

IOWA HIGHWAY RESEARCH BOARD (IHRB)
Minutes of June 30, 2023

Regular Members Present

J. Hauber
D. Harness
R. Koester
R. Knoche
A. Bradley
D. Sanders
J. Thorius
T. Roll
M. Rydl
D. Snead

Alternate Members Present

M. Nop
B. Billings
B. Wilkinson
D. Davenport

Members with No Representation

C. Burke

Executive Secretary

V. Goetz

Administrative Assistant

T. Bailey

Visitors

Paul Wiegand	Statewide Urban Design and Specification Program
Beth Richards	Statewide Urban Design and Specification Program
Behrouz Shafei	Iowa State University
Brent Phares	Iowa State University
Shauna Hallmark	Iowa State University
Sunghwan Kim	Iowa State University
Lee Bjerke	Iowa County Engineers Association
Allen Karimpour	Iowa Department of Transportation
Jeff DeVries	Iowa Department of Transportation
Chris Cromwell	Federal Highway Administration
Kuma Chibsa	Federal Highway Administration

Agenda

Agenda review/modification

2. Minutes Approval from the June 2, 2023, meeting

Motion to Approve by M. Rydl; 2nd by D. Snead
Motion carried with 14 Aye, 0 Nay, 0 Abstaining

3. FINAL REPORT TR-701, Evaluation of the Use of Link Slab in Bridge Projects, Brent Phares, Iowa State University, \$69,443, (15 min).

Motion to Approve by R. Koester; 2nd by R. Knoche
Motion carried with 14 Aye, 0 Nay, 0 Abstaining

4. **PROPOSAL IHRB-3828, *Develop and Field Test Non-Proprietary Ultra-High-Performance Concrete for New Bridge Decks***, Behrouz Shafei, Iowa State University, \$271,762, (15 min).

The proposed research project aims to develop, test, and implement a cost-effective ultra-high-performance concrete (UHPC) mixture design tailored to equip new bridge decks with a protective layer against environmental and mechanical stressors. For this purpose, utilizing the ingredients available from local resources and regional suppliers in Iowa, the non-proprietary UHPC mixture design developed for Iowa bridges will be further optimized, especially to achieve the expected balance between flow and viscosity. With completing a set of laboratory investigations, the outcome will provide a UHPC mixture design enabled with thixotropic properties required for bridge deck and overlay applications. In the next step, laboratory trials will be performed to determine the most optimal surface preparation and curing regime. This will directly assist the contractors with the field implementation of non-proprietary UHPC for target applications. In the proposed project, the developed thixotropic non-proprietary UHPC will be used (as overtop) to construct the deck of a new bridge structure identified by the Iowa Department of Transportation's Bridges and Structures Bureau. This candidate bridge deck will provide a unique testbed to apply and further evaluate the performance of the developed UHPC mixture in a real field setting. The scope of field work will involve both short- and long-term studies. The short-term investigations will cover the practical aspects and considerations that must be figured out to successfully add a layer of non-proprietary UHPC to the normal concrete substrate. On the other hand, the long-term investigations will closely monitor the integrity and overall condition of this new bridge deck system over time. For this purpose, a dense array of instrumentation will be utilized, while regular inspections will be performed in parallel. The outcome is expected to benefit from the superior strength and durability of UHPC to address the long-standing issues associated with the deterioration of bridge decks.

Q. You investing the same Fibers from the first phase or are you including additional fibers?

A. In the current special provision that we have for bridge decks built with UHPC the recommended fiber dosage is at the level of 3.25%, which is a little on the high side. This comes from a study that was primarily for the strengthening of bridge decks. Lowering 2% steel fibers will bring down the cost.

Q. Are you still intending on meeting the post cracking specialty of UHPC or is it strictly a UHPC then for preservation vs structural applications?

A. This will be Primarily for preservation.

Motion to Approve by J. Hauber; 2nd by J. Thorius
Motion carried with 14 Aye, 0 Nay, 0 Abstaining

5. **PROJECT EXTENTION, TR-794 "*Iowa Public Works Service Bureau, Phase 2*"**, Paul Wiegand, Iowa State University, \$400,000, (15 min).

Q. What has changed from the initial proposal to now and what is the additional proposal timeline?

A. We were over optimistic in our timeline. Being able to convince organizations to join us and getting the website up to be effective. It will take another two years to get the funding in place.

Q. What method have you used to get people to sign up?

A. Direct contract, asking the County Engineers to help with the smaller Cities in their Counties, attending City events, social work events and Local Systems Burro and there financial reporting system.

Q. Have you considered City's assisting in the funding?

A. Yes, looking at other funding options or having the Cities assisting in the funding if the Legislative action does not pass.

Motion to Approve by R. Knoche; 2nd by J. Thorius
Motion carried with 14 Aye, 0 Nay, 0 Abstaining

6. Granular Road Research Partnership with Camp Dodge, Brian Moore, ICEA Service Bureau

- a. "Effectiveness and Guidance of Aggressive Rehabilitation of Gravel Roads"
This is the first project being undertaken with the new partnership with Camp Dodge.

7. New Business

- a. The Low Volume Road Conferences is July 23-27, 2023. IHRB meeting July 27, 2023, at 9:30 am at the Double Tree Hotel, Room 310. There are three free registration codes for anyone that is interested.
- b. Next Month 3 RFPs approved and will be published on July 15 and proposals due September 1. <https://iowadot.gov/research/Requests-for-Proposal>
- c. STIC project Update:
- a. [AASHTOWare BrR Support and Training \(#3928\)](#) Selected for FFY23 Application
 - b. [Concrete Phoenix System to Determine w/c Ratio \(#3925\)](#) Selected for FFY24 Application in October – IHRB will solicit additional idea submittals for the remainder FF24 funds

The FFY23 application is ready to go, waiting for the direction from Management since they are changing the way we apply for Federal funds at DOT, August 8 is the deadline.

The second highest rated proposal is waiting until October to apply for next year's funding, this will take a portion of the one hundred and twenty-five thousand we have available for FFY24

8. Adjourn

Motion to Approve by R. Koester; 2nd by R. Knoche
Motion carried with 14 Aye, 0 Nay, 0 Abstaining

The next regular meeting of the Iowa Highway Research Board is scheduled for July 27, 2023, in DoubleTree by Hilton Hotel Cedar Rapids Convention Complex (350 First Avenue NE, Cedar Rapids, IA 52401); Room 310.

TB/VG