IOWA HIGHWAY RESEARCH BOARD (IHRB)

Minutes of December 7, 2006

Regular Board Members Present

S. Dockstader
R. Ettema
T. Fonkert
J. Ites
L. Jesse
J. Krist
M. Nahra
J. Rasmussen
R. Schletzbaum
C. Schloz
D. Waid

Alternate Board Members Present

J. Berger for J. Adam
J. Cable for J. Alleman
J. Singelstad

Board Members with No Representation

A. Abu-Hawash
J. Joiner

Secretary - M. Dunn

Visitors

Ed Engle	Iowa Department of Transportation
M. Nop	Iowa Department of Transportation
Mary Starr	Iowa Department of Transportation
S. Hallmark	Iowa State University/CTRE
N. Hawkins	Iowa State University/CTRE
M. Muste	The University of Iowa

The meeting was held at the Iowa Department of Transportation's East/West Conference Room, Materials Building, Ames, Iowa. The meeting was called to order at 1:00 p.m. by chairperson Jon Ites with an initial total of 13 voting members/alternates at the table.

Agenda review/modification

None

Approval of the minutes

Motion by Mark Nahra to approve the minutes from the October 27, 2006 meeting. 2nd by Clark Schloz. Carried 13 yea, 0 nay, 0 abstaining.

Certificate of Appreciation

Jon Ites and Larry Jesse were presented with a Certificate of Appreciation for their service to the Board and the engineering research community.

Election of Chair and Vice Chair for 2007
In rotation, a university representative will be elected to serve as the new Chair.
Rob Ettema nominated James Alleman from Iowa State University as Chairperson. Motion by Mark Nahra. 2nd by Scott Dockstader. Motion carried with 13 aye, 0 nay, 0 abstaining.

In rotation, a city representative will be elected to serve as the new Vice Chair.
Mark Nahra nominated Jeff Krist as Vice Chairperson. 2nd by Clark Schloz. Motion carried with 13 aye, 0 nay, 0 abstaining.

Announcement of new IHRB Member/Alt appointments beginning January 2007
The term of Ahmad Abut-Hawash, IA DOT, expires December 31, 2006; however, he will continue on the Board as will his Alternate Deanna Maifield.

- Jon Ites will be replaced by Jon Singelstad as Member for District 3; a new Alternate needs to be chosen for District 3.

- Jim Berger replaces Larry Jesse as Board Member.

- IA DOT Assistant Director of Maintenance William Zitterich will serve as Alternate to John Adam in place of Jim Berger.

- Steve Gannon will become Member for District 6 and a new Alternate will be chosen.

- Jim Ebmeier, Alternate for District 4, is leaving the County and a new Alternate for District 4 will be chosen.

Review of Business Plan
No changes were made to the IHRB Business Plan.

FINAL REPORTS

Final Report TR-542, "Development of Continuous Concrete Standards," Dean Bierwagen, IA DOT Office of Bridges and Structures, in Conjunction with Stanley Consultants ($390,000)

The project with Stanley Consultants has a maximum payable amount of $390,000 with the Iowa funds totaling $75,000 coming from outside services funding (non-IHRB). $342,922 was billed (3,834hours) thru the September 2, 2006 billing (96% authorized amount).

Format for final products of the research are PDFs, a MicroStation V8 and AutoCAD (development is in progress for this conversion program). The Board was shown where the Electronic Reference Library website is located, how new information will look and operate, and images of data sheets. The J (and perhaps the H) Standards will be operational April, 2007 and will be located at: http://www.erl.dot.state.ia.us.

New Standards were presented in the following categories: Bridge Descriptions, Design, Details (paving notches, open rail PL-4 and Epoxy Coatings) and status H-standards.

Final Report TR-542 is located at: http://www.dot.state.ia.us/bridge/countybrgstd.htm.

Motion to Approve
Motion to approve by Mark Nahra. 2nd by John Rasmussen.
Carried 13 yea, 0 nay, 0 abstaining.

PROPOSALS

IHRB Proposal 06-07, *Quantitative Mapping of Waterways Characteristics at Bridge Sites*, Marian Muste, The University of Iowa ($85,891)

Mark: Because this was submitted with the innovative projects as a sole source RFP solicitation, only a paper submittal is needed. [A brief review of the project was made.]

Q: What are the deliverables on this?

A: Software, training, digital maps (based on imagery processing for mapping of waterways approaching bridges, velocity of streams, etc., in a useable format). The cameras will be mobile and give panoramic views, 3-D re-construction for better documentation. Also, software for the camera will be developed.

C: There will also be a report; emphasis will be placed on the TAC. In addition, there will be a manual for software.

Motion to Approve
Motion to approve by Roger Schletzbaum. 2nd by Mark Nahra.
Carried 12 yea, 0 nay, 1 abstaining.

IHRB 06-10, *Development of LRFD Design Procedures for Bridge Piles in Iowa* Review and Discussion, Ken Dunker, IA DOT Office of Bridges and Structures ($250,000)

For many years the Iowa DOT Office of Bridges and Structures has selected foundation piles based on simple, allowable axial service load capacities for friction piles in soil and end bearing piles on competent soil and rock. Bridge designers have determined friction pile lengths and end bearing capacities from tables in the "Foundation Soils Information Chart." The 1989 chart is based on a large number of 1965-1987 pile load tests, as well as additional soils information.

The change to LRFD (by October 1, 2007) raises questions regarding structural, geotechnical, and drivability design practices. There is need for geotechnical resistance values for piles and appropriate resistance factors. The AASHTO LRFD Bridge Design Specifications have not been written for direct application of the Iowa pile load test data. Although the Office of Bridges and Structures will temporarily fit the "Foundation Soils Information Chart" to LRFD pile data, design procedures and construction procedures need to be examined and adjusted to the new LRFD specifications.

The overall objective of this research is to examine present pile design and construction procedures at the IA DOT and recommend changes and improvements that are consistent with the available pile load test data, current soils information, and bridge design by load and resistance factor design (LRFD). The recommended changes should not significantly affect design and construction costs.

Q: Will a new Wave equation or the old Pile Driving equation be used?

A: A new Wave equation will be used. Point bearing LRFD capacity will eliminate the old formula.

C: The existing pile charts for concrete piles are based on very minimal pile load test data and appear to be very conservative. There may be an opportunity to add to those through this project.

C: We should have an LRFD specialist involved in the project and need to make that distinction. This requirement may be added to the RFP.

C: There are structural and geotechnical issues here requiring examination; perhaps a partnership is needed between consultants and researchers.

C: There is the application of design vs. straight research.

Mark: We will examine these issues and get the RFP revised and sent out.

Current Roundabout Research Review and Discussion, Hillary Isebrands, Iowa State University

Hillary Isebrands, an Iowa State University doctoral student studying modern roundabouts on rural Midwest highways, presented a review of current issues for Roundabouts in Iowa, as well as problem statements and objectives for success in Roundabout location selection and implementation.

The following tasks are determined to be a priority for Iowa:

Task 1 – Organize Iowa DOT Roundabout Task Force (Established in April, 2006, 12 members meet monthly to decide the direction of Iowa's Roundabout and public education program; Iowa's suggested standards will be supplemental to the Federal documents.)
Task 2 – Literature Search
Task 3 – Synthesis of Practice
Task 4 – Draft Iowa DOT Roundabout Policies
Task 5 – Draft Iowa DOT Roundabout Design Screening Tools and Design Guidelines
Task 6 – Finalize Roundabout Design Policies and Guidelines
Task 7 – Public Involvement and Educational Support

To advance the creation of guidelines for Iowa, information from divisions Traffic & Safety, Local Systems, Maintenance, Media & Marketing, Systems Planning, Driver Services and Construction, among others, needs to be obtained. The IA DOT program overlaps IHRB interests.

Q: How do urban pedestrians react to walking through a Roundabout?

A: There is initial nervousness; typically, pedestrian crossings are two car lengths beyond the Yield line, so pedestrians do not cross between the cars. Not a lot of data on pedestrian walkways/cyclist safety exists in the U.S. because there aren't a lot of 'before' and 'after' numbers, but there are a surprisingly low number of incidents. In the UK, large Roundabouts have pedestrian signals.

Q: What is not covered in your research?

A: • Local road applications that compliment but do not overlap the DOT guidelines;
- Incorporating roundabout planning and design tools into SUDAS;
- Alternative analysis and cost benefits;
- Estimating safety benefits; and
- Operational analysis.

Q: Does safety decline after time? After people grow accustomed to the design?

A: No, not really; behavior is changed in order to navigate the roads. Geometry insists on changed behavior, versus a signal which is a visual warning only.

Q: These are used near elementary schools; do children cross between cars?

A: There is a crosswalk, yes; there appear to be no safety problems. In the U.S. there are over 50 roundabouts with no safety problems near schools. For elementary students, education is needed.

C: We might need to wait for the completed research in order to have our immediate concerns answered.

Q: Has cost been addressed?

A: No. Analysis for operational and safety issues and design standards are being developed for the IA DOT. Results will be available next summer. Case studies of financial implications can be reviewed.

Q: Where will IA DOT guidelines be found?

A: A Design Manual will assist in screening communities and help determine where to place Roundabouts.

C: Urban, fringe and rural placement guidelines are already defined in the Federal Guidelines; what we're doing in the Iowa guide is fine-tuning what's in the Federal Guidelines for application in Iowa.

C: Future research will be more profitable in a year or so after IA DOT Guidelines are established. Then we can ask, 'What hasn't been researched as far as local roads go?'

A: To examine other communities' experience with Roundabouts is essential; we also need to look to the UK for guidance.

Q: Are resources available to assist in explaining things when issues arise? If Design Standards haven't been concluded, we need assistance with planning.

A: IA DOTs Traffic Engineering Assistance Program is directed toward cities and counties with a population below 50,000; through this program and the Federal and Kansas Guides, assistance with development and design is available. The consultant is a national Roundabout expert (Kittleson & Assoc.) located in Portland, OR, acting as a sub-consultant to the DOTs traffic engineering experts.

Q: What about snow plowing the Roundabout?

A: We have hearsay only, and have learned that MN developed its' program through trial and error. This information is shared through word-of-mouth and currently is not documented.

NOTE: An update will be provided to IHRB in mid-2007 to assist in determining project direction.

NEW BUSINESS
None

ADJOURN
Motion to Adjourn
Motion by Clark Schloz, 2nd by Mark Nahra.
Motion carried with 13 aye, 0 nay, 0 abstaining.

The January 2007 meeting of the Iowa Highway Research Board will be held **FRIDAY, January 26, 2007 at 9:00 a.m. in the East/West Materials Conference Room at the IA DOT.**

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Mark J. Dunn, IHRB Secretary