IOWA HIGHWAY RESEARCH BOARD (IHRB)
Minutes of October 27, 2006

Regular Board Members Present

A. Abu-Hawash
J. Alleman
R. Ettema
T. Fonkert
J. Ites
L. Jesse
J. Joiner
M. Nahra
J. Rasmussen
R. Schletzbaum
C. Schloz
D. Waid

Alternate Board Members Present

J. Berger for J. Adam
R. Younie for Scott Dockstader
Jon Singelstad

Board Members with No Representation

J. Krist

Secretary - M. Dunn

Visitors

Ed Engle	Iowa Department of Transportation
Mary Starr	Iowa Department of Transportation
F. Wayne Klaiber	Iowa State University/CTRE
Muhannad Suleiman	Iowa State University/CTRE

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 9:00 a.m. by chairperson Jon Ites with an initial total of 13 voting members/alternates at the table. One member joined the table during the meeting bringing the voting total to 14.

Mark Dunn announced Iowa State University's invitation to Board members to tour their Structural Facility after the meeting to view panels for testing pre-cast projects currently underway.

Agenda review/modification

C: The next meeting date for the Board will be Thursday, December 7, 2006 at 1 p.m.; the Agenda states the meeting will be held Friday at 9 a.m.

C: Our IHRB December meeting typically follows the County Engineers Conference, meeting in the afternoon. It is corrected on the web site.

Approval of the minutes

- Motion by Robert Younie to approve the minutes from the September 29, 2006 meeting. 2nd by Clark Schloz. Carried 13 yea, 0 nay, 0 abstaining.

UPDATE AND DISCUSSION

TR-519, "Implementing a StreamStats Web Site for Iowa and Developing Flood-Estimation Equations for Small and Large Drainage Basins." Mark Dunn, IA DOT for David Eash, USGS (Reducing IHRB costs $13,200 to the amount of $243,622)

Originally the StreamStats program was going to cover 60% of the state data collection for the IHRB funds invested because there was some streams data that would not be available until later; since approval, data collection has been updated. The national hydrology data sets that previously were only available for 60% can now be complete by January 2007; that means the remaining 40% of the state can also be surveyed. The Iowa Department of Natural Resources (IDNR) has agreed to fund the processing for the other 40% so there'll be 100% coverage of StreamStats at the completion of the project with no additional cost to the Board.

The total funding has actually been lowered because of reduced overhead rates. Basically we'll get 100% coverage for about $13,200 less than originally thought; however, the additional work will add 10 months to the duration of the project. The contract will be reduced by the amount by $13,200.

C: The completion date is set for July, Fiscal Year 2009.

One Board Member joined the table bringing voting members to 14.

No vote was taken on the additional tasks and reduction of budget.

PROPOSALS

Proposal for the Continuation of HR-296, "Local Technical Assistance Program," Duane Smith, Iowa State University/CTRE ($130,000)

Purpose -
- Foster/promote LTAP within Iowa
- Encourage research implementation
- Communicate endeavors of the program
- Coordinate between entities
- Promote educational and training opportunities

Objectives - The main objectives of this program are to provide for the continuing transfer of technology and training to government agency personnel involved in providing transportation services as well as in public transportation. An advisory group meets regularly to provide input on the program and the delivery system. Major tasks involve publishing newsletters and other publications, providing technological information, conducting workshops and training sessions, providing a highway safety circuit rider and publications distribution.

Since 2000 almost 14,000 participants have taken part in the Iowa Roads Scholar Program which recognizes the need and desire of employees to learn and improve skills while providing managers tools for planning, budgeting training and education.

Tech News provides guidance for street and road workers on topics such as communicating with Spanish-speaking workers, control levels at Low Volume Road Intersections and other topics.

LTAP & Research: T^2 Summaries provide information on various topics such as testing structural behavior of alternative dowel bars, real time pavement thickness measurements and thin unbonded overlay performance on composite pavement, among others.

This is the first budget increase ($30,000) requested of IHRB since 2003. If funding does not increase, cuts will become necessary in either staff or implementation of programs. Other fund generating ideas are under consideration such as allowing advertising in *Tech News*.

2007 Training Opportunities include: Route Surveying, Successful Management, Construction Inspection, MoGO, Flagger Workshops, Traffic Studies for Engineers & Technicians, Winter Maintenance EXPO, Snow Plow Roadeo, Iowa Streets and Roads Conference, Alternating Training, Winter Maintenance Workshops (2006), Maintenance EXPO (2007), Snow Plow Roadeo Cedar Rapids (2006), Ames (2007), Route Surveying (2007) and Math Fundamentals (2008).

C: You mentioned that your LTAP board does not currently have IHRB representation.

A: There are 3 people on the Board with terms set to expire on 2008; they will be asked to serve on a sub-committee so we have some continuity and feedback with the Board.

Q: You mentioned that other states were interested in the Maintenance Manual; would that be something that could be used to generate some funds? Charge them above cost? With several hundred copies being requested from other states it seems a possible answer.

A: Yes, that's a real possibility; we haven't even advertised that manual yet. We would add on to reproduction costs.

A: South Dakota requested 200 copies for their county roads meeting, so there is potential.

C: For those quantities we couldn't use IA DOT printing.

Q: What about workshop fees? Is it true that workshop fees are above cost $10 per participant?

A: We try to match our onsite costs and then add $10 per participant. That was set as a goal a couple years ago, but with rising costs the funds were used quickly. IHRB money is used for staff; fees are used for workshop and site costs.

C: Is there is a possibility of emailing the newsletter to reduce cost?

A: Yes, but the funds mainly cover the publications group and their salaries, not mailings.

Motion to Approve
Motion by John Joiner, 2nd by Roger Schletzbaum.
Motion carried with 14 aye, 0 nay, 0 abstaining.

Proposal for *Modified Sheet Pile Abutments for Low Volume Bridges* (IHRB 06-05), David White, Iowa State University/CCEE/CTRE ($153,912)

This proposal was in response to an RFP therefore no presentation was made. The Board reviewed the proposal.

Proposal Summary - Iowa has approximately 25,000 bridges. Close to 80% of these bridges are on low volume roads (LVRs).

Based on the 2004 National Bridge Inventory data, 24% of the LVR bridges in Iowa are structurally deficient - 6% of them are functionally obsolete. Previous research for LVRs has focused on the superstructure component; however, much research work is still needed to alleviate deficient bridge substructure components. There have been few investigations of the substructures in LVR bridges.

Steel sheet piling is an alternative for LVR bridge substructure that has potential for providing an economical alternative to concrete bridge abutments. Investigation of vertical and lateral load resistance, construction methods and performance monitoring using modified sheet pile abutments for low volume bridges needs to be made.

Sheet piles not only have the capacity to resist movement from lateral soil pressures but also vertical gravity loads. Another advantage of sheet pile abutments is the reduced construction time since sheet piles do not require a significant amount of earthwork at the bridge site. Since sheet pile abutments also require less material and will be more cost-effective for LVR road bridges.

The main objectives of this study are:
1. Develop a design approach for sheet pile bridge abutments for short span, low-volume bridges including calculation of lateral stresses from retained soil and bearing support for the superstructure.
2. Formulate an instrumentation and monitoring plan to evaluate performance of sheet pile abutment systems including evaluation of lateral structural forces and bending stresses in the sheet pile sections.
3. Understand the cost and construction effort associated with building the sheet pile bridge abutment demonstration project.
4. Produce a report and technology transfer materials that provide recommendations for use and potential limitations of sheet pile bridge abutment systems.

C: The funding level is a little higher than the original Request for Proposal.

C: The length of time for the project is longer too; 36 months.

Motion to Approve
Motion by Mark Nahra, 2nd by Clark Schloz.
Motion carried with 14 aye, 0 nay, 0 abstaining.

Develop/Finalize RFPs for 2nd Solicitation for FY 06-07 (Final ranking list and topic descriptions in Board Packet) (45 minutes)

Mark Dunn presented the 2nd solicitation group of topics for RFPs to the Board. One RFP was not described but will be addressed at the next Board meeting.

IHRB 06-07 Quantitative Mapping of Waterway Characteristics at Bridge Sites

Mark: This RFP was submitted to the Board last year through the Innovative Project Solicitation and made the final 6 but was not one of the top 4. It involves equipment that is available at the University of Iowa but otherwise will have to be purchased elsewhere. It is my recommendation that a Single Source RFP request be sent to investigators at The University of Iowa.

Motion to Request a Single Source Proposal
Motion by Larry Jesse, 2nd by Jim Berger.
Motion carried with 13 aye, 0 nay, 1 abstaining.

IHRB 06-08 Roundabout Guidance for Local and Secondary Roads in Iowa

Mark: There is a task force within the IA DOT looking at this. We have invited someone from Traffic and Safety to speak to the Board.

Tim Simodynes, Traffic & Safety Office, IA DOT, addressed the Board.

There are about a dozen Roundabouts in the state, at this time all are on city streets either in residential areas or in new developments. We've seen some proven benefits from Roundabouts and we're looking at where they may or may not fit and the design process and elements.

We have a project with CTRE using Safety and Federal Research Funds; we're examining a few different areas and how we will incorporate this knowledge into manuals.

We'd like to have a statewide conference maybe in the summer of 2007. We attended one in Minnesota and learned of other's successes. We're learning ourselves what's out there and in Iowa, we're looking at preparing general guidelines and how to incorporate them into DOT internally; then, we'll examine how to share this knowledge with those outside DOT in the state.

Hillary Isebrands is an ISU Ph.D. student who is working on her dissertation on rural Roundabouts. She's gotten various grants and awards on this type of study. Our Traffic Engineering Assistance Program is also directed toward counties and cities with a population below 50,000 and we have a national Roundabout expert out of Portland, OR, who is acting as a sub-consultant to our traffic engineering experts. Through that program, assistance with development and design is available.

C: You mentioned local and secondary road intersections as well as minor primary intersections; have you looked at any rural areas in Iowa where a Roundabout might work? It would take up a lot of extra roadway in a place where turn lanes or stop control with rumble strips are currently used. Where could this design be applied?

A: That is why there are more Roundabouts in residential and new areas where speeds are already lower; but there are new ones, in Kansas for example, where there's a rural high speed area on a 2-lane road with a 5-lane intersection. That location has proved a great success with regard to safety.

Black Hawk County is considering one east of Waterloo on Hwy 218 and a County Road where there have been crashes; the issue is cost. The safety benefits are definitely there; they work. Maryland has good examples of high speed rural Roundabouts that work. It's a safety and cost issue.

Q: You mentioned that both of those in Iowa are urban?

A: Yes.

C: Of the 2 in Iowa, neither are high speed; in Bettendorf (35-45 mph) and Coralville (30 mph).

Q: With CTRE, are you seeing a significant difference between rural high speed Roundabouts and is that something that would be a gap in the types of roads we're looking at? Where would our proposal fit with what you're currently doing?

A: Some of the purposes may be different depending on if you're looking at capacity, simplifying a confusing intersection or high speed, severe crashes. The design elements are usually the same but you get more flexibility if there isn't truck traffic, such as in residential areas; it's all based on the slope of curves and the intuitive movements required to navigate through a Roundabout. In Roundabouts there are only minor crashes and not high speed crashes.

Q: Has the state looked at using Roundabouts on any rural intersections?

A: Yes, there's one in Black Hawk County; the other one is opening in Ottumwa, Iowa on US-63 and Hwy 34 soon. It's the first one in Iowa on a state highway.

C: Wouldn't it be more efficient to wait and examine the work being done now and if additional funding is needed, we could look at that later and the objectives and additional costs if you're study doesn't cover what we're after?

Q: What's the timeframe on this research?

A: September 31, 2007 is the completion date.

C: If there is parallel effort going on within IA DOT, we hate to put a proposal out.

A: Our emphasis is to set up a procedure within IA DOT on how and when to consider Roundabouts and adapt them into SUDAS.

Q: Will you only be looking at high volume rural roads?

A: No, another location is in Fayette County on Hwy 31 and Hwy 187.

C: Perhaps we should table this one and see what they come up with next September.

C: Can we get an interim report?

A: Yes, it would be good to get Hillary Isebrands to present to the Board.

Mark: We could see when or if she might present to the Board. Maybe we could have her present at the December meeting.

C: It would help us do a better job with this.

C: In Black Hawk County the cost is close to $1M.

A request will be made to have the CTRE project team address the Board to provide an update on their progress and facilitate discussion on how it might be amended to include local jurisdictions.

IHRB 06-09 Identification of Practices, Design, Construction, and Repair Techniques of Utilities Using Trenchless Technology

Mark: This idea was submitted by Jeff Krist and the Cities; Jeff has indicated he would be the Technical Contact on this RFP.

C: The funding level is unknown; it would involve sensors.

C: It would be appropriate to see the funding level and time frame the same as Phase II of the Utility Cut project.

Mark: I will look at the Utility Cut funding and see what that funding was; I'll set it at approximately the same level.

IHRB 06-10 Review and Update the Iowa DOT Soils Design Chart for Bridge Pile Foundation

Mark: We continue to work with Soils Design and the Bridge Office in coming up with an RFP for this project; we will present this RFP at the December meeting.

IHRB 06-11 GIS-Based Decision and Outreach Tools for Aggregate Source Management

Q: Will a Materials person be the contact?

A: Our Geologist Bob Dawson will be the Technical Contact.

C: This work is very consistent with the committee's view of what should be done nationally.

Q: What is the funding level?

A: $50,000-$100,000 and 12-18 months.

C: It's not a lab intensive one; funds are primarily salary. I suggest $50,000-$75,000.

IHRB 06-12 Improving Safety for Slow Moving Vehicles on Iowa's High Speed Rural Roadways

C: The information is going into SUDAS, I'm not sure our research effort should be targeting SUDAS. Perhaps output should be more in design guides rather than SUDAS. We need the right researchers for this project.

You have high speeds in agricultural areas, not the urban areas. We're not talking about an urban area here; this is more of a rural function…with farm equipment. Part of the outreach for this might be education. The urban perspective is not what we're looking for here.

Mark: I will revise this with consideration of the comments made.

C: There should be an educational outreach with associated agricultural groups; some of the solution lay within the rural community.

Q: You're saying add in recommendations such as signs on farm equipment?

A: Yes; that and things like getting our rural design guides to reflect what a tractor and/or wagon needs to travel safely along highways and rural roads.

Mark: Do you want me to resubmit this after I make the changes?

A: Email it to the Board and we'll email our comments to you.

REVIEW

Review of recent IHRB research implementation, Ed Engle, Iowa DOT

Ed Engle gave an overall research implementation presentation to the Board for projects TR-527, "Guidelines for Removal of Traffic Control devices in Rural Areas," TR-427, "Evaluation of High Slump Concrete for Bridge Deck Overlays," and TR-473, "Rehabilitation of Concrete Pavements Utilizing Rubblization & Crack & Seat Methods."

We're looking at putting together a form for monitoring implementation using the Wisconsin form as an example for focusing on tracking implementation on projects; rather than making phone calls, etc., we would utilize this form. The TAC has been tasked with putting together an implementation plan.

The first form really provides a nice structure for this, including asking for an overview and what is recommended from the research and what changes should be made. The second form is one used 12-24 months after the research project and asks what was implemented and adopted out of the research.

Q: What is done with the form after it's filled out?

A: It is filed; currently we keep information on all of our projects from 1949.

Q: Wouldn't they put the implementation and impacts part of it in the Final Report?

A: They can put the implementation plan as part of the Final Report. It's part of their (WI) project closure to make sure that all has been done. Easily, it could be part of the Final Report. This would provide a structure for it.

TR-527 – Out of 8 county engineers I spoke with, 100% of them had all received the information and had discussed this with their boards and put in place policies and not surprisingly, none of them had looked seriously into removing any stop signs. At the same time there are liability issues; however, half of those I spoke with said that when dealing with the public this report was a tool to explain why there was or was not a sign at the intersection in question.

TR-427 – Several of these types of bridge decks have been installed in Buchannan County. Some bridges in need of repair have been found in too poor a condition for overlay, so it has not been used overall; however, several more overlays are planned. Based on the report, Dyersville, IA, engineers are going to install at least 1 of these on a bridge deck. In Waterloo, patching-type repairs have been made on bridges in the city and at the John Deere Testing Facility. The IA DOT has been using this method for the past 3 years on a dozen projects and it has been very popular.

TR-473 – The IA DOT doesn't do a lot of these types of projects but there are a few. There is software associated with this project that is of great assistance to counties because it gives the structural estimates needed for design. The IA DOT has standardized use of the multi-head type breaker.

NEW BUSINESS
Q: When will research on sub-divisions be completed?

A: March 2007. There will be a TAC meeting sometime in December.

C: The next IHRB meeting will be in December, not November. The meeting will be held on Thursday, December 7 at the IA DOT from1 p.m.-4:30 p.m. here at the IA DOT.

ADJOURN
Motion to Adjourn
Motion by Robert Younie, 2nd by Rob Ettema.
Motion carried with 14 aye, 0 nay, 0 abstaining.

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Mark J. Dunn, IHRB Secretary