

IOWA HIGHWAY RESEARCH BOARD

Minutes of September 26, 2003

Regular Board Members Present

L. Brehm	B. Keierleber
R. Ettema	J. Krist
T. Fonkert	C. Marker
R. Gould	M. Nahra
L. Greimann	J. Selmer
D. Julius	C. Van Buskirk

Alternate Board Members Present

J. Joiner for G. Parker	G. Miller
R. Younie for J. Adam	R. Schletzbaum

Board Members With No Representation

K. Mahoney

Secretary

M. Dunn

Visitors

LaDon Jones	<i>Digital Control, Inc.</i>
Gordon Smith	<i>Iowa Concrete Paving Association</i>
Steve DeVries	<i>Iowa County Engineers Association Service Bureau</i>
Sara Buseman	<i>Iowa Department of Transportation</i>
Dave Claman	<i>Iowa Department of Transportation</i>
Ed Engle	<i>Iowa Department of Transportation</i>
Mohammad Mujeeb	<i>Iowa Department of Transportation</i>
Bob Steffes	<i>Iowa Department of Transportation</i>
Halil Ceylan	<i>Iowa State University</i>
Dale S. Harrington	<i>Iowa State University</i>
Charles T. Jahren	<i>Iowa State University</i>
Duane Smith	<i>Iowa State University</i>
Kelly Strong	<i>Iowa State University</i>
Vernon Schaefer	<i>Iowa State University/CCEE/CTRE</i>
Omar Smadi	<i>Iowa State University/CTRE</i>
Muhannad Suleiman	<i>Iowa State University/CTRE</i>
Kejin Wang	<i>Iowa State University/CTRE</i>
Brian Coree	<i>Iowa State University/CTRE/DOT</i>
Larry Stevens	<i>SUDAS</i>
Hosin "David" Lee	<i>The University of Iowa</i>

The meeting was held in the Large Materials Conference Room at the Iowa Department of Transportation, Ames, Iowa. The meeting was called to order at 9:00 A.M. by Dr. Rob Ettema.

Agenda review/modification

- No additions or modifications.

Approval of the minutes

- Charles Marker moved to approve the minutes from the June 27, 2003 meeting with no additions or corrections. Brian Keierleber seconded. Carried with 13 yes, 0 no, and 0 abstaining.

Review of proposals from 1st solicitation for FY 03-04

IHRB 03-1, Design Guide and Construction Specifications for NPDES Site Runoff Control

- One proposal was received from Dale Harrington, Iowa State University (ISU)/Center for Transportation Research and Education (CTRE).
- *Comments and discussion:*
 - It was mentioned that this proposal covered only one component (Part IIA) of a four-part research effort.
 - It was agreed that a lot of work went into this proposal.
- Jeff Krist made a motion to approve the proposal.
- *Additional comments and discussion:*
 - The collaborative effort between the Iowa Department of Natural Resources (IDNR) and ISU was commended.
 - There was a concern expressed with the lack of involvement of The University of Iowa (U of I) in this partnership.
 - There was a discussion on the concern that the IHRB project TR-485, “Erosion Control for Highway Applications - Phase II: Development and Implementation of a Web-Based Expert System for Erosion and Sediment Control Measures” had been encouraged by the Board (see June meeting minutes) to be used with the erosion control portion of this project, yet it was felt that it was referred to only vaguely in this proposal. It was said that the inclusion of the Expert System was to fall into Phase IV of the full research plan.
 - Dale Harrington gave an overview of how the different components fit together with the project as a whole. The proposal given to the Board did not cover all 4 parts.
 - Part 1: Update IDNR’s Iowa Construction Site Erosion Control Manual
 - Part 2: Design Guide & Construction Specifications for NPDES Site Runoff Control
 - A: Erosion and Sediment Control (This proposal to the IHRB)
 - B: Water Quality Management (Appendix A- Funds requested from IDNR)
 - Part 3: Technology Transfer and Publications
 - Part 4: Research on BMPs and Demonstrations
 - It was said that The U of I involvement was discussed more in the fourth part of the proposal where it included consideration of TR-485 in the 2nd year of the overall research effort.
 - There was also concern expressed by the counties on the level of county involvement. The updating of the urban design guide was noted, however, it was wondered how the counties would participate and how the information would be disseminated.

- It was discussed that the Statewide Urban Designs and Specifications (SUDAS) Group gives the avenue for participation in the development stage and technology transfer stage for the counties and cities.
 - A comment was made that the proposal didn't seem to address rural highway management practices. Mark Masteller, Iowa DOT, was involved in the development of the proposal and will sit on the advisory committee for this project. He will be involved in the development of changes and dissemination of the Iowa DOT standards, which will reflect the rural aspect of this research.
 - Both urban and rural issues will be approached, it just may have not been as clear in the text.
 - The Iowa DOT and counties will have representation on the group that will review the erosion control portion of this research and it will be linked to the DOT design guides.
 - Due to these uncertainties, it was proposed that a meeting take place to further develop the proposal.
 - It was stated that changes to the proposal could affect the budget.
 - It was mentioned that the March 10, 2003 deadline to comply with the storm water runoff regulation has past and the urgency for this research to be completed and/or the ability to show that efforts are being taken to move towards that goal, need to be considered. If there is a neglect to do so, the IDNR may not remain as lenient with the enforcement and impose fines and penalties for not meeting the storm water runoff regulation.
 - The Board considered the above deadline along with the time it may take to rework the proposal to contain more county related aspects, the Expert System from TR-485, and more of a partnership role with The U of I.
 - It was mentioned that, to the knowledge of the researcher, this is the first time anyone in the mid-west has tried to put together this type of an extensive package that dealt with all these issues and get it funded. Other states are very interested.
 - Again, the level of effort that has gone into this package was appreciated.
 - It was mentioned that even though some things are not expressly stated, that this entire research effort may be more inclusive. The DNR will be involved in writing the specifications, which will provide a simple 'look it up and following it' guide, instead of a 'do more, just incase' scenario like some decisions are made now.
 - It was suggested that more people needed to sit in on these meetings.
- Charles Marker seconded the motion that the proposal be approved with the caveat that a method of review, such as monthly or quarterly reports to the IHRB or an IHRB review committee be established and involved in the process.
- *Additional comments and discussion:*
 - There was still concern of how the Expert System developed in TR-485 would fit into the present proposal and as a thread throughout the research.
 - It was agreed that it was not explained well in the proposal, but thought it was to be reviewed and included.
 - It was said to be included in another part (Part IV) of the total research effort, just not expressed here.
 - It was suggested that the collaborative meeting might better placed prior to the approval of the proposal, and have the proposal be revised and brought back to the next meeting in October.
- Motion lost with 5 yes, 7 no, and 2 abstaining.

- *Additional comments and discussion:*
 - There was concern expressed with what was being discussed at the Board meeting versus what was more appropriately handled outside of the meeting between the partners involved.
 - It was agreed that the June minutes read that the Board had requested that the Expert System be included in this portion of research.
- Mark Nahra moved to table the proposal for one month to allow the requested discussion and revision to occur. Brian Keierleber seconded.
- *Additional comments and discussion:*
 - There was discussion on why this is felt to be so important to tie it directly to this part of the research when it is included in another portion of the overall project. One reason was that the Board had specifically requested the tie; the second reason stated was when a contract is executed to perform the research, the proposal submitted becomes part of the contract.
 - It was mentioned that the possibility of changes may or may not affect funding, since it is included in another portion of the total package.
 - It was requested that the proposal for TR-485 be distributed with next meeting's Board packet.
- Motion carried with 10 yes, 3 no, and 1 abstaining.

IHRB 03-2, Optimization and Management of Materials in Earthwork Construction

- One proposal was received from Dr. Radhey Sharma, Iowa State University/CTRE.
- *Comments and discussion:*
 - A corrected budget was e-mailed out to the Board prior to the meeting. Errors were found within the budget, however the total budget amount did not change.
 - The equipment issue was discussed. It is standard practice with DOT contracts that equipment is put on a 5-year depreciation schedule. If the project is completed prior to the end of that time, the equipment is either purchased for the salvage value or returned to the DOT.
- *Issues/Concerns that the board would like staff to address:*
 - None
- *Vote to approve:*
 - Mark Nahra moved to accept Dr. Sharma's proposal with a funding split of 45% Primary, 45% Secondary, and 10% Street. Doug Julius seconded. Carried with 14 yes, 0 no, and 0 abstaining.

IHRB 03-7, Evaluation of the Long Term Performance of Cold In-Place Recycling

- One joint proposal was received from Dr. Charles Jahren, Iowa State University/CTRE and Dr. Hosin "David" Lee, The University of Iowa.
- *Comments and discussion:*
 - Based on the original budget range on the RFP, the proposal received carried the research to a pilot field study, not a complete study and would likely require a second phase later. It had been recommended by the Iowa DOT's Bituminous Engineer, Mike Heitzman, prior to the meeting, that it may be more economical for the project to be expanded past the pilot study and include Phase II work along with this research to complete it with just one IHRB project. An explanation of the extended budget and details showing the proposed addition was handed out at the meeting. Dr. Jahren was invited to explain the addition.

- Although it was not expressly written in the text of the proposal, the traffic type would be addressed within the research.
 - The steering committee will be asked to guide in setting traffic counts to determine low, medium, and high levels that would be most representative of Iowa's roads.
 - It was mentioned that this project has two principal investigators and separate budgets presented from ISU and The U of I and it is likely that a separate contract is set up with each university.
- *Issues/Concerns that the board would like staff to address:*
 - None
 - *Vote to approve:*
 - Mark Nahra moved to accept Dr. Jahran and Dr. Lee's proposal, to include the expanded work scope and budget level, with a funding split of 50% Primary and 50% Secondary. Lyle Brehm seconded. Carried with 14 yes, 0 no, and 0 abstaining.

IHRB 03-11, Utility Cut Repair Techniques - Investigation of Improved Utility Cut Repair Techniques to Reduce Settlement in Repaired Areas

- One proposal was received from Dr. Vernon Schaefer, Iowa State University/CTRE.
- *Comments and discussion:*
 - It was mentioned that the Statewide Urban Designs and Specifications (SUDAS) group has discussed this topic.
 - There is an increased need for this at the city level.
- *Issues/Concerns that the board would like staff to address:*
 - None
- *Vote to approve:*
 - Jeff Krist moved to accept Dr. Schaefer's proposal with a funding split of 25% Primary, 25% Secondary, and 50% Street. Brian Keierleber seconded. Carried with 14 yes, 0 no, and 0 abstaining.

IHRB 03-5, Extensions to Iowa Culvert Hydraulics Software - The Design of Energy Dissipators

- Due to the familiarity with the program, the Board invited the original programmer, Dr. LaDon Jones, Digital Control, Inc., to submit a proposal to the Board.
- *Comments and discussion:*
 - It was mentioned that the 1987 equations would be used to determine discharges since there were problems with the results from the study that ended in 2001. This will give more flexibility with the program.
- *Issues/Concerns that the board would like staff to address:*
 - None
- *Vote to approve:*
 - John Selmer moved to accept Dr. Jones' proposal with a funding split of 50% Primary and 50% Secondary. Charles Marker seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Proposal, “Improving PCC Mix Consistency and Production by Mixing Improvements”

- Mark Dunn explained that this topic was one of the top priorities (IHRB 03-9) from the Board’s current FY prioritization and would have been included in the first round of RFPs. It was initially held due to DOT plans to visit St. Louis and see an on-site operation of the 2 stage mixing process. This would help more specifically direct the scope of the research. It has now come to the Board from Iowa State University/CTRE with 50% matching Federal funds.
- Dr. Vernon Schaefer, Iowa State University, presented the background; research goal and specific objectives; methods; research approach; proposed materials and 3 methods of loading sequences; proposed mixing energy; proposed tests for pastes and concrete, including uniformity of slurry and of concrete; field implementation; synergistic activities; and funding resources and time frame of the proposed research.
- It was discussed that additives would be put in as needed for the mix and it is understood that they play a key role and will be documented accordingly. However, there is other research being done concurrently that is focusing on the optimum levels for different additives. This particular research specifically focuses on the mixing procedure.
- Mark Nahra moved to approve the proposal with a funding split of 70% Primary, 15% Secondary and 15% Street. Christy Van Buskirk seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Proposal, “Determination and Evaluation of Alternate Methods for Managing and Controlling Highway-Related Dust - Phase II - Demonstration Project”

- Dr. Brian Coree had presented a problem statement for the research at the June IHRB meeting. Recommendations, including a reduced budget, were taken into consideration and the proposal was written to reflect these suggestions.
- Dr. Vernon Schaefer, Iowa State University, mentioned the history of this research done under the previous IHRB research project TR-449. He then presented the information on the recommended demonstration projects and monitoring, the proposed activity, the field conditions, the partners in the research, the measurement procedure, the approach, and the budget and time frame.
- It was recommended to relate traffic volumes when comparing gravel verses limestone.
- The use of a dump truck or a tandem truck was suggested as an option for the test vehicle.
- Brian Keierleber offered to be a resource for the information gathered by the UNI dust control research that had been done a few years ago.
- It was discussed that the configuration of the inlet could possibly be altered and a regular vacuum, using HEPA bags, could be used to collect and measure the dust instead of having a larger investment in equipment.
- Charles Marker moved to approve the proposal with funding of 100% Secondary. Doug Julius seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Problem Statement/Proposal, “Thin Maintenance Surfaces - Phase III”

- Dr. Charles Jahren, Iowa State University, reviewed the accomplishments of Phases I and II, and the needs that still remain within this topic. He presented the role of the steering committee, and the components of the three phases of the action plan, the proposed test sections and research summary.
- It was recommended to incorporate the manual into the work being done on specifications by the SUDAS group.
- It was clarified that the DOT would be responsible for the printing.
- There was discussion on the appropriate percentages for the funding split. The funding split recommended on the agenda was based on how the problem statement read, however, the presentation stressed a higher application to cities.
- After discussing that all the necessary components were contained within the problem statement, Charles Marker moved to approve the problem statement as a proposal with the funding split of 20% Primary, 20% Secondary, and 60% Street. Mark Nahra seconded. Carried with 9 yes, 5 no, and 0 abstaining.

Final Report TR-494, “Statistical Analysis of Highway Needs Condition Data: Manual vs. Automated”

- Dr. Omar Smadi, Iowa State University, presented the background on the road use tax fund, HwyNeeds, the previous efforts, the Iowa Pavement Management Program and the Secondary Road Research Fund Distribution Advisory Committee. He then summarized the project objectives, methodology, results and conclusions.
- The results of this research have been given to the Secondary Road Research Fund Distribution Advisory Committee. They will make a recommendation to the counties in December and a final plan will go to the legislature in the Spring of 2004.
- The equations that were used are available from Dr. Smadi. It was also offered that they could be added to the report if the Board requests it.
- Dr. Smadi was commended on completing the work in a timely manner and providing answers to the Secondary Road Research Fund Distribution Advisory Committee as was necessary for the committee’s deadline.
- Mark Nahra moved to approve the final report. Todd Fonkert seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Final Report HR-394, “Transportation Program Management System (TPMS)”

- Steve DeVries, Iowa County Engineers’ Association (ICEA) Service Bureau, gave the overview, the original programming and development goals, the project history and assessment, the lessons learned, and future of the TPMS.
- The IHRB funding has accomplished its purpose. Any maintenance or revisions of the system will be done through the ICEA Service Bureau.

- Lyle Brehm moved to approve the final report. Doug Julius seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Final Report TR-477, “Total Cost of Transportation Analysis - Phase II”

- Steve DeVries, ICEA Service Bureau, gave the background of HR-388 that developed the analysis system, which is now functioning with current (2002) data through this Phase II project. He highlighted some of the information found in the model, described a sample spread sheet, and summarized the findings.
- There was a discussion on the information presented in Dr. Forkenbrock’s, The U of I, report, which focuses on connections among funding, economic development, and investment in public roads. The thrust of the report was more on spending where it could return more economic development. The focus of this research was based more on user perspective and savings. Both are related to public policy.
- It was felt that this analysis provided the framework for what the appropriate surfacing for a road may be when looking at the numbers. From there, the political factors need to be considered prior to making a decision.
- It was mentioned that the accuracy of the base record data used is critical to the results shown in this analysis. There were some inconsistencies found in the base record data between the traffic count data and traffic count growth rate data. However, it was felt that the model provided useful information overall.
- Mark Nahra moved to approve the final report. Doug Julius seconded. Carried with 13 yes, 0 no, and 0 abstaining.

New Business

AASHTO 2002 Pavement Design Guide Initial Implementation Plan

- Mark Dunn had included an executive summary in the Board packet reviewing the “AASHTO 2002 Pavement Design Guide Initial Implementation Plan” (topic IHRB 03-10). It was decided by the Board in June to put this topic on hold, until the Highway Division could assemble a team to review and prioritize the different possible phases within this topic.
- The executive summary was done by CTRE and it was discussed if there should be an RFP sent out for this topic or if the group that was reviewing the topic and was now familiar with the ground work, should submit a proposal.
- Based on the executive summary, the estimated budget is approximately \$65,000 for Phases I and II. Phase III budget would depend greatly on the information found from the first two phases.
- It was decided that it would be more beneficial to have the group that is familiar with the background work, submit a proposal. Mark Dunn will request that a proposal is brought to the next meeting.

Location for the October IHRB meeting

- Last spring Iowa State University had offered to host a meeting this fall. The next meeting will be held in the Video Conference Room at CTRE. More specific details will be sent with the October Board packet.

Dr. Rob Ettema adjourned the meeting.

Date of Next Meeting: THE NEXT MEETING WILL BE HELD FRIDAY, OCTOBER 31, 2003 AT 9:00 A.M. IN THE VIDEO CONFERENCE ROOM AT CTRE, IOWA STATE UNIVERSITY, IN AMES, IOWA.

Mark Dunn, IHRB Secretary