

IOWA HIGHWAY RESEARCH BOARD

Minutes of May 21, 2004

Regular Board Members Present

J. Adam	L. Jesse
L. Brehm	J. Krist
R. Ettema	C. Marker
T. Fonkert	M. Nahra
R. Gould	G. Parker
J. Ites	C. Van Buskirk

Alternate Board Members Present

S. Andrle for L. Greimann	A. Abu-Hawash
J. Berger for R. Gould	R. Schletzbaum
S. Gannon for C. Schloz	B. Younie
G. Miller for J. Selmer	

Board Members With No Representation

None

Secretary

M. Dunn

Visitors

Bruce Brakke	<i>Iowa Department of Transportation</i>
Sara Buseman	<i>Iowa Department of Transportation</i>
Ed Engle	<i>Iowa Department of Transportation</i>
Sandra Larson	<i>Iowa Department of Transportation</i>
Norm McDonald	<i>Iowa Department of Transportation</i>
Wes Musgrove	<i>Iowa Department of Transportation</i>
Marty Sankey	<i>Iowa Department of Transportation</i>
Muhannad Suleiman	<i>Iowa State University</i>
Dave White	<i>Iowa State University</i>
Terry Wipf	<i>Iowa State University</i>
Tom Cackler	<i>Iowa State University/CTRE</i>
Shauna Hallmark	<i>Iowa State University/CTRE</i>
Chuck Jahren	<i>Iowa State University/CTRE</i>
Kelly Strong	<i>Iowa State University/CTRE</i>
Brent Phares	<i>Iowa State University/CTRE</i>
Larry Stevens	<i>Iowa State University/CTRE/SUDAS</i>
David Eash	<i>USGS</i>

The meeting was held in the Oak Room at the Des Moines Botanical Center, in Des Moines, Iowa. The meeting was called to order at 9:00 A.M. by Greg Parker.

Agenda review/modification

- No additions or modifications.

Approval of the minutes

- Mark Nahra moved to approve the minutes from the April 23, 2004 meeting with no additions or corrections. John Adam seconded. Carried with 13 yes, 0 no, and 0 abstaining.

Problem Statement, “Visual Representation and Decision-Support for Identifying and Communicating Secondary Road Upgrade, Downgrade, and Maintenance Decisions”

- Dr. Kelly Strong, Iowa State University/CTRE, explained the project statement/goal, principal investigators, budget, schedule, and tasks of the proposed research. Using the data for Harrison County from Steve DeVries' project TR-477, “Total Cost of Transportation Analysis - Phase II” (HR-388 - Phase I), sample maps with different attributes were shown as overlay examples to give an idea of the output of the project.
- With this research covering approximately only 4-5 counties, it was discussed that a phase II proposal may be brought back to the Board once the investigators have a better idea of the costs involved to do a user manual and a GIS link for the remaining counties.
- Discussions for the project have been with Story and Harrison counties. Steve DeVries had also mentioned Polk and Carroll counties to the investigators.
- It was asked how the product of this research may be an advantage over a Geographical Information System (GIS) in which some counties have already invested. This project would take the data from TR-477 and integrate it into an existing GIS database. This would allow the information from the tables to be put into maps to show a visual representation which could be more easily used on a day to day basis. It was discussed that it could be tailored to be in whatever output form would be most beneficial to each county on a county-by-county basis. It wasn't clear, however, on how many counties may already have a GIS or what their needs would be.
- It was mentioned that the advisory committee for this project would be heavily relied on to form the scope of information to be included. It was thought that it may be useful to include a traffic change aspect; for instance, if a large traffic generator moved in, give an overlay to be used for planning. The political aspect of using this information was also discussed. It was mentioned that layering in the crash data and structures inventory could be helpful in supporting an identified need for upgrade.
- It was expressed that this system could probably help some of the smaller counties get up to speed, could be helpful for planning and could provide a visual aid product to which others may be more receptive. However, the idea that some county engineers are probably more familiar with their road systems than this product would provide and that some of the counties would not have what is technically need to work with the system or finances to get them there, was also discussed.

- The current pavement management system was discussed. Until the counties make a legislative recommendation for allocating money among the counties, the data collection will remain the same as now. At this time, it isn't known what types of tools are needed. It was mentioned that TR-477 was considered as an option for the new method, but was not selected as the form for the next road use tax distribution formula.
- After discussion, it was recommended that instead of starting with this project at this time, that the counties be surveyed to see what they already have, how familiar they are with their road systems already, and if this type of product/information is wanted and needed. It was also recommended that Steve DeVries is contacted for more input and to see if it would be possible for this to be a service provided by the ICEA Service Bureau. There is a county meeting on July 8th in Ames which may be a good time to obtain this information.
- Another item recommended was that the investigators also look into the GIS platform that is thought to already exist at the state level and see if it can be added to.
- Mark Nahra moved to reject the problem statement as submitted and recommended to the investigators that further work be done with the county engineers on developing the concept. Lyle Brehm seconded. Carried with 14 yes, 0 no, and 1 abstaining.

Proposal, Monitoring Wind-Induced Vibrations/Stresses in a High Mast Lighting Tower”

- Dr. Terry Wipf, Iowa State University/CTRE, presented the problem statement, the background, the objectives, the research tasks, the implementation/technology transfer plans, the benefits, the staffing overview, the time schedule and budget for the proposed research. With paperwork not currently completed for the proposed PennDOT matching funds, funding of \$80,819 was requested. If the \$10,000 is approved by PennDOT, the IHRB budget will be reduced accordingly.
- It was clarified that there is no knowledge of any other high mast tower monitoring being done nationally, yet the problem seems to be wide spread. With the imminent need for this information due to safety and a consultant available for the work currently being proposed, it was thought that to move ahead now would be better than trying to coordinate a pooled funding effort. It was mentioned that it may be useful to add another task to the project to include a brief nationwide literature review of this problem.
- It was assured that there will be a high level of diagnosis done in this study.
- After discussion on if the monitoring of one tower would be representative of all the towers or not, it was clarified that Robert Dexter felt that with the data collected, information could be extrapolated and assumptions could be made across to others towers. In the Clear Lake interchange area, which is the location of the tower to be monitored, eight towers were constructed in 1999. Three of those towers have since had to be taken down because of cracking and one has fallen. The location and type of tower is felt to be appropriate for the project. Also, none of the towers are round, and towers throughout the nation seem to be configured quite similarly and commonly range from 100 to 150 feet (the test tower is 140 feet).
- Glen Miller moved to approve the proposal with the funding level of 100% Primary. Larry Jesse seconded. Carried with 15 yes, 0 no, and 0 abstaining.

Proposal, “Developing Flood-Frequency Discharge Estimation Methods for Small Drainage Basins in Iowa”

- David Eash, USGS, presented the problem statement; project objectives; map of 3 hydrological regions in Iowa and gages less than 50 square miles; graphs showing relationships between 100-year flood-frequency analysis estimates and drainage for gages in Regions 1, 2 and 3; information on states that have developed equations for smaller drainage basins; information on the final report decision process, which will be published after consulting with the Iowa DOT to chose which method is more accurate between the small basin regional regression equation (SBRRE) and the developed probabilistic rational method (PRM) in estimating flood-frequency discharges for small drainage basins; project funding and schedule of the proposed research.
- It was also noted that the project will include comparing flood estimates from SBRRE, PRM, 2001 report equations, and Iowa Runoff Chart to Bulletin 17B flood-frequency analyses.
- It was requested that the Laras 1987 report also be included in the comparison, because it seemed to work better in small drainage basins as compared to the 2001 report. This was agreed to.
- It is possible that more regions will be developed with this research. Region 2 may be broken into additional regions.
- There was discussion on whether this project and the project, “Evaluation of Design – Flood-Frequency Methods for Iowa Streams” (also a priority project for FY 04-05, topic submitted by Allen Bradley, The University of Iowa) should be done jointly or separately. Dave Claman, Iowa DOT, was contacted by phone during the meeting and recommended that the projects be done separately and that he would coordinate both efforts to avoid duplication and to ensure that information could be easily shared. He was confident that the two would compliment each other, but separate methods would be investigated in each effort.
- With the information from Dave Claman and the currently available matching funds from USGS, it was decided to move ahead with this project at this time.
- Mark Nahra moved to approve the proposal as submitted with the recommended funding split of 45% Primary, 45% Secondary and 10% Street. Jeff Krist seconded. Carried with 13 yes, 1 no, and 1 abstaining.

Final Report TR-482, “Determination of the Optimum Base Characteristics for Pavements”

- Dr. David White, Iowa State University/CTRE, handed out a Technology Transfer Summary draft for the Board to review and make any recommendations for changes to Dr. White by the following week. The presentation covered the project objectives; key findings including information on the literature review, lab testing, field testing, construction observations, patching projects and software design tool (Pavement Drainage Estimator); design recommendations; constructions recommendations; QC/QA protocols; technology transfer; future research needs; and acknowledgements.
- There was a question on the data showing that specifications weren’t met at many of the sites. The materials have relatively low stiffness values but they match with the design. It was also pointed out that compliance is assured on materials at the source; the problem usually lies in segregation occurring during placement and trimming. Watering the subgrade prior to trimming may be helpful. The concern over the years has been more in the area of drainage than it has been

stability, especially in the area of concrete pavements. Overall in the project, the permeability was very good. This study raises questions that may lead to reviewing some specifications differently.

- The testing for this project was done within approximately a week from placing the subbase. The range of time prior to paving at the test locations was anywhere from a couple of days to a few months. Many things are done differently by each of the jurisdictions.
- Charles Marker moved to approve the final report. Jim Berger seconded. Carried with 15 yes, 0 no, and 0 abstaining.

Review of Draft RFPs for 1st Solicitation for FY 04-05

IHRB-04-01, “Guidelines for Removal of Unwarranted Traffic Control Devices in Rural Areas”

- It was recommended to delete the word “unwarranted” from the title.
- With this research looking for guidelines, it was decided that if the investigator thinks that crash analysis information would be a critical factor, it would be up to him or her to incorporate that information into the project. Many traffic control devices that this would address are used for speed control only. With this in mind, the word “crash” was recommended to be deleted from the second objective.

IHRB 04-03, “Appropriate Traffic Calming Techniques for Small Iowa Communities”

- It was recommended with objective four that efforts for technology transfer be coordinated with the Local Technical Assistance Program.
- It was mentioned that looking at more than one strategy, in objective two, would be more optimum for the research. It was thought that the statement adequately invites the review of more than one.
- It was suggested to change the wording in objective one from “strategies which are effective” to a request for rating the level of effectiveness.
- It was also mentioned that the report, TR-441, “Iowa Traffic Control Devices and Pavement Markings: A Manual for Cities and Counties” would be a good reference for this study.

IHRB 04-04, “Review of Inconsistencies between SUDAS and Iowa DOT Specifications”

- The Board agreed by consensus to go through an RFP process with the RFP being sent to a list of consultants, rather than the normal mailing list.
- Clarification was requested in the first paragraph to read “Cities will be using...” in regards to the 2004 Edition of the SUDAS manual.
- The last two objectives were reviewed. It was felt that it would be good to keep “similarities” in the study with the goal of using them more closely together in the future and someday possibly having them merged.

IHRB 04-06, “Dowel Bar Retrofit of Faulted PCC Pavement in the Outside Wheel Path Only”

- Due to time sensitivity, it was asked that the Board consider having this study be a single source request for proposal. Dr. Jim Cable, Iowa State University, was recommended as the principal investigator. The portion which would be requested from the IHRB would include the dowel bars, assistance with insertion costs, and Dr. Cable’s research part of the project.
- By consensus of the Board, a proposal will be requested from Dr. Cable to be submitted for review at the next IHRB meeting.

IHRB 04-08, “Development of a New Process for Determining Design Year Traffic Demands”

- This RFP was sent to Duane Wittstock, City of West Des Moines, for review and has undergone some changes since the initial distribution. To allow for a more effective review, a new copy was distributed to members/alternates and it will be discussed at the next meeting.

New Business

- Greg Parker, IHRB Chair on behalf of the Board, thanked everyone involved with the presentations and tour of I-235.

John Adam moved to adjourn the meeting. Glen Miller seconded. Carried with 15 yes, 0 no, and 0 abstaining.

**Date of Next Meeting: THE NEXT MEETING WILL BE HELD FRIDAY, JUNE 25, 2004
AT 9:00 A.M. IN THE EAST/WEST MATERIALS CONFERENCE ROOM AT THE IOWA
DOT, CENTRAL COMPLEX, IN AMES, IOWA.**

Mark Dunn, IHRB Secretary