2015 County Engineers Research Focus Group

January 29, 2015

INTRODUCTION

The Iowa Department of Transportation (DOT) and Local Technical Assistance Program (LTAP) held the 5th annual County Engineers Research Focus Group (CERFG) meeting in Ames, Iowa on January 29, 2015. The attendance at the meeting was approximately 50 people. Presentations during the meeting, among other subjects, summarized the Iowa County Engineers Association perspective on research, Iowa Highway Research Board (HRB) activities, research implementation, and ongoing or recently completed research. A roundtable discussion was also held that focused on the future approach to be taken for the CERFG meeting, along with some of the day-to-day challenges for county engineers. A significant portion of the meeting was, of course, committed to the identification and prioritization of new research and outreach ideas for the Iowa Highway Research Board (HRB).

MEETING OVERVIEW

The 2015 CERFG meeting was organized in a manner that allowed the discussion of low cost solutions and problems, research subject prioritization, two research projects, and research implementation. First, the attendees were welcomed and introduced themselves. The meeting continued with some opening remarks from Wade Weiss, Greene County Engineer and Secretary of the Iowa County Engineers Association. Then, summaries were provided on the activities of the HRB and the winners of the National LTAP Association Better "Mouse Trap" competition. An ongoing research project on UHPC connections and county standards was then discussed. Following the morning break the research ideas and prioritization discussion began and during lunch the roundtable discussion of questions/issues was held. Six research topics were selected for HRB consideration and they are listed later in this document. After lunch, the meeting included a short discussion on research result implementation and a recently completed research project that resulted in a website that synthesized research related to rural safety.

OPENING REMARKS

Welcome and Introductions – Keith Knapp, InTrans

Opening remarks at the 2015 CERFG meeting were provided by Keith Knapp. Keith is with the Iowa LTAP and he explained the purpose of the CERFG meeting. He also indicated that it was developed to provide county engineers with a venue to suggest research and outreach ideas that might be considered by the HRB for further funding. In addition, the meeting is an opportunity for Iowa county engineers to discuss research and have roundtable discussions about their day-to-day challenges and some of the actions needed to address them. Keith concluded the welcome by having all the attendees introduce themselves.

ICEA Perspective – Wade Weiss, Greene County

Wade Weiss, Greene County Engineer, was the first speaker at the 2015 CERFG meeting. Wade is the Secretary of the Iowa County Engineers Association and reviewed the research implementation process currently being applied by the HRB. Currently the HRB has implementation discussions with each individual research project is has funded or is considering for funding. Wade also noted a staff position change at the Iowa DOT that impacts the counties. He informed the attendees that the Secondary Road Research Engineer position at the DOT was currently vacant, but that it would be filled outside the DOT because of its importance to county engineers. Finally, Wade reminded the meeting participants that the Transportation Research

Board (TRB) International Conference on Low-Volume Roads would be held in July in Pittsburgh, Pennsylvania. This conference only happens every four years and Iowa, along with seven other states, is a cosponsor. Two county staff representatives will be assisted to attend the conference.

HIGHWAY RESEACH BOARD UPDATE

The second speaker on the agenda was Vanessa Goetz from the Iowa DOT Office of Research and Analytics. Vanessa described the membership and approach of the HRB. She summarized the research projects initiated and completed since 2014 and provided a link to the website that contained the project reports and summary briefs. She also provided a handout the listed the project active in 2014 and those completed since 2013. She also reminded the participants of the Accelerated Bridge Construction webinar on February 19, 2015, the TRB International Low-Volume Roads Conference in July in Pittsburgh, PA, and the 2015 Mid-Continent Transportation Research Symposium in August in Ames, and

Vanessa finished her presentation by asking the attendees whether they had Accelerated Bridge Construction (ABC) policies, what type of circumstances they might use prefabricated bridge elements and systems, and what, if any obstacles there might be to applying this approach could be utilized. She asked that ideas and experiences related to this subject be sent to her.

NATIONAL LTAP BETTER "MOUSE TRAP" WINNERS

The discussion following the research project update focused on low cost solutions and ideas. This discussion was moderated by Wade Weiss, County Engineer from Greene County. The attendees were provided a booklet describing "mouse trap" entries that were submitted to the National LTAP Association. The goal of the "mouse trap" program is generally to provide and advertise ideas that help create a better and safer work environment and work to prevent workplace injuries. Several applications were noted by Wade, and, overall, the winners of the national competition were a discharge control door used when mowing right of ways to prevent discharge from being blown into the street or into cars, a truck tire changer/roll tube bender, used to bend tubing, and a pipe puller used to install 24 inch HDPE pipe. Wade also discussed some of the "mouse trap" efforts related to fabrication that are going on in his own county along with several other entries in the booklet provided.

SHORT SPAN BRIDGE STANDARDS WITH ULTRA HIGH PERFORMANCE CONCRETE PROJECT

Vanessa Goetz, from the Iowa DOT, then led a discussion on a Short Span Bridge Standards with Ultra High Performance Concrete (UHPC) Connections project. The HRB approved the concept and then transformed it into a Standards for Short Span Precast Bridges project in response to the input of the counties. The project was split into 3 phases: concept development review by the consultant, testing of new details/connections, and development of standards. The project ultimately focused on UHPC connections. Vanessa Goetz went on to discuss the details of the ongoing study, the tasks completed, and some of the findings. At the time of the presentation the document on the results was being reviewed by the project technical advisory committee. Vanessa asked that people review the project report and indicate anything that concerns them.

IDENTIFICATION/PRIORITIZATION OF RESEARCH AND OUTREACH TOPICS

Just before lunch, Kevin Mayberry, along with the attendees of the 2015 CERFG meeting identified and prioritized 32 research and outreach ideas. These ideas are listed below and the six subjects that received the most votes were provided as problem statements to the Iowa HRB for consideration.

1. Increasing OS/OOW Fees
2. Impact of steel wheels and horse hooves
3. Taxing farm fuel
4. Methods to repair rotting piling that is in place
5. Vibratory pile driver beating capacity
6. Driving pile without a crane
7. Privatizing gravel road maintenance
8. High retro night driving impacts
9. Partially grouted pavement (scour critical)
10. Retrofit bridge material crash worthiness
11. Intersection safety data
12. Pavement management for local agencies(software)
13. Cost of compliant federal requirements (NEPA clearance start to end)
14. Impacts of implements
15. Implement configurations impact calculation (outreach PR)
16. Helical pile
17. Scour and the use of recycled concrete – tied to Partially grouted pavement
18. Metal culvert (physical) runoff impacts
19. Destination lighting implementation
20. Railroad crossing materials
21. Effectiveness of pavement preservation materials
22. Criteria for bridge culvert &/or road maintenance/road closure
23. Single lane bridges, different traffic controls
24. Ultra HP Concrete training/Q.C.
25. Pile design/methods training/outreach
26. Study for the number of parcels/acres accessed by the secondary road system and value of commodity on secondary roads – land access issues, field entrance issues, pasture, road, crop and ethanol
27. Effectiveness of repainting steel bridges
28. Use of partially hydrated fly ash and/or blast slag for surfaces
29. Bridge posting options
30. Program to evaluate bridges
31. Automated flashing warning lights for flood areas
32. Automated intersection warning approach sign impacts

The six topics that received the most votes and were submitted to the HRB for funding consideration included:

- Pile design/methods training/outreach
- Pavement management for local agencies (software)

- Scour and use of recycled concrete – tied to partially grouted pavement
- Ultra high performance concrete training/outreach
- Optimal lifecycle calculations for equipment
- Effectiveness of pavement presentation materials

COUNTY ENGINEER "ROUNDTABLE" DISCUSSIONS

The roundtable discussion during lunch covered a few subjects (e.g., gravel or rock costs) but primarily appeared to focus on whether the CRFG meeting should occur every year or every other year, and whether it should be just research focused or also start to incorporate research implementation discussions/guidance. The length of the meeting was also discussed. A decision was made to continue to have the CRFG every year, but with one half day directed toward research topics and the other half day focused on research project implementation. The attendees realized that this might cause the meeting to last longer, but felt the extra time would be well spent.

RESEARCH IMPLEMENTATION LIST AND PRIORITIZATION DISCUSSION

Following lunch, Keith Knapp led a brief discussion focused on the prioritization of research project implementation. A similar conversation also occurred in 2014. Keith provided the attendees with a handout that included abstracts for four research projects. Each of these projects were then described and discussed. The attendees were then asked to vote and prioritize for the potential implementation activities for the projects. The four projects that were described and discussed, along with the votes they received for advancement of implementation activities, included:

- TR-619: Development of Self-Cleaning Box Culvert Design (10 votes)
- TR-632: Low Cost Rural Road Surface Alternatives (22 votes)
- TR-638: Western Iowa Missouri River Flooding – Geo-Infrastructure Damage Assessment, Repair and Mitigation Strategies (0 votes)
- TR-643: Evaluating Roadway Surface Subsurface Drainage Practices (2 votes)

The votes indicated above show that the TR-619 and TR-632 projects should be advanced in the area of implementation activities. It is expected that these two projects, in combination with the two identified in 2014, will be the focus of an upcoming implementation activity scoping workshop.

SYNTHESIS OF RURAL SAFETY RESEARCH AND WEBSITE

The CERFG was concluded with a presentation by Shauna Hallmark, Director of the Institute for Transportation in Ames. Shauna gave a presentation on a project entitled the "Synthesis of Iowa Research to Address Rural Safety". This project focused on the website summary of safety-related research connected to roadway departures, rural intersection, and rural speed management. Shauna described the website and some of what it showed about the research results summarized. It was noted that each of the tables includes summaries of Iowa research on the subjects if it was available. The website discussed is at www.ctre.iastate.edu/research-synthesis/.

SUMMARY OF MEETING

The 5th annual CEFRG meeting included presentations about ongoing and completed research projects, “mouse traps” ideas, research implementation, and discussions about common county agency issues. A discussion about the future of the CERFG was held and, of course, research and outreach ideas that were important to the counties were suggested, recorded, and prioritized. The feedback at the 2015 CEFRG meeting appeared to be relatively positive, but improvements will continue to be made for 2016.