

IOWA HIGHWAY RESEARCH BOARD (IHRB)

Minutes of IHRB meeting held October 26, 2007

Regular Board Members Present

A. Abu-Hawash
J. Alleman
J. Berger
T. Fonkert
S. Gannon
K. Hornbuckle

J. Joiner
J. Krist
M. Nahra
J. Rasmussen
R. Schletzbaum
J. Singelstad
D. Waid

Alternate Board Members Present

D. Mayfield for J. Adam
R. Younie for S. Dockstader

Secretary

E. Engle for M. Dunn

Visitors

Ken Dunker
Sandra Larson
Joseph Putherickal
Robert Stanley
Mary Starr

Iowa Department of Transportation
Iowa Department of Transportation
Iowa Department of Transportation
Iowa Department of Transportation
Iowa Department of Transportation

F.W. Klaiber
Larry Stevens
Peter Taylor

Iowa State University – CTRE
Iowa State University – CTRE
Iowa State University – CP Tech Center

Agenda review/modification

Item 6 will be presented as Item 2 due to scheduling.

Approval of the minutes

Motion to approve the minutes from the September 28, 2007 meeting by R. Younie, 2nd by R. Schletzbaum.
Carried 14 yea, 0 nay, 0 abstaining.

One Board Member joined the table.

FINAL REPORT TR-522, “Investigation of Steel Stringer Bridges – Phase II: Substructures and Superstructures,” Terry Wipf, Iowa State University/CTRE (\$274,780)

BACKGROUND

TR-522 is Phase II of a previous project, TR-452, “Alternative Solutions to Meet the Service Needs of Low Volume Bridges in Iowa.”

Six bridges with poor performing superstructure and substructure were selected to be load tested. The six bridges were located on rural roads in five different counties in Iowa: Boone, Carroll, Humboldt, Mahaska, and Marshall.

Volume I - Volume I presents diagnostic load tests on the superstructure of the six bridges; the results were used to calibrate analytical models of the bridges for rating purposes.

Vol II - Volume II focuses on evaluating the timber substructure for this family of bridges.

OBJECTIVES

To provide local agencies with safe and cost effective methods for rehabilitating, strengthening, and replacing low volume road (LVR) bridges. Objectives include: 1) Explore the viability of a holistic approach for the determination of bridge ratings through non-destructive load testing of superstructure elements; 2) Initiate fleet management concepts for bridge superstructure structural ratings; 3) Develop an evaluation procedure for timber substructures and 4) Develop various procedures for rehabilitating, strengthening, or replacing inadequate substructure components or entire substructures.

CONCLUSIONS

Vol I Superstructure Summary and Conclusions

- Load testing bridges often will increase the rating for the bridge.
- Quantification of important structural parameters.
- Some behavior characteristics could be predicted through load testing
 - Fleet sample group too small statistically to allow extrapolation of results

Vol II Substructure Summary and Conclusions

- Pile integrity tests were sometimes successful in predicting the pile length.
- Ultrasonic stress wave tests are a promising NDE method in detecting pile internal decay.
- The selected repair methods were able to partially restore pile axial and bending capacities.

Q: You said you removed three sections of three piles. Did you have measurements on the remaining piles to see how much more they could load?

A: Yes, the capping took on greater stress.

Q: You’ve mentioned many initial ideas; where do you see it going from here?

A: We’ve talked with the Federal Highway Administration (FHWA) about this particular project and agree we need a more thorough evaluation of these bridges. There may be provision of funding in the future.

Motion to Approve by M. Nahra, 2nd by J. Berger.

Carried 15 yea, 0 nay, 0 abstaining.

Continuation Proposal HR-296, “Local Technical Assistance Program,” Duane Smith, Iowa State University/CTRE (\$130,000)

BACKGROUND

In January 1983, Iowa State University (ISU) signed an agreement with the Iowa Department of Transportation (IA DOT), funded by the National Rural Transportation Assistance Program (RTAP), establishing the Technology Transfer (T2) Center at ISU.

OBJECTIVES

The main objectives of this program are to provide for the 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. The major tasks have been identified as publishing newsletters and other publications, providing technological information, conducting workshops and training sessions, providing a highway safety circuit rider and distributing publications.

2008 Training Opportunities

- Basic Mathematics
- Successful Management
- Construction Inspection
- MoGO
- Flagger Workshops
- Traffic Studies for Engineers & Technicians
- Winter Maintenance Training Workshops
- Snow Plow Roadeo
- Iowa Streets and Roads Conference

Alternating Training

- Maintenance EXPO (2007)
- Math Fundamentals (2008)
- Winter Maintenance Workshops (2008)
- Route Surveying (2009)
- Snow Plow Roadeo
- Cedar Rapids (2006)
- Iowa Speedway (2008)

Because this proposal is for an outreach program, not a research project, the implementation strategies are incorporated within the task descriptions in the Proposed Research section.

Q: Are any surveys or evaluations done by participants to assess value from the workshops and other programs?

A: Yes, surveys are done to learn what has been achieved and what needs to be done differently in the future. We are finding a higher level of confidence in both communicating/speaking and in technical expertise, which encourages the sharing of knowledge and experience.

A: One study was done by FHWA that shows an 8:1 ratio return (cost) showing that for the \$130,000 invested, the benefit is well over 1M.

Q: Who is the lead for the snow conference in 2009?

A: Bret Hodne (co-presenter) is the lead; the first organizational meeting will be held shortly and sub-committees will be formed (participants from APWA, CTRE, IA DOT, County Engineer Association and Iowa Highway Secondary Road Maintenance Supervisor Association) before the agenda is set.

Motion to Approve by J. Joiner, 2nd by R. Schletzbaum.
Carried 15 yea, 0 nay, 0 abstaining.

Final Report TR-492, “Embankment Quality Phase IV – Application to Unsuitable Soils,” Chuck Jahren, Iowa State University (\$169,067)

BACKGROUND

Iowa State University has conducted a series of research projects from 1997-2007 to develop improvements to the Iowa Department of Transportation’s (Iowa DOT’s) construction practices for roadway embankments. Phase IV research was initiated due to concerns that the soil conditions from the Phase III pilot study were too high quality to properly assess the QM-E special provisions.

OBJECTIVE

Objective: Document common earthwork construction practices on projects with unsuitable soil in Iowa; six projects were visited.

A pilot project was completed in Fairfield at Hwy 34 Bypass - Project soils are mostly unsuitable, high plasticity clays; construction observations made from April - December 2006; contractor, IA DOT, and ISU test data was collected and analyzed; supplemental field testing such as CPT, soil boring, and inclinometer measurements were conducted.

CONCLUSIONS

- QM-E program worked well with minimal delay to work
- Target values for QC/QA testing are reasonable for unsuitable soils
- A new technique was developed to potentially develop soil specific DCP target values. Testing seemed to indicate this method is promising.
- CPT and laboratory testing of unsuitable soil from a completed embankment showed strength is equivalent to the material in its natural state, less than 1 month after construction
- The largest discrepancies between contractor and independent ISU test data were for material properties (moisture-density). This is an area of concern since the QC/QA control limits for the other tests are varied depending upon classification data.

RECOMMENDATIONS

- The existing QM-E should be modified to require additional material property testing when the four point running average of relative compaction exceeds 105%
- Future research should be considered to advance development of methods for creating soil specific target values to address limitations of the current blanket control limits for general soil type
- Additional research to better establish the contributions of vertical soil uniformity to durability and performance of subgrade soils would improve the usefulness of variation in DCP index testing and make these results more valuable than a simple indicator of ‘Oreo cookie’ lifts

Q: Was maintenance level examined?

A: No, we didn’t look at that in particular.

Q: Were all four point moving averages on the same lift?

A: No, you’d be moving up; essentially we’re seeing an entire record for one type of soil spread lift after lift.

Q: So when your four point moving average comes out it reflects several lifts?

A: No. You get the four point within a lift or two; pretty quick.

Q: Were all of the samples taken at the same location?

A: No; these were taken from the same soil but different locations.

Motion to Approve by J. Krist, 2nd by R. Younie.

Carried 15 yea, 0 nay, 0 abstaining.

Revised Proposal IHRB 07-06 *Development of an Improved Agricultural-Based Deicing Product*, John Verkade, Iowa State University/CTRE (\$100,000)

BACKGROUND

Snow and ice removal is critical for safe operation of the road transportation infrastructure. Traditionally sand has been used to provide traction, while cheap salts such as sodium and calcium chloride have been used to melt ice. Both of these approaches have undesirable side effects on the environment and alternative approaches are continually being sought.

Organic materials generally have acceptable ice melting performance but tend to be viscous, potentially leading to problems with placing them uniformly on the pavement and with reduced skid resistance. This is compounded by reportedly relatively high costs of materials on the market. Traditional road salt (NaCl) is reported to cost about \$40/ton while calcium magnesium acetate is about \$800/ton. Behind all of these is the added concern that the compounds or heavy metals eventually wash off the pavement onto the soil or, in some locations, into water treatment works. Materials that are toxic are therefore not acceptable.

SCOPE & OBJECTIVES

The objective of the work is to seek agricultural based products that will be suitable for use as deicing materials that are suitably cost effective, environmentally acceptable and technically functional.

TASK 1 – Literature Review: This review will include discussions with Iowa DOT staff on products already evaluated and their findings. A Technical Advisory Committee will be appointed to provide guidance to the project team on various technical aspects of this project.

TASK 2 – Select Candidate Materials: Based on the information developed in the literature review, several compounds or mixtures will be selected for further study based on deicing or anti-icing compound efficiency, skid resistance, cost and availability, likely damage to pavement and vehicles and effects on the environment.

TASK 3 – Laboratory Tests: Sodium chloride will be used as a control for all test data comparison and evaluation.

TASK 4 – Develop Recommendations: Based on the findings of tasks 1-3, suggestions will be made on how the Iowa DOT could test products in the field. These suggestions will include guidelines for future testing as new products are developed or offered by manufacturers.

TASK 5 – Preparation of a Final Report

BENEFITS

If a suitable compound can be found the Iowa DOT will be able to reduce costs associated with deicing and anti-icing, either by the use of a cheaper material, more efficient use of materials, reduced maintenance costs, reduced environmental impact, or some combination of these benefits.

Q: If a new product is developed would this lead to a patent for the process?

A: It is ISU policy to pursue a patent if that happens; if results are academic/chemistry-centered only but do not address the problems we're trying to address here, maybe.

Sandra: We have a basic agreement (between the Iowa DOT and ISU) and all the research and intellectual property questions are covered in that document.

Q: Have any northern states previously done this type of research?

A: If the work has already been done, we will stop at the completion of Task 2; secondly, it would be beneficial to pursue research using glycerol, however, the budget and scope would of course be revisited.

Q: When visitors from MN were here at the last meeting, didn't they say a similar project had been done?

C: Yes.

A: We have contacts at MnDOT; they will be contacted as part of the literature review.

C: It sounds like we have two ideas here: one is to evaluate existing things and the other is innovative and cutting-edge. It seems that part of this is something that could be funded with money from the innovative research fund (John Verkade's research idea to use glycerol).

Q: Should we separate the research into two parts?

A: No, but I'd like to see new ideas (like John's) developed using innovative research funds so they aren't lost.

C: The answer to that will involve what we find in the literature. We'd like to do both investigations at the same time to the completion of Task 2. Then decisions can be made based on what we find. We've written the proposal deliberately with that in mind.

C: The proposal has been revised with development of guidelines for Iowa DOT use in acceptance of a product; does that mean the vendor would have to assume responsibilities in demonstrating performance of their product?

A: Yes and no; in a way the guidelines are for us in order to make this project work. Guidelines would be a by-product; the way we approach looking at a product can be written up and used again for other products applied for the same purposes.

Q: Would that be a stand-alone product, over and above how you would apply those guidelines to your own testing?

A: Yes. There are several documents out there that already do this, but the concern is that they are huge. We'd like to downscale those guidelines.

Q: Would you do a literature review and come back?

A: Yes.

Q: Will you be looking for active ingredients in a patented product? Sodium Chloride is effective no matter what the product is. There is the worry that it will be banned at some point. With new products vendors want you to use their product without knowing the active ingredients; to take it on their word.

A: Technically it's possible to take a product apart but it is illegal. What we could do is evaluate if sodium chloride is in there, yes or no. We could extract that.

Q: So what you're saying is that sodium chloride will be a component of products until it is banned?

A: Yes, as will magnesium chloride, among others.

C: So if you find a good product, finding out how it works with sodium chloride is one of the things you will need to think about.

A: Yes.

Q: Your intention is not to go out and get existing products, right? To get the waste products themselves?

A: A lot of waste products have already been patented, and those are the ones we want to look at.

Q: From bio-fuels?

A: Yes, the table (of bio-fuels listed) from what we know are agricultural by-product based.

C: The majority of the Board's concerns have been addressed.

C: The Iowa DOT does have a process for evaluation of products brought to us; we'd be looking for something more sophisticated than what we have now.

Motion to Approve by A. Abu-Hawash, 2nd by R. Younie.

Carried 15 yea, 0 nay, 0 abstaining.

Revised Proposal *Ethanol By-Product Geo-Material Stabilization*, Halil Ceylan, Iowa State University (\$50,000)

INTRODUCTION

A presentation was made in February 2007 and the Board requested matching funds be found; that has been accomplished (funds are presented in the accompanying budget proposal).

Ethanol derived from biomass is often advocated as a significant contributor to possible solutions to our need for a sustainable transportation fuel. New uses for lignin need to be developed to provide additional revenue streams to improve the economics of the biorefineries. Lignin has been studied as an extender in asphalt to help reduce the use of petroleum and has been found to have no adverse effects on performance. Recent research studies are also focusing on evaluating the lignin derived from agricultural co-products as an antioxidant in asphalt. The addition of lignin, as a potential antioxidant to asphalt, is anticipated to increase the service life of our nation's highways.

PROBLEM

To learn if more strength in the base/subbase/subgrade material can be achieved by using some byproduct of the ethanol production plants and if there are by-products from ethanol fuel production plants that could be used as dust suppressants on dirt roads.

SCOPE AND OBJECTIVES

To demonstrate the ability of lignin derived from biorefineries as an effective aggregate/soil stabilizing agent for lignins that are currently available or are anticipated to become available in the future in abundant supply.

Task 1: Procurement of lignin (or modified lignin) and selection of base/subbase soils and aggregates

Task 2: Preparation of lignin-treated soil/aggregate samples for laboratory testing

Task 3: Laboratory testing of lignin-stabilized soil/aggregate mixtures

Task 4: Evaluating the effect of lignin on soil/aggregate stability and engineering properties

Task 5: Final Report

BENEFITS

Research findings can be used directly by Iowa's city, county and Iowa DOT engineers to improve their soil stabilization practices. A final report will recommend design practice. The procedure for producing lignin-stabilized soil-aggregate mixtures will also be described in the final report which will be useful for the practicing engineer.

Q: How will the production of lignin compete with the other by-products coming out of ethanol plants? What will they lose if they make the lignin?

A: More ethanol plants are planned for Iowa; others are being built nearby. From the literature review, the successful use of lignin as a stabilization material for soil, dust control, binder material in asphalt and deicing additives has been shown.

Q: The ethanol industry is drawing knowledge based on corn; will they have this type of product?

A: Some do, yes; based on corn grain the lignin produced is 8-15%; but you need to process it further to produce more. Ethanol is also made from corn residue (stalks and leaves) in a process similar to the making of ethanol from corn grain. The corn stover ethanol by-product has three times the concentration of lignin as the original cornstalks; after using stover, the remaining by-product of fermentation has 60-70% lignin.

Motion to Approve by M. Nahra, 2nd by J. Rasmussen.

Carried 15 yea, 0 nay, 0 abstaining.

Proposal Extension for TR-573, “Development of LRFD Design Procedures for Bridge Piles in Iowa,” Sri Sritharan, Iowa State University (additional IHRB 07-01, \$380,000) (additional IHRB 07-04, \$70,000)

BACKGROUND

In July 2007 TR-573 was begun. The objective was to recommend changes and improvements to pile design and construction procedures consistent with the LRFD specifications and available static pile load test data and soils information. Good progress has been made and the project will meet the objective; however, there are some challenges associated with TR-573:

- Of the 286 tests completed, only 43 steel pile tests can be used in the study.
- Identifying skin friction and end bearing contributions will be based on empirical approaches
- Pile damage can occur when a pile design is based on a static method
- Counties generally prefer an approach based on a dynamic formula
- Available data does not include PDA information nor does it cover all soil profiles

ADDITIONAL SCOPE AND OBJECTIVES

Extended Scope of 07-01

- Load Test 12 H-shaped steel piles
- Collect complete data sets: soil profile and parameters, driving (i.e., PDA) data, and static load test data
- Test both friction and end bearing piles
- Perform CAPWAP analysis and establish soil parameters through matching of data and perform wave equation analysis

Extended Scope of 07-04

Consistent with LRFD specifications:

- Develop dynamic formulas to design piles and
- Control their installation in the field, focusing on methods suitable for Iowa soil conditions.

BENEFITS

This combined research will ensure the uniform reliability of bridges in Iowa and assist with cost-effective solutions to the design and construction control of pile foundations for bridges in accordance with the LRFD specifications and local soil conditions. Based on experiences of other state DOTs, the LRFD method will become more cost-effective once the methodology has been implemented and appropriate adjustments based on field data are made to the resistance factors. Furthermore, by assisting with adopting the LRFD method for foundation piles, the project will also open up innovations, enabling the application of other piles types in bridge substructure (e.g. prestressed concrete piles, steel tubular piles and UHPC piles).

Project outcomes and the planned training will enable bridge foundation designers from the Iowa DOT and county and transportation agencies to successfully implement LRFD specifications to bridge design as mandated by FHWA beginning October 2007. Finally, electronic databases and a complete set of field data for piles will assist the implementation of LRFD specifications to bridge piles and provide new opportunities to advance foundation design in Iowa.

Ed Engle: During the ranking process, 07-01 was ranked as first in priority and 07-04 was ranked fourth.

C: There is no question concerning the amount of money we spend on bridges that the quality of what holds up those bridges is extremely important.

C: We have the opportunity here to save money on substructure design by having a more sophisticated design process.

Motion to Approve by M. Nahra, 2nd by S. Gannon.

Carried 15 yea, 0 nay, 0 abstaining.

Review and Approve FY 07-08 Second Round RFPs

07-09 Context Sensitive Bridge Design: Looking Above the Substructure at Bridge Rails and Approach Railing for Low Volume Roads

Ed: Something that we're hoping to establish for each of these three RFPs is a reasonable time frame and budget. These are in-house produced RFPs but if there is something you see that needs to be added or changed in any way, please let us know and we'll look into doing that.

C: On the context sensitive bridge design something has been amiss on that proposal; in looking at that we also need to consider appearance of the rail and appropriateness for the environment in which it will be placed. There are studies already completed that will tell us if we need an approach rail. We're trying to make the bridge somehow fit the location aesthetically as well as consider (when this was originally developed) what type of crash barrier we need. This departed just a little from our original intent.

C: Perhaps this needs to be re-written and brought back next month.

Ed: To begin, this will be more of a synthesis than actual design; when NCHRP does a synthesis project they're maximum funding is \$30K, so we may want to keep that in mind.

Q: So you're looking at open and closed-faced design of the rail?

A: Yes, type and design; open, closed, different types of rail depending on the type of superstructure that was there - some of the precast or timber bridges might allow different superstructure types. The new type 'F' rail looks terrible in a natural setting. Even on the interstate you can't see what you may be crossing over. I believe there is an appropriateness that needs to be considered for a different style rail considering crash factor as well.

C: No vote is needed. Mark Dunn will arrange a meeting to re-visit this RFP. Deanna Mayfield will be included in that meeting.

C: The new approach rail design (the Midwest Guardrail System) is independent of this idea.

C: We're looking at developing a cable barrier using our pooled fund for county bridges that would obviously be very open. At our last meeting we talked about several things that might apply here.

C: I've used the service level one system for placement in a couple of places on county road bridges and found it satisfactory and much lighter.

Q: Is this part of the synthesis Ed mentioned?

A: Part of the idea is to find out what other states are doing for low-volume roads rather than actually looking at design.

C: We don't want to encourage county engineers to not put guard rail on. I was hoping to find a way to put a railing on that was not crash tested. There used to be a mechanism to do that. When I put a railing on a historic highway there's pressure to place something like a bow-string truss on it. How can I put that on without design methodology?

C: This is part of the context sensitivity we were discussing with some of these historic park roads that still have the same needs from a traffic standpoint but do not necessarily work from an aesthetic standpoint. Our new open rail is even heavier than the old ones.

C: This just needs some refinement.

07-07 Pavement Thickness Design for Low Volume Roads in Iowa

Ed: Chris Brakke was unable to be here but we did ask him to review this RFP as well. He sent his comments via email: 'It probably does have merit, if the SUDAS method is not accurately depicting truck classifications or placement of pavement on subbase then it should be revised. More local agencies are placing subbases and using subdrains. The sticky part will be getting a procedure that SUDAS can adopt and both industries can buy into [asphalt and PC industries].'

C: The title of this is "Low Volume Roads," but the SUDAS design chapter in regard to this is for all local agency roads. There were two topics discussed at the HMA research focus group meeting: one was low volume roads and one was for the entire design chapter on pavement thickness (including HMA and PCC pavements). The research shouldn't be for just low volume roads, it should be for all local agency roads.

C: Do we need to split it back out and have two proposals? Many county roads being paved may not have the same level of trucks but they may have more overloads that a local agency/city might have. Many of our failures are due to infrequent extremely heavy loads. We need to keep a rural focus on that; some traffic may be seasonal if there's a facility/refinery nearby.

C: Towns can post year-round; counties can only put a limit on roads for 90 days, typically we do that in the spring yet damage still occurs in October. There needs to be a hard look at that as far as a design standard to maximize the life of those roads.

C: We should change 'low volume' to 'local.'

Ed: Do we have suggestions for cost and duration?

A: 50K in 18 months is needed for an in-depth study (rather than doing a synthesis project) to provide the information needed.

07-11 Investigation of the Risk of Random PCC Cracking with the Use of Early Entry Sawing

C: There is a 40K recommendation in a 12 month time period.

Ed: We have anecdotal information that there are problems, at least occasionally, with centercut Soff-cut sawing. This is transverse Soff cut, we no longer do longitudinal.

C: We have more than anecdotal; we find stratification at the saws and there's quite a particular problem with one that doesn't cut deep enough; new ones are working but the older ones aren't. We need to use the larger saw that more closely resembles the wet saw method. 40K should get us to a better understanding.

C: The suggested budget is 40K with a timeline of 12 months.

One Member left the table.

NEW BUSINESS

Discussion of New Load Ratings for Standard Bridges

C: We will be required here shortly to rate bridges on the LRFD requirements; there have been past studies that have been heavily utilized by counties for bridge rating since 90% or more of bridges on county systems are a standard bridge type. We've been able to save a great deal of money for Iowa counties having standard load ratings done and we can consult and update our bridge standards. The last rendition of this study was done in 1994, although it was done in error. The inspections were to be done on load factor design and instead were done on allowable stress. That's when we added the 93K and 96K trucks to the study. With the requirement that we go with the LRFD design, they're going to require LRFD ratings of the standard bridges as well.

We should work toward developing a problem statement that will re-rate our county standard bridges. At the very least those that fall into the new LRFD standard are going to be required to be rated by LRFD; or at least our five trucks, our type four-five-six 93K and 96K trucks plus our standard ratings so we can tell them whether it's a HS25 or HM93.

C: [Ahmad] I drafted a problem statement (handout) late yesterday and sent it to Ed this morning, but basically the LRFD rating will not be required until 2011, and only required for bridges designed as LRFD; but you still need to update your bridge standards to LRFD.

C: I thought everything built since 1994 needed to be rated as LRFD?

A: Those need to be updated to LFD, but the other issue is LRFR which is the rating version of the LRFD; it's not really ready. There's not enough software and it's not finalized. So we have some standards designed using LRFD but shouldn't be using LRFR for LRFD yet because we expect some changes to specifications. For now we should go on using LRFD standards and in 2011 or sometime after, may need to revisit this.

Whoever might be interested in this issue should be included in a follow-up meeting to discuss this. We suggest using Stanley Consultants because they did the last study; it may be more efficient to have the same consultant continue the study. We have no problem using another consultant. Right now we're thinking \$150K.

Q: Is there an estimate on time?

Ed: We don't know how long it took to do this the last time but I can find out.

C: The next step is to have representatives from the counties sit down with us to discuss the standards we have shown here and if they favor a consultant, which one. After the I-35 disaster the SIA rating needs to be revisited.

C: The posting trucks are based on trucks that are actually operating versus the design trucks which are used for that comparative purpose.

Q: Is that number on the SIA sheet going to have to address the rating number system?

A: I don't know; it may be considered. That's one of the reasons why we shouldn't start using LRFD to rate bridges yet; a lot of questions have been unanswered.

Ed: Is this something you can meet with counties about?

A: Can you ask Mark to set up a meeting?

C: Perhaps after lunch following the January meeting would be a good time.

Ed: If there's anything you'd like to change or modify on any of these RFPs please let me know.

Q: Do we need to follow-up with MN after their presentation?

Sandra: We've been aware of their TERRA board for a long time and Iowa DOT was invited to join some time ago. I checked into that and to be a member and attend meetings it would cost \$10K. What you get for that fee is to be a member. It does not fund research. It gives you membership. We have elected not to join, but we know several of the researchers up there and we share information back and forth. Because the \$10K did not give us anything tangible we decided not to join. I believe the membership is a one time fee. CTRE is a member.

C: In addition to TERRA there's also the question of communicating with their Local Roads Research Board. They're not the same thing.

A: Yes, Iowa and Minnesota are the only two states with a research board. The difference between us is that we also have Primary funds whereas they have only the Secondary and City funding. We want to continue our collaboration and look forward to sharing information in the future.

Q: Can Mark write a follow-up letter?

A: A letter to thank them for their visit would be very nice and to say we look forward to the continuation of collaborations already in place. Those have been informal to this point with the TERRA board; there are several researchers up there I am acquainted with and we are invested together in several pooled fund studies.

C: I'd like to know more from Mark's perspective concerning possible synergies between us.

Q: Is there a way to know when they short-list? Do they do it in the spring like we do? That way we're not picking projects that maybe they're doing.

C: If they've done that chemistry project we'd get our money back; to not duplicate research.

C: The first step could be to consider going there for our May Travel Meeting.

Q: Is everyone able to travel out of state?

A: My county pays to the state line and then, I'm on my own. I'd willingly go see what they're doing in this case.

Q: If we started out early morning could we realistically get up there and back in one day?

A: No.

C: The trip would be a real challenge for the state people.

C: We could all take a bus.

C: Tell Mark about our discussion and ask him to write a letter and say 'thank you' for their visit; tell him it doesn't look as though we're going to move forward with full membership but we'd like to keep the door open and would like to consider a possible meeting at their location sometime in the spring at our Travel Meeting. As a minimum while we're there we'd like to talk about collaboration to avoid duplication of studies and how we can increase that number.

Sandra: We have numerous pooled fund studies between Iowa and Minnesota; currently there are 30 and we have another \$300K to use in this way. I can't tell you exactly how many we're working on together but I can get that list for you if you'd like to see it.

C: There is strong collaboration already.

Motion to Adjourn

Motion to Adjourn by J. Joiner. 2nd by R. Schletzbaum.

Carried 14 yea, 0 nay, 0 abstaining.

The next scheduled meeting of the Iowa Highway Research Board will be held on **THURSDAY, DECEMBER 6, 2007 FROM 1 P.M. TO 4:30 P.M. at the Iowa DOT Materials East/West Conference Room, Ames, Iowa.**

Mark J. Dunn, IHRB Secretary