

# IOWA HIGHWAY RESEARCH BOARD

Minutes of June 2, 2000

## **Regular Board Members Present**

J. George	L. Greimann
R. Krauel	D. Little
T. Myers	C. Narotam
J. Odgaard	D. Osipowicz
L. Smithson	T. Stoner

## **Alternate Board Members Present**

L. Brehm for W. Weiss	J. Weber for J. Witt
S. Andrle	

## **With No Representation**

M. Gardner

## **Visitors**

Ed Engle Iowa Department of Transportation  
Bob Steffes Iowa Department of Transportation  
Ian MacGillivray Iowa Department of Transportation  
Arnie Hart Iowa Department of Transportation  
Mohammad Mujeeb Iowa Department of Transportation  
Saleem Baig Iowa Department of Transportation  
John Adam Iowa Department of Transportation  
Dave Claman Iowa Department of Transportation  
Omar Smadi Iowa State University - CTRE  
Dale Harrington Iowa State University - CTRE  
Gordon Smith Iowa Concrete Paving Association  
Bob Given Iowa Concrete Paving Association  
LaDon Jones Digital Control

The meeting was held at the large Materials Conference Room at the Iowa Department of Transportation, Ames, Iowa. The meeting was called to order at 9:05 A.M. by T. Myers.

## **Approval of the Minutes**

R. Krauel made a motion to accept the minutes and C. Narotam seconded the motion. It was approved by the Board with 11 yes, 0 no and 0 abstaining.

## **Agenda Review/Modification**

No modifications requested.

## **Presentation on the Center for Portland Cement Concrete Pavement Technology**

Dale Harrington of Iowa State University - CTRE gave a presentation on the Center for Portland Cement Concrete Pavement Technology. He has been appointed Director of the Center. The purpose of the Center is to conduct training, technology transfer, and applied

research on PCC pavement design, construction, materials science, and maintenance.

The Center was formed in the spring of 1999 through a private, public, and university sector partnership formed by the Iowa Concrete Paving Association, the Iowa DOT, Iowa State University's Center for Transportation Research and Education (CTRE), and Iowa State's Civil and Construction Engineering Department. The Center continues to seek new partners from industry and other governmental agencies.

The vision of the Center is to become an internationally recognized resource center and leader for technology transfer, education, and research in PCC pavement technology.

The Center's mission is to advance the state of the art of PCC pavement technology, including design, materials science, construction, and maintenance, in order to produce a durable, cost effective, sustainable product.

The Center will become a division of CTRE and be housed there. Working within CTRE will create synergy between the Center and other transportation programs that CTRE manages. In addition, the Center will have access to Iowa State's other human and physical resources, specifically the Materials Analysis and Research Laboratory. One of the Center's chief directives will be to work in teams and partner with other laboratories, centers, institutes, and agencies on projects of common interest.

The Center will be governed by an advisory board consisting of representatives from a wide range of PCC pavement stakeholders. A few highly engaged members of the advisory board will serve on an executive board, which will be responsible for day-to-day oversight of the Center's program. Two standing committees will be appointed to plan the Center's research and education/training programs.

The Center will be staffed by three full-time professionals, including a manager with significant field experience, a PCC pavement researcher, and a PCC educator/trainer.

### **Research Proposal**

LaDon Jones of Digital Control presented a research proposal on "A Computer Program for the Hydraulic Design of Culverts." The hydraulic design of a culvert requires the selection of a culvert type and size that will pass the design discharge, subject to a maximum allowable water surface elevation at the culvert inlet. Factors that affect the relationship between the inlet head and design discharge include; the culvert cross-section area, material, shape, inlet configuration, slope and tailwater depth.

Culvert design is a computationally intensive task and well suited for computer implementation.

A computer program is needed that combines that data, methods and tasks required for Iowa DOT culvert design into a single, integrated, user-friendly, software package. The program should incorporate into one package the information and tools needed to perform the hydraulic culvert design from start to finish. Such a program will be

developed for the Iowa DOT Preliminary Bridge Section, under the guidance of Mr. Dave Claman, with input from the primary users of the program, county, city and consulting engineers.

The culvert program will provide a quick and efficient way of calculating a range of various culvert sizes and types based on drainage area. The program will make it easier for Iowa DOT staff to determine the required size of structures along our highways and will facilitate staff review of consultant submittals of Iowa DOT projects. The program will enable the designer to evaluate various culvert sizes and design discharges quickly and efficiently.

The culvert program will be utilized by city and county engineers, the Iowa DOT staff and consultants for the design of culverts along the State's primary and secondary road system. The program will be a valuable tool for city and county engineers, the Iowa DOT and consulting engineers in Iowa.

Distribution of the software and users manual will be done through the Center for Transportation Research and Education (CTRE) at a nominal cost. One copy of the program and user manual will be provided to each county engineer's office in Iowa. The software and users manual will also be available for downloading over the Internet from the CTRE web site.

The total project cost will be \$68,200. Funding will be 50% Primary, 40% Secondary and 10% Street.

J. George - Does the Preliminary Bridge Section of the DOT support this project?

D. Claman - Yes, it does.

C. Narotam - Do we have any ideas about what we need to do with the maintenance of this program if some of the criteria changes in the future? Is there flexibility in there for that?

L. Jones - Yes, I write the software, I will be happy to change it or update it. I'd be available to do the software if that is what you wanted.

T. Stoner made a motion to recommend the research proposal. L. Smithson seconded the motion and it carried with 11 yes, 0 no and 0 abstaining.

### **June Meeting Plan Discussion**

T. Myers - The first choice for the June 30 meeting was to meet with the Governor to present TR-423. The second choice was to go to Buchanan County and also The University of Iowa to look at the driving simulator. There was also discussion of going to Iowa State University to the Materials Lab, Geotech Lab and the Structural Lab. Also discussed seeing the 1-235 corridor and the construction going on.

Are there any thoughts?

1. MacGillivray - We have pursued making some tentative arrangements for a meeting in Des Moines. We have requested an opportunity to appear and present the Board's 50 year report to the Governor. We haven't got confirmation on scheduling that yet. I have been told there is a good chance it will be possible. We have room reservations at the State Historical Society for a board meeting and tentative plans for lunch and presentations and a tour to be made to review the Des Moines signal system, both the planning design, operation and upgrade of that and a presentation planned on the development of the 1-235 project, from preliminary planning through to the current status of the design and plans for traffic operations and management. That would be on the June 30 date.

T. Myers - Is that in agreement with all the board members? Would there be a motion to pursue that?

L. Smithson made a motion to recommend that the June 30 meeting be in Des Moines as Ian has suggested. R. Krauel seconded the motion and it carried with 11 yes, 0 no and 0 abstaining.

I. MacGillivray - In the event we are unable to schedule with the Governor, would it be okay to try to meet with the Lieutenant Governor instead or if that is not possible we could hold our own press conference. Do you want us to proceed with the Des Moines agenda whether we are able to meet with the Governor or do you want us to fall back on one of the other plans suggested?

T. Myers - We recommend that you proceed with the Des Moines plan.

I. MacGillivray - You usually can get a solid commitment about two weeks before the date you are wanting to meet.

T. Myers - I recommend you proceed in that fashion and if that does not take place, have Mark send out a questionnaire on another option.

### **New Business**

No new business

### **Ziedler's Inc.**

Barney Simmons, 75, who had worked for Ziedlers, Inc. for 44 years, currently serving as President, died on Friday, May 26 from injuries sustained in an automobile accident. He had served on the American Concrete Pipe Association Board for 13 years and as President for the Iowa Concrete Pipe Association for two years.

### **Research Program Prioritization**

M. Dunn - Passed out updated research prioritization. The rankings were presented in three different ways. I also took the overall ranking based on the top 15 projects that were selected and sorted it by the most votes and split that out by city, county, DOT and

university as far as their top 20 or so. The overall ranking, I converted the rank of 1 to 15 points and then on down to take away bias if there was somebody who put high rank on it and nobody else put anything on it.

The goal from here would be to take the results of this and try to make some sense of it and identify some priority projects to start cutting down the list at some level.

The board decided to take the top 28 projects plus 4 wild card projects suggested by members of the board and ranked these during the meeting.

### **Proposal Solicitation Process**

I. MacGillivray - When we first talked about this, we said there were a couple of different ways we could be doing this. There may be an interest in requesting a proposal on a topic from a specific individual or group. That would give you an opportunity to consider it. In more general terms, we said we would get out a general solicitation which would be made available to all potentially interested parties. In that case, there is the question of who we would send it to and what do we ask for. We also have a couple ways of getting it out through newsletters and Internet web sites. Do we want to identify a fleshed out problem statement? Do we want to identify a preliminary estimate of a budget of what you are willing to invest or spend on the topic or do you prefer to have proposals come back to you with budget requests?

With NCHRP a budget is set, people are asked to put in a proposal based on the budget to identify how much work they can do. They are given a scope, but basically asked to identify how much they can do.

I. MacGillivray - How much of a problem statement or scope do we want to identify at first? As staff we are going to have to put some time and effort into developing the concepts based on your discussions and input that go way beyond what we did for this prioritizing effort. Do you feel you want us to put the time now into developing these problem statements? Do you want to develop them further and do you want to be reviewing those? That is going to put a load on the board.

Answers to the above paragraph were discussed in the next section.

### **Process Evaluation/Selection Process**

The board was wondering how much time do we have to provide to evaluation/selection.

R. Krauel - If the board would just present an objective or detail our problem and then ask how would the investigator solve it. It might bring more information to us to educate the board.

I. MacGillivray - So you feel it would be better to identify more of the problem and less of the prescription we would like investigated.

T. Myers - I don't want to see any filtering as happened in the past. We should have a chance to review both ideas.

T. Stoner - Would you summarize what you are suggesting we do?

I. MacGillivray - I'm suggesting we are going to do our best as a staff to follow the NCHRP model to come up with a detailed statement that says what the research specifically is, a scope, like a preliminary proposal, but it would provide the opportunity for a researcher to supplement that program and tell us what else they can do.

T. Stoner - I'm very comfortable identifying the problem, but when we start suggesting the solution, you are really driving it I think beyond where you want to drive it. I just want to make sure we aren't saying we want your research limited to a certain narrow field. We want to say here are some things we know about, what do you know about that we don't, that might serve us better than this?

I. MacGillivray - You are looking for a competition of ideas instead of a competition of how to do an idea better.

T. Stoner - Yes.

### **Fiscal Management**

The board had originally talked about in the fiscal management area was that a portion of the funds that are available would be prioritized on this basis. Part would be reserved for the way you have done business in the past. As we get a solicitation out, we need to let people know that the second business model is still out there. Then the intention was, to the extent you don't invest that second part of the budget through the year, you would go back to one of the lists of projects and pick up a couple more, because they are your business priority. By the end of the fiscal year, you will have committed all the resources that are available. We have no recommendation for you today on how to balance the total, but you had talked about something like 50-60% of the funds initially committed into this kind of a program and that was all.

### **Date of Next Meeting**

**DATE OF THE NEXT MEETING WILL BE JUNE 30, 2000 AT THE STATE HISTORICAL BUILDING IN DES MOINES.** The meeting room will be available after 8 A.M. There will be a presentation of the book, "Iowa Highway Research Board: 1949-1999 to Lt. Governor Pederson (time of presentation will be noted in the agenda). The presentation will last 15-30 minutes. The Lt. Governor's office is a 5-10 minute walk from the Historical Building. The IHRB will conduct its regular business meeting (the time will be noted in the agenda).

Mark Dunn Secretary