Intelligent Compaction Technologies
 - Whitetopping
 - Pre-Overlay Repair
 - Use of Open Graded Friction Course
 - Implementation of Research: Results, Processes, Challenges, and Definition of Project Champions.
 - Materials Characterization for Design and Construction

Action Items

- Provide more draft work plans on potential pilot projects and more details of current activities for workshop topics to facilitate the prioritization and selection process.

VII. Next Meeting

Conference Call Tentatively scheduled for June 12 9:00-12:00 PM. The main agenda items will be updates on solicitation efforts, formalizing workshop/pilot project ideas, and planning for first Phase II Meeting.

**Appendix A: MDOT Research Projects
FY 2008 Program (starting on Oct. 1, 2007)**

1. Value Effect of Construction Incentive Payments on Pavement performance
2. Assessment of Pavement Acceptance Criteria & Qualifying It's As Constructed Material and Structural Properties
3. Evaluation of the i-375 Design Process for New and Rehabilitated Jointed Concrete Pavement
4. Quantifying Coefficient of Thermal Expansion Values of Typical Hydraulic Cement Concrete Pavement
5. Investigating New Technologies to Detect Dowel Alignment Errors in Jointed Concrete Pavement
6. New Generation of High Performance JPCP for Michigan's High Volume Truck Routes as 1-75 & 1-94
7. Mechanistic-Empirical (ME) Design Guide for Pavements
8. Back Calculation of Resilient Modulus Values for Unbounded Pavement Materials
9. Investigation of Pavement Distress Due To Logging Trucks in the Superior Region of Michigan
10. Resilient Modulus at the Limits of Gradation & Varying Degrees of Saturation
11. Development of Specifications for Super Pave Simple Performance Tests (FY 09)
12. Pavement Sub grade Mr Design Values for Michigan's Seasonal Changes
13. Reconstructing the Michigan State Police Test Track to Enable Evaluation of Advanced Traffic and Pavement Engineering Concepts
14. Assessment of Modified Asphalt Binders
15. Pavement Durability Performance Review of Michigan Super Pave Hot Mix Asphalt
16. Develop a Trail Specification for Mineral Fines Used in Hot-Mix Asphalt for Michigan

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