IOWA HIGHWAY RESEARCH BOARD (IHRB)

Minutes of January 30, 2009

Regular Board Members Present

A. Abu-Hawash
J. Adam
D. Ahart
J. Berger
V. Dumdei
S. Gannon
J. Joiner
J. Krist
M. Nahra
S. Rinehart
J. Waddingham
W. Weiss

Alternate Board Members Present

W. Klaiber for Jim Alleman
A. Bhatti for Kerri Hornbuckle
E. Steffensmeier for Brian Moore

Members With No Representation

None

Alternates Present as Guests

K. Mayberry
R. Younie

Secretary - M. Dunn

Visitors

Max Grogg	Federal Highway Administration
John Thomas	Hungry Canyon Alliance
Donna Buchwald	Iowa Department of Transportation
Edward Engle	Iowa Department of Transportation
Sandra Larson	Iowa Department of Transportation
Tom Reis	Iowa Department of Transportation
Mary Starr	Iowa Department of Transportation
Jeramy Ashlock	Iowa State University-CTRE
Shashi Nambisan	Iowa State University-CTRE
Paul Wiegand	Iowa State University-CTRE
Chris Williams	Iowa State University-CTRE

The meeting was held at the Iowa Department of Transportation's Ames Complex, Materials East-West Conference room on Friday, January 30, 2009. The meeting was called to order at 9 a.m. by Chairperson Jim Berger with an initial number of 13 voting members/alternates at the table.

Agenda

Item seven on the distributed Agenda was postponed due to the possibility of presentation by the investigator from Michigan Tech at a future meeting. The Item is already an approved Pooled Fund project.

Approval of the Minutes

Motion by V. Dumdei to approve minutes from the December 4, 2008 meeting. 2nd by S. Rinehart.
Motion carried with 13 aye, 0 nay, 0 abstaining.

*** One Member Joined the Table***

PROPOSAL ***Review of Inconsistencies Between SUDAS and Iowa DOT Specifications*** **- PHASE III:** *Continued Implementation of Recommendations into SUDAS Specifications*, Steve Klocke, Snyder & Associates ($111,455)

BACKGROUND
Two SUDAS projects have been successfully completed. Phase I (TR-524), "Review of Inconsistencies Between DOT and SUDAS Specifications," included a detailed review and comparison of both sets of specifications and standard drawings. From this project, a set of recommended revisions to update and coordinate the two specifications were developed. Phase II (TR-565), "Implementation of Recommendations into SUDAS Specifications" took the recommendations from the Phase I project and incorporated them into selected sections of the SUDAS Specifications and standard drawings. Phase II focused on revising areas that the Phase I review committee identified as being the highest priority for the Iowa DOT's successful utilization of the SUDAS Specifications.

OBJECTIVES
Revision of the following:
1. Division 7: Streets and Related Work - Revise the specifications for Section 7040, Pavement Repair and Rehabilitation specifications.

2. Division 9: Site Work and Landscaping - Revise the specifications for Sections 9020, Sodding; 9030, Plant Material and Planting; 9050, Gabions and Rip Rap; 9060, Fencing; 9070, Retaining Walls; and 9080, Concrete Steps and Handrails.

3. Standard Drawings - Revise the SUDAS figures for the following sections: 7010, PCC Pavement; 7020, Hot Mix Asphalt; 7040, Pavement Repair and Rehabilitation; 9030, Plant Material and Planting; 9050, Gabions and Rip Rap; 9060, Fencing; 9070, Retaining Walls; and 9080, Concrete Steps and Handrail.

DISCUSSION: Because of state funding constraints, a choice must be made regarding funding SUDAS and the Leadership Academy projects at this time to allow for funding innovative projects and up to three new priority projects. Options are:

1. Delay the start date for SUDAS until July 1, 2009 when Primary funds become available;
2. Delay state funding until July 1, 2009 but have projects begin now;
3. Reduce the state's funding portion on this and the Leadership Academy project

Mark: All the funding isn't needed up front. We could obligate the state's portion of funding after July 1st.
C: The state has a huge interest in this and we should pay the normal share, even if we delay that portion.

Mark: That shouldn't have a huge impact on the state's budget next year. The big issue we had this year was funding the special flood profiles needed at the beginning of the year and then, trying to keep up with federal requirements for conversion of bridge standards to LRFD. Those kinds of projects aren't typical.

In order to meet IHRB project priorities on our list and fund innovative proposals, I think we should approve this project but delay the state's funding until July 1, 2009.

Motion to Approve State Funding at Full Amount of 40% but Delay State Obligations Until After the New Fiscal Year Begins July 1, 2009 by J. Adam. 2nd by J. Joiner.
Motion carried with 14 aye, 0 nay, 0 abstaining.

One Member Joined the Table

PROPOSAL *Iowa Public Employee Leadership Academy*, Duane Smith, Iowa State University/CTRE ($125,000)

BACKGROUND
Public agencies in Iowa are challenged with reduced staff levels and budgets, yet expectations have increased for services. The Iowa Local Technical Assistance Program (LTAP), in conjunction with Iowa's public agency representatives, will train the next generation of city, state and county leaders. In addition, the Academy will provide cross-training to allow full use of resources. Currently, a training program does not exist in the State of Iowa providing this level of training for managers and leaders of public agencies or those wishing to advance into those positions.

OBJECTIVES
The objectives for this project are to develop and post online modules, which will be offered for a fee, with a portion of those fees placed back into the Iowa LTAP budget; also, to provide a marketing identity for the Academy. This revenue stream is one way to lessen the annual IHRB budget request for LTAP in the future.

The committee has recommended a curriculum and course content for ten core modules:

1. Supervisory Techniques and Skills
2. Basic Management Skills
3. Effective Communication Skills
4. Leadership Skills
5. Community/Customer Service Skills
6. Legal Understanding
7. Fundamentals of Government
8. Finance
9. Resource Management Skills
10. Operations and Maintenance

Q: What do you mean by *Branding*?
A: That refers to the consistency of our promotional and training (print and online) materials.

Q: There is a budget item for Speaker Fees – what is that?
A: We're anticipating that some people we bring in may require fees; Iowa professionals will not have those as a rule. However, if we have a speaker on a special topic, we wanted to have some money to bring that person in (and for travel). The need for this hasn't been identified specifically for any individual, we're just assuming that will happen somewhere in the next two years.

Q: How much are you estimating to re-coup per session from the participants?
A: Currently, ISU Extension is around 35%, so the rest of that needs to be negotiated with them. We're anticipating between 50-65% to be put back into the program.
Q: How much will it cost per session for the student?
A: The registration fee is $75 to begin, but that may go up.
Q: But you're also not providing a room or a building, correct?
A: Correct. Once we're through the initial start-up costs, returned investment looks good.

Q: Is the cost $75 per module or for several modules?
A: It's $75 per day per module; however, some of them may be more than one day long, so the fee may be higher. For example: If you were to complete all ten modules and they were each one day long, that would be a total of $750. That's cost efficient because it eliminates travel and modules can be done at home or at work.

Q: Will there be webinars?
A: No. That is why these modules can be done 24/7 – it is more like a video.

Q: You're asking for start-up money, correct? You won't be coming back for more funding?
A: Correct. Fees will make this program sustainable. Every module's budget will have a line item for expenditures and for fees and revenues coming back into them.

C: You'll also have an idea of who is benefiting from using these modules from counties, cities and the state.

C: Recently, unused Street Funds from previous years have been indentified. Using these funds to supplement this project would be beneficial. Percentages could be: State 10%, Counties 50%, and Cities 40%.

Motion to Approve Funding at State 10%, Counties 50% and Cities 40% by J. Krist. 2nd by W. Weiss.
Motion carried with15 aye, 0 nay, 0 abstaining.

FINAL REPORT TR-541, "The Effects of Headcut and Knickpoint Propagation on Bridges in Iowa,"
Thanos Papanicolaou, The University of Iowa ($63,749)

BACKGROUND
This study utilized a field-oriented evaluation of the upstream migration rate of a knickpoint, a common form of channel degradation in western Iowa, in a representative channel reach using various methods. The observations recorded in the field study were then implemented into a one-dimensional, hydrodynamic/sediment transport model, known as the Steep Stream Sediment Transport 1-D model, or 3ST1D (developed by the PI), to predict further migration rates. This project will contribute to the development of a practical guidebook or manual for the Iowa DOT and county civil engineers during bridge monitoring efforts.

CONCLUSIONS

- The laser and pressure transducer measurements have identified the conditions at which the knickpoint migration commences. It suggests that negative pressures developed by the reverse roller flow near the toe of the knickpoint face triggers undercutting of the knickpoint (at the study location).

- The pressure differential between the negative pressure and the atmospheric pressure draws the impinging jet closer to the knickpoint face producing scour. In addition, the pressure differential may induce suction of sediment from the face.

- Other factors include slump failure, seepage effects, and local fluvial erosion due to the exerted fluid shear.

- The prevailing flow conditions and soil information along with the channel cross-sectional geometry and gradient were used as inputs to a transcritical, one dimensional, hydraulic/geomorphic numerical model, which was used to map the flow characteristics and shear stress conditions near the knickpoint. Such detailed flow calculations do not exist in published literature.

- The combination of field and modeling work resulted in the development of a blueprint methodology which can be adopted in different geographical areas for evaluating knickpoint evolution. This information has assisted in understanding the principal factors that cause knickpoint propagation and estimating the needed response time to control the propagation of a knickpoint after one has been identified.

Motion to Approve by J. Krist. 2nd by D. Ahart.
Motion carried with 15 aye, 0 nay, 0 abstaining.

ADDITIONAL FUNDING PROPOSAL TR-567 "Development of Stage Discharge Relations for Ungaged Bridge Waterways," Thanos Papanicolaou, The University of Iowa ($45,030)

BACKGROUND
Challenges with in-stream sensors (durability, maintenance, ice effects, and data transferability) have delayed this project despite continuous efforts to move toward completion. Some of the sensors (pressure transducers) have been reinstalled over the past 2 years but 8 of them have been significantly damaged and cannot be repaired due to last spring's extreme flooding. The additional time spent to reinstall the sensors has also delayed the overall progress of the project including the data collection necessary for the development of a stage-discharge relation for all 11 sites, which remains the main goal of this study.

OBJECTIVES

- Extend the project one year and implement a different type of sensor, namely Laser sensors, to complete this project with more robust results. Laser sensors do not need to be placed in the stream (necessary for the operation of the original pressure transducers). The Laser sensors will be mounted at each bridge site minimizing effects of ice. Further, the Laser sensors will be connected with data loggers for directly transferring the data to the HCA office (monitoring station).

- The Hungry Canyon Alliance (HCA) board has reviewed a request and will pay for the cost of the sensors (about $35K) with the condition that the IHRB provides additional funding for: 1. Laser calibration; 2. Completion of the LSPIV measurements and processing; and 3. Report Finalization.

C: The funding you're asking for is to replace damaged sensors?
A: No, HCA will pay for the replacement of sensors at the cost of $3,000 each; we're asking IHRB to fund calibration of the laser systems and the continuation of LSPIV measurements and writing the report, which is a minimal task. This additional funding will allow us to collect the additional data points. We're half finished, so this will allow us to complete the project using data from all eleven sites.

Motion to Approve Additional Time and Funding by D. Ahart. 2nd by J. Krist.
Motion carried with 15 aye, 0 nay, 0 abstaining.

NEW BUSINESS
None

ADJOURN
Motion to Adjourn
Motion by J. Joiner. 2nd by W. Weiss.
Motion carried with 15 aye, 0 nay, 0 abstaining.

The February 2009 meeting of the Iowa Highway Research Board will be held **FRIDAY, February 27, 2009 at 9:00 a.m. in the East/West Materials Conference Room at the Iowa DOT.**

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Mark J. Dunn, IHRB Secretary