

# IOWA HIGHWAY RESEARCH BOARD (IHRB)

*Minutes of September 30, 2005*

## **Regular Board Members Present**

J. Adam	L. Jesse
S. Dockstader	J. Krist
R. Ettema	C. Marker
T. Fonkert	M. Nahra
R. Gould	R. Schletzbaum
J. Ites	C. Schloz

## **Alternate Board Members Present**

E. Jaselskis for J. Alleman  
R. Knoche for J. Joiner  
D. Short for L. Brehm  
A. Abu-Hawash  
M. Kerper  
J. Rasmussen

## **Board Members with No Representation**

None

## **Secretary**

M. Dunn

## **Visitors**

Sara Buseman	<i>Iowa Department of Transportation</i>
Dave Claman	<i>Iowa Department of Transportation</i>
Ed Engle	<i>Iowa Department of Transportation</i>
Mike Heitzman	<i>Iowa Department of Transportation</i>
Sandra Larson	<i>Iowa Department of Transportation</i>
Rob Baker	<i>Iowa State University</i>
Gary Taylor	<i>Iowa State University</i>
J(Hans) van Leeuwen	<i>Iowa State University</i>
Chris Albrecht	<i>Iowa State University/CTRE</i>
Steve Andrie	<i>Iowa State University/CTRE</i>
Halil Ceylan	<i>Iowa State University/CTRE</i>
Neal Hawkins	<i>Iowa State University/CTRE</i>
Larry Stevens	<i>Iowa State University/CTRE</i>
Paul Wiegand	<i>Iowa State University/CTRE</i>
David Eash	<i>USGS</i>
Greg Nalley	<i>USGS</i>
Jon Nania	<i>USGS</i>

The meeting was held in the East/West Materials Conference Room at the Iowa Department of Transportation (Iowa DOT), Central Complex, in Ames, Iowa. The meeting was called to order at 9:05 A.M. by Larry Jesse with 13 voting members/alternates at the table.

#### **Agenda review/modification**

- None.

#### **Approval of the minutes**

- In the section discussing the extension proposal for TR-498, it was noted that the motion should read “extension proposal” instead of “final report”.
- Charles Marker moved to approve the minutes from the June 24, 2005 meeting with the noted change. Scott Dockstader seconded. Carried with 13 yes, 0 no, and 0 abstaining.

#### **Final Report for TR-473, “Rehabilitation of Concrete Pavements Utilizing Rubblization and Crack and Seat Methods”**

- Dr. Halil Ceylan, Iowa State University (ISU)/ Center for Transportation Research and Education (CTRE), reviewed the background, project objective, design approach, visual basic program, conclusions, recommended future research and acknowledgements of the final report.
- It was mentioned that the modulus of the asphalt is a main design input parameter for the overlay, so depending on what type of asphalt layer exists, it needs to be calculated and used accordingly to get a base thickness for the overlay.
- It was clarified that the statewide average moduli values for HMA were taken from the new AASHTO Design Guide and used in the design program. These values are listed in Table 6 of the report.
- It was explained that if FWD could not be used, the testing would involve coring and having the cores analyzed in the lab. The Iowa DOT Special Investigations Section in the Office of Materials can do FWD testing, through special requests.
- During the presentation two additional voting members joined the table, bringing the number to 15.
- John Adam moved to approve the final report. Todd Fonkert seconded. Carried with 15 yes, 0 no, and 0 abstaining.

#### **Problem Statement, “Rehabilitation of Concrete Pavements Utilizing Rubblization and Crack and Seat Methods, Phase II: Performance Evaluation of Rubblized Pavements in Iowa”**

- Dr. Halil Ceylan, ISU/CTRE, presented the background summary, objectives, five tasks of the research plan, benefits, Iowa DOT involvement, time schedule, and budget of the Phase II problem statement.
- It was clarified that the title of this problem statement was listed this way only to show the relationship to the previous project. It is anticipated that the title for the Phase II portion of

research will be “Performance Evaluation of Rubblized Pavements in Iowa.” The Board was asked to give input if there is a desire to have crack and seat performance compared to rubblized sections.

- Scott Dockstader moved to approve the problem statement and invite that a proposal be submitted to the Board. John Adam seconded. Carried with 15 yes, 0 no, and 0 abstaining.

*Note:*

- Unless otherwise stated, the funding will be the “standard” split of 40% Primary, 50% Secondary and 10% Street. These percentages match the approximate level of input of funds to the Board from each jurisdiction.

### **Final Report for TR-535, “Applications for Reuse of Lime Sludge from Water Softening”**

- Dr. J(Hans) van Leeuwen, ISU/CTRE, discussed the background of Phases I (TR-459) and II (TR-535); the overall problem statement; the goal of the Phase II research, with the focus on a geotechnical use for road construction fill; and the general potential benefits of lime sludge reuse.
- Rob Baker, ISU, continued with test details and data, quantities (in tons) of lime sludge production and stockpiles of various Iowa cities, example of related costs to use the material in a construction project, and an overall summary of the final report results.
- It was discussed that the company that dewateres the lime sludge acquires it from the cities and incurs the cost of dewatering, then is able to sell it – commonly to farmers at this time. Cities frequently pay to dispose of the lime sludge currently. There was discussion of cutting out the middleman, but then having the dewatering issue. The lime sludge, when ready to mix with fly ash for construction fill, is at 42% moisture - before dewatering, it has a consistency similar to toothpaste.

*Motion and Second:*

- Jon Ites moved to approve the final report. Charles Marker seconded. Carried with 15 yes, 0 no, and 0 abstaining.

*Additional discussion:*

- Considering that there would be scenarios that would be economical for the use of lime sludge (most likely when fly ash and lime sludge would be readily available and adjacent to a construction site), it was requested that a frequently used special provision be developed. It was discussed that a state or county standard specification would not be appropriate because it would most likely be used in a city application. It was also mentioned that it could be beneficial for SUDAS to be involved with this development.

*Vote:*

- Carried with 15 yes, 0 no, and 0 abstaining.

### **Proposal for continuation of HR-140, “Collection and Analysis of Streamflow Data”**

- Greg Nalley, United States Geological Survey (USGS) explained the 3 programs of HR-140, streamgaging program, crest-stage program and flood profiles program; the 55% IHRB and 45% USGS cost share; and some particulars and photo examples of the streamflow monitoring and crest-stage program.

- David Eash, USGS, mentioned that the continuous gages and crest-stage gages are the baseline data used in the IHRB flood estimation studies and the crest-stage gage network is providing a majority of the data for IHRB study, TR-519, “Developing Flood-Frequency Discharge Estimation Methods for Small (under 50 square mile) Drainage Basins in Iowa.” A map showing locations of the flood profile reports done in cooperation with the IHRB project, which started in 1957, and a map showing the area of the last completed report and the current report, plus the profile information were also reviewed.
- It was explained that significant flood events, in cooperation with the Iowa DOT guidance, determines what areas will be covered in a flood profile report.
- It was mentioned that the USGS website shows the location of the gages which are installed across the entire state.
- It is realized that travel is a large portion of the budget; however with the costs of the initial set up for remote sensors and current budget constraints, it isn’t feasible to go that route at this time. USGS has purchased more fuel efficient vehicles, which helps save some costs.
- It was agreed that the work that has gone into USGS HR-140 programs should be commended for having provided invaluable information for many years and should continue; however there was discussion concerning the need for a more in depth proposal, especially due to the large amount of funding. It was asked that the relationship to other IHRB projects be shown. One suggestion to show this was a flowchart or table of all USGS work. Another suggested area mentioned to further detail was a more in depth description of the three programs involved in HR-140 and an overall synthesis of the relationship among the programs to one another, how the data is used and how it benefits highway transportation research. It was also recommended that anticipated future funding be indicated in the proposal being submitted. It would be beneficial to include a map of the gaging stations as well. It was requested that research be done to show a basic summary of how surrounding states fund similar programs.

*Motion and second:*

- Mark Nahra moved to approve the continuation proposal. Clark Schloz seconded.

*Additional discussion:*

- It was clarified that distribution of final reports for flood profiles is handled through the Iowa DOT Bridges and Structures Office and are sent only to affected counties. Due to this type of distribution, some of the members/alternates have not seen any reports. It was suggested that some of the reports be available for the Board to look over at future meetings when the proposal is reviewed.

*Vote:*

- Carried with 15 yes, 0 no, and 0 abstaining.

**Extension Proposal for HR-375, “Transportation Research Board Education for County Engineers”**

- Ed Engle, Iowa DOT, explained that funds from the Secondary Road Research Fund have been used since 1995 to send the two county engineers who will be starting their regular member terms on the IHRB to the Transportation Research Board (TRB) Annual Meeting each year. The last time funds were added to the project was in 2000. With the average cost ranging from \$800 to

\$1,200, and a slight increase anticipated, the additional amount of \$15,000 was requested for the next 5 years.

- Charles Marker moved to approve the proposal with 100% Secondary funding. Clark Schloz seconded. Carried with 15 yes, 0 no, and 0 abstaining.

**Proposal, “Technology Transfer Toolbox: A Research Implementation How-to-Guide”**

- Ed Engle, Iowa DOT, discussed the problem of implementation and the intent of this Pooled Fund Study to provide a toolbox to help with it. The Pennsylvania DOT is the sponsoring agency. If the Iowa DOT participates at the required level of \$20,000 per year (2 year study), there is the opportunity to sit on the technical committee for the project and to receive full use of the tools at its conclusion.
- It was clarified that the project cannot begin until it has received full funding. If, after time, it does not receive enough funding, the scope can be reworded and it can be resubmitted. The Board will be kept informed of the project’s activity.
- It is recognized that the Service Bureau is a valuable tool to aid in technology transfer involving the county oriented IHRB (and other research) activity.
- One of the goals for the Iowa DOT Operations Research Section is to report quarterly to the IHRB on implementation progress. More information on the Operations Research implementation changes will be discussed under agenda item 11.
- It was mentioned that the Construction Industry Institute (CII) has done some work with the implementation issue and it is recommended that this study look at their ideas/findings/progress.
- During the presentation one voting member left the table, reducing the number to 14.
- Scott Dockstader moved to approve the proposal. Roger Gould seconded. Carried with 14 yes, 0 no, and 0 abstaining.

**Review/Select proposals from 1<sup>st</sup> Solicitation for FY 2005-2006**

***IHRB-05-02, “Development of Self-Cleaning Box Culvert Designs”***

- One proposal was received from Marian Muste and Peter Haug, The University of Iowa (U of I).
- *Comments and discussion:*
  - On page 10 - flume number 2, it was assumed that the inlets of wood and sheet-metal were being added to get a friction which would simulate either corrugated metal pipe or concrete. It was requested that this be clarified as the intent to ensure that it will be done.
  - With western Iowa soils having properties different than sand, it was requested that silty loam clay also be used in the hydrological flow test to provide more of a true comparison to what is in the field.
  - Dr. Ettema ensured the Board that he would report these items to the Principal Investigator (PI).
- *Issues/Concerns that the board would like staff to address:*
  - None

- *Vote to approve:*
  - Charles Marker moved to approve the proposal with the above clarification and addition. Mark Nahra seconded. Carried with 13 yes, 0 no, and 1 abstaining.

***IHRB-05-03, “Revision to the SUDAS Traffic Signal Design Guide”***

- One proposal was received from Neal Hawkins, ISU/CTRE.

- *Comments and discussion:*

- None.

- *Issues/Concerns that the board would like staff to address:*

- None

- *Vote to approve:*

- Jeff Krist moved to approve the proposal. Ron Knoche seconded. Carried with 14 yes, 0 no, and 0 abstaining.

***IHRB-05-04, “Investigation of Electro-Magnetic Gauges for Determination of In-Place Density of HMA Pavements”***

- One proposal was received from Chris Williams, Halil Ceylan, Ed Jaselskis, Russ Walters, Kasthurirangan Gopalakrishnan, and Andrea Kvasnak, ISU/CTRE.

- *Comments and discussion:*

- It was clarified that the cores taken by the contractor will be used for the project.

- *Issues/Concerns that the board would like staff to address:*

- None

- During the discussion, one voting member returned to the table, raising the number to 15.

- *Vote to approve:*

- Roger Gould moved to approve the proposal. Mark Nahra seconded. Carried with 14 yes, 0 no, and 1 abstaining.

***IHRB-05-05, “Investigation of the Impact of Rural Development on Secondary Road Systems”***

- The following two proposals were received:
  - Paul Hanley and David Forkenbrock, U of I; and
  - David Plazak and Gary Taylor, ISU/CTRE.

- *Comments and discussion:*

- It was thought that ISU/CTRE’s proposal was more responsive to the RFP. The focus was on both rural subdivisions and effects of livestock confinements and/or windmills on more isolated rural road areas.
  - In the U of I proposal, the idea of out growth was directed towards West Des Moines. It was felt that this project should be geared more toward smaller communities with fewer resources available.
  - It was asked that it be directed back to the U of I PIs that in the tasks of the project, it appeared that only the subdivision aspect was addressed and not the livestock issue.
  - It was mentioned that the ISU/CTRE proposal recognized the impact of recreation and natural resources as an attractive component of development.

- Both proposals were complimented on an innovative approach concerning a combination of engineering and non-engineering Technical Advisory Committee (TAC) members.
- The impact assessment spreadsheet included in the ISU/CTRE proposal was thought to be a good enhancement.
- *Issues/Concerns that the board would like staff to address:*
  - None
- *Vote to select (and approve):*
  - U of I: 0 votes
  - ISU: 13 votes – **Selected (and approved due to number of votes being 8 or more)**
  - 2 abstaining

***IHRB-05-06, “Roadway Design Standards for Rural and Suburban Subdivisions”***

- One proposal was received from Paul Wiegand and Larry Stevens, ISU/CTRE.
- *Comments and discussion:*
  - None
- *Issues/Concerns that the board would like staff to address:*
  - None
- *Vote to approve:*
  - Roger Schletzbaum moved to approve the proposal. Charles Marker seconded. Carried with 15 yes, 0 no, and 0 abstaining.

**Review of draft RFP letter and Business Plan language addressing solicitation of pilot projects for novel ideas and fundamental advances**

- Editorial changes were given to Mark Dunn.
- It was clarified that the language “a limited number of proposals will be invited” in the letter referred to the solicitation list being limited to Iowa, not nationwide.
- The direction given from the university Board members to their staff will impact the direction of ideas that are likely to come to the Board. It needs to be stressed that that the research be highway related. Mark Dunn will act as the initial filter for the proposals. This year will be a good trial to see how well this process goes.
- It was suggested to bold “seed funding” in the letter so that the potential PIs realize that this will have limited funding. No other changes were suggested for the letter.
- Having the PIs give presentations will be considered with this type of solicitation.
- The RFP letter will be sent out 1 ½ to 2 months prior to the due date. It was thought that a good time for potential PIs to develop these proposals would be over winter break. After looking at the IHRB Calendar of Activities, it was decided that the February meeting will be when the proposals will be reviewed.

- Mark Nahra moved to approve the change to the Business Plan. Clark Schloz seconded. Carried with 15 yes, 0 no, and 0 abstaining.

### **Review of proposed Business Plan modifications due to changes with implementation**

- Ed Engle reviewed the proposed changes to the Business Plan (Section 5 and Attachment) in regards to the TAC and PI responsibilities regarding implementation.
- It was asked that this written list of TAC responsibilities and a proposal, with full budget, be given to the TAC by the PI.
- Currently quarterly reports are required from the PI; it is desired that the quarterly reports also start to be reviewed by the TAC as well.
- It was thought that it may improve the lines of communication with the IHRB if one of the Board members/alternate sits on each of the TACs or if a committee is quite small, that it be considered that one of the DOT staff members to the Board sit on the committee.
- Mark Nahra moved to approve the change to the Business Plan with the request that the PI be instructed to give the TAC members a copy of the TAC responsibilities as well as a full proposal with budget at the start of a project. Clark Schloz seconded. Carried with 15 yes, 0 no, and 0 abstaining.

### **New Business**

- It was mentioned that an update to the prefabricated bridge elements should be available by the December or January meeting. This was the first priority on the IHRB topic list for this fiscal year and the RFP was put on hold until a more specific scope was determined.
- The 7<sup>th</sup> prioritized topic, “Conduct a synthesis of past IHRB projects” was also discussed. The intent was to help people learn about completed research and how to access it. The implementation work that was proposed by Ed Engle earlier in the meeting may address much of this issue. It was mentioned that the Operations Research website contains this information and is searchable by topic. The Transportation Research Information Services (TRIS) website also contains searchable research projects. It was suggested that demonstrations showing the use of these websites (and possibly others) be considered for the county engineers meeting in December and an American Public Works Association (APWA) meeting as well. It was suggested that the Service Bureau be given the web address to allow for direct links to these sites. A printed list by topic, which could be updated each year, was also suggested to be considered.

**Todd Fonkert moved to adjourn the meeting. Roger Schletzbaum seconded. Carried with 15 yes, 0 no, and 0 abstaining.**

**Date of Next Meeting: THE NEXT MEETING WILL BE HELD FRIDAY, OCTOBER 28, 2005 AT 9:00 A.M. IN THE EAST/WEST MATERIALS CONFERENCE ROOM AT THE IOWA DOT, CENTRAL COMPLEX, IN AMES, IOWA.**

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Mark Dunn, IHRB Secretary