

# IOWA HIGHWAY RESEARCH BOARD (IHRB)

*Minutes of April 28, 2017*

## **Regular Board Members Present**

A. Abu-Hawash  
K. Jones  
C. Poole  
T. Nicholson  
S. Okerlund  
R. Knoche  
P. Hanley  
T. Wipf

W. Weiss  
R. Stutt  
K. Mayberry  
J. Thorius  
M. Parizek

## **Alternate Board Members Present**

B. Billings

## **Members with No Representation**

L. Bjerke

## **Secretary – V. Goetz**

## **Visitors**

Tammy Bailey  
Greg Mulder  
Dan King

Iowa Department of Transportation  
Iowa Concert Paving Association  
Iowa Concert Paving Association

The meeting was held at the Iowa Department of Transportation Ames Complex, Materials East/West Conference Room, on Friday, April 28, 2017. The meeting was called to order at 9:00 a.m. by Ahmad Abu-Hawash with an initial number of 13 voting members/alternates at the table.

### **1. Agenda review/modification**

### **2. Motion to approve Minutes from the March 2017 meeting**

**Motion to Approve** by W. Weiss; 2<sup>nd</sup> J. Thorius  
Motion carried with 13 Aye, 0 Nay, 0 Abstaining.

\*\*\*Member joined the table

### **3. Final Presentation: TR-703, “Update Depth of Cover Tables for Concrete and Corrugated Pipe”, Kevin Arp, Kirkham Michael, (\$53,622)**

## **BACKGROUND**

Since the advent of the circular closed conduit, and its use for conveying surface drainage through roadway embankments, methods have been required to determine the limiting magnitude of allowable vertical loads that could be applied to the buried pipes. These allowable load limits were sought to

prevent damage to the conduit, or excessive deformation leading to unsatisfactory operation, that might result from these limits being exceeded. With minor modifications, these methods have largely remained unchanged since their inception; and the current 7th Edition of the AASHTO LRFD Bridge Specification continues to support their use. In general, the problem of allowable pipe cover must be addressed separately for two general categories of section behavior and failure. Concrete, clay, and other rigid materials typically fail by rupture of the pipe wall in flexure, with a majority of the applied vertical load being resisted by the bedding material. Steel, plastic, and other flexible types of conduit will deform under load, and will typically fail by buckling of the pipe wall. The flexible nature of these pipe sections causes a significant portion of the applied vertical load to be resisted by induced lateral passive action of the backfill material, as the vertical loads lead to an ovalization of the pipe cross section. This report documents the findings of a study conducted to review the history and current practice of establishing allowable pipe fill heights for circular and arched concrete pipe, as well as circular and arched corrugated steel pipe. Concluding this review, recommendations using the latest edition of the AASHTO LRFD Bridge Specification are provided as a basis for updating the tabular pipe cover data currently contained in Iowa DOT Standard Road Plan DR-104.

## **DISCUSSION**

Q. You had some questions as far as making a recommendation following a certain method, is that consistent with the LRFD specifications?

A. Yes

Q. Does it give you more than one option to use one method vs another?

A. No, they are presented as parallel methods.

**Motion to Approve by K. Jones; 2<sup>nd</sup> B. Billings**  
Motion carried with 14 Aye, 0 Nay, 0 Abstaining.

## **4. RFP Proposals:**

- a. IHRB-16-06 – PROPOSAL: “Optimizing Maintenance Equipment Life Cycle for Local Agencies”, David Jeong, Iowa State University, (\$172,590)

**Motion to Approve by W. Weiss; 2<sup>nd</sup> J. Thorius**  
Motion carried with 14 Aye, 0 Nay, 0 Abstaining.

- b. IHRB-17-05 – PROPOSAL: “Role of Coarse Aggregate Porosity on Chloride Intrusion in HPC Bridge Decks”, Kejin Wang, Iowa State University, (\$159,942)

**Motion to Approve by K. Jones; 2<sup>nd</sup> T. Nicholson**  
Motion carried with 14 Aye, 0 Nay, 0 Abstaining.

- c. IHRB-17-06 – PROPOSAL: “Development of Granular Roads Asset Management System”, Bora Cetin, PH. D., Iowa State University, (\$250,000)

**Motion to Approve by M. Parizek; 2<sup>nd</sup> K. Mayberry**  
Motion carried with 14 Aye, 0 Nay, 0 Abstaining.

5. Innovative Project Award Recipient Presentation, “Hybrid Concrete for Advancing Pavement Performance”, Kejin Wang, Iowa State University

### **DISCUSSION**

Q. On one of your slides you mentioned possible application on a bridge deck?

A. Yes, this is in the exploring stage and after testing I hope to have the answers and be able to use on a bridge deck.

Q. Do you have to use air entraining for the grout?

A. Yes, we will test one with air entraining and one without.

### **8. New Business**

V. Goetz announced that members should have seen an e-mail with the request for feedback on the new topics for next year. Right now it is just a general feedback request on all the projects, not necessarily what will be considered by the Iowa Highway Research Board. Some of those topics will be coming to the Board for voting. The goal is to have them ready for voting for the next meeting on June 2, 2017, to rank priorities for FY2018. If board members haven't had the chance to submit that feedback, please go ahead.

W. Weiss suggested to have the June meeting as a traveling meeting. The Iowa LTAP sent out information on a tour of the largest steel plate manufacturing facility, located between Davenport and Muscatine along with a galvanizing plant tour. V. Goetz will look into having a traveling June meeting or no meeting in June and meet in Davenport/Muscatine to attend the tours.

V. Goetz stated that FHWA's initiative of Every Day Counts Round 4 technologies were presented to the board in February. The discussion was on the implementation plan for Iowa. It is time to send out the call for ideas for the STIC implementation funds for FY2018. V. Goetz will be sending this request out in June. The board discussed in February to limit the next call for ideas for STIC funding to Every Day Counts Innovations. The board will not be considering any other type of innovation outside of EDC for implementation for FY18.

V. Goetz stated that the board needs to look at the business plan. The board could host a workshop with the board members to go through the business plan and talk about the board's mission, vision or goals. It would help re-visit the things the board can do to better advance innovation and expand the role as the STIC in the State and how to incorporate that into the business practices. If the board members have a recommendation on how to proceed, please submit feedback directly to Secretary Goetz.

### **9. Adjourn**

The next meeting of the Iowa Highway Research Board will be held Friday, June 2, 2017 in the East/West Materials Conference Room at the Iowa DOT. The meeting will begin promptly at 9:00 a.m.



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**Vanessa Goetz, IHRB Secretary**