

IOWA HIGHWAY RESEARCH BOARD (IHRB)

Minutes of February 29, 2008

Regular Board Members Present

A. Abu-Hawash
J. Adam
J. Berger
V. Dumdei

J. Krist
B. Moore
M. Nahra
J. Waddingham
D. Waid

Alternate Board Members Present

R. Souleyrette for J. Alleman
S. Rahmatalla for Keri Hornbuckle
S. Rinehart for District 3 County Member

Secretary - M. Dunn

Visitors

Jon Ites

Buena Vista County

Dave Claman

Iowa Department of Transportation

Ed Engle

Iowa Department of Transportation

John Hinrichsen

Iowa Department of Transportation

Yonjoo Kim

Iowa Department of Transportation

Mary Starr

Iowa Department of Transportation

Tom Cackler

Iowa State University/CTRE

Shauna Hallmark

Iowa State University/CTRE

Shashi Nambisan

Iowa State University/CTRE

Max Porter

Iowa State University/CTRE

Vern Schaefer

Iowa State University/CTRE

Omar Smadi

Iowa State University/CTRE

The meeting was held at the Iowa Department of Transportation's East/West Conference Room, Materials Building, Ames, Iowa. The meeting was called to order at 9:00 a.m. by Chairperson Jeff Krist with an initial total of 11 voting members/alternates at the table. Two Members joined the table later bringing the final voting total to 13.

Agenda

No changes were made to the Agenda.

Approval of the minutes

Motion by J. Adam to approve minutes from the January 25, 2008 meeting. 2nd by J. Waddingham. Carried 11 aye, 0 nay, 0 abstaining.

FINAL REPORTS

Final Report TR-540, “Developing Guidance for Use of Lighting in Rural and Urban Roadways in Iowa,” Neal Hawkins, Iowa State University/CTRE (\$124,842)

PROBLEM

Agencies have several mitigation strategy options to consider in addressing nighttime crashes. The installation of roadway lighting is only one of these strategies. This research assists local agencies in deciding when and where to provide rural intersection lighting to address nighttime crashes.

OBJECTIVES

This research:

- Addresses the common types of nighttime crashes at rural Iowa intersections
- Examines strategies used by agencies to reduce nighttime crashes
- Summarizes lighting warrants and practices used by other states
- Discusses results of a survey of Iowa counties and cities regarding their lighting installation practices
- Presents a rural Iowa intersection field analysis on the impact lighting and other mitigation measures have on safety
- Develops a draft lighting guide to be incorporated into the Statewide Urban Design and Specification (SUDAS) manual

CONCLUSIONS

This report summarizes the common types of nighttime crashes at rural Iowa intersections, discusses strategies used by other agencies to reduce nighttime crashes, summarizes lighting warrants and practices used by other states, discusses the results of a survey of Iowa counties and cities and their practices in deciding to install lighting, and reports on the results of an analysis to evaluate the effectiveness of lighting and lighting quality. Research shows that intersections without lighting have twice as many night-time crashes (over a three year period).

C: Inductive lighting is being considered by the state of Iowa because of bulb life (thirty years); did you examine that?

A: No, but we would be interested in examining and facilitating that research in a Phase II.

C: Inductive isn't a new technology but until now, was very expensive. Now, it would lower costs.

Q: The Tech Brief is being completed?

A: Yes.

Motion to Approve

Motion by D. Waid. 2nd by J. Joiner.

11 aye, 0 nay, 0 abstaining.

*** One Member joined the Table***

**FINAL REPORT TR-520, "Evaluation of Dowel Bar Retrofits for Local Road Pavements,"
James Cable, Iowa State University/CTRE (\$146,708)**

PROBLEM

As truck traffic on Iowa secondary roads has increased, engineers have moved to concrete pavements of greater depths. Early designs included thickened edge pavements and depths of seven inches or greater. The designs typically did not have load transfer devices installed in the transverse joints and relied on aggregate interlock for this purpose. In some cases, aggregate interlock was not adequate to deal with the soils and traffic conditions and faulting of the joints has begun to appear.

OBJECTIVES

Engineers are now faced with the need to install or retrofit load transfer in the joints to preserve the pavements. Questions associated with this decision range from the type of dowel material to dowel diameter, spacing, number of bars, placement method, and construction techniques to be used to assure reduction or elimination of faulting. Buena Vista County constructed a dowel bar retrofit project on one mile of road. The plan called for addition of the dowels (2, 3, or 4) in the outer wheel path only and surface grinding in lieu of asphalt overlay.

CONCLUSIONS

The project included the application of elliptical- and round-shaped dowels in a rehabilitation project. Dowel material types included conventional epoxy-coated steel and fiber-reinforced polymer. This work involved the determination of relative costs in materials to be used in this type of work and performance of fiber-reinforced polymer (FRP) and elliptical-shaped steel dowels in the retrofit work. The results indicate good performance from each of the bar configurations and use the results of ride and deflection testing over the research period to project the benefits that can be gained from each configuration vs. the anticipated construction costs; however, this project could not relate the number of dowels required to the level of anticipated truck traffic for other roads that might be considered. A recommendation to save costs in the future is that 3-4 bars be used if more trucks will be traveling the roadway in the future, and if an overlay is going to be done, dowel bars should be used (they may extend the life of the road 15-20 years).

An examination of county records indicate that 73 counties had roads using 7" pavement (1430 miles) eligible where dowel bars could be placed. A list has been composed and will be sent to transportation personnel and district engineers so decisions can be made for future overlay projects.

The IA DOT has built a retrofit on HWY-163 south of Des Moines, and one will be built on HWY-13 this summer (PI Vicki Dumdei).

Q: Wasn't there some research done showing twice as many FRP dowels were needed over steel?

A: Work done on HWY-330 and other projects show 8" spacing versus 12"; however, on this project, we didn't want to change spacing because of the cutter head that cuts slots (runs up price) on the project. Elliptical seems to work the best and this seems to be the trend for the future, as well as more custom designs.

Motion to Approve

Motion by J. Waddingham. 2nd by M. Nahra.

12 aye, 0 nay, 0 abstaining.

*** One Member joined the Table***

PROPOSAL CONTINUATION for TR-531, “Stabilization Procedures to Mitigate Edge Rutting for Granular Shoulders,” Phase II, Charles Jahren, Iowa State University (\$79,638)

PROBLEM

Recently completed investigations on shoulder maintenance and design have revealed that edge ruts in granular shoulders are an important and persistent safety issue that is challenging to remedy. Several conditions coincide to cause this problem: air movements generated by traffic blow fine particles away from the pavement edges that would otherwise serve as binders to hold the shoulder materials together; vehicles going off-track and dropping off the edge of the pavement; and drainage from the pavement surface concentrating at the edge, softening the shoulder materials, and exacerbating the displacement process. The deeper binding materials that have not been blown away are compacted by the off-tracking vehicles into a hard crust, one-to-three inches below the pavement edge. When a shallow wedge of unbound material is replaced near the pavement edge, it is quickly displaced because it does not have the stability that comes from being knit into the underlying materials.

OBJECTIVES

The objectives of this research project are to:

- Determine the relative importance of localized, chronic edge rut issues compared to longer reaches of roadway with more general shoulder edge rut maintenance issues.
- Develop a series of strategies for mitigating edge rut problems using various mixtures and gradations of granular materials and various stabilization agents.
- Rate the performance of a subset of the above mentioned strategies by observing test sections.
- Recommend strategies based on the results of test section performance, cost and likely future maintenance procedures.
- Assist the Iowa DOT in implementing the use of the recommended strategies.

PRODUCTS

A final report and an executive summary will be submitted at the conclusion of the project. In addition to the written report, a technical summary sheet will be created. Presentations will be made at appropriate local/regional conferences. The research team may present the results of this study in the following forums:

- Iowa County Engineers Association
- Iowa DOT Annual Conferences – Design, RCE, and Maintenance
- Iowa LTAP workshops and presentations
- Transportation Research Board
- Iowa SUDAS

It is anticipated that the research team may be asked to assist in specifying stabilization agents and provide a description of the construction procedures that are selected for implementation.

C: It was noted that an estimate of \$12,000 would be needed for purchase of stabilizing products to conduct this research. Due to a limited operating budget, it was requested that up to \$12,000 be approved for the Iowa DOT District 2 to purchase any stabilizers needed for the research.

Motion to Approve the Proposal With Addendum Providing for Materials Budget for Iowa DOT District 2 Not to Exceed \$12,000; the Total Amount of Funding for the Project is Not to Exceed \$91,638

Motion by A. Abu-Hawash. 2nd by S. Rinehart.
13 aye, 0 nay, 0 abstaining.

Final Report TR-553, “Examination of Curing Criteria for Cold In-Place Recycling,” Hosin “David” Lee, The University of Iowa (\$100,000)

PROBLEM

Cold In-Place Recycling (CIR) has been used widely in rehabilitating the rural highways because it improves a long-term pavement performance. A CIR layer is normally covered by a hot mix asphalt (HMA) overlay in order to protect it from water ingress and traffic abrasion and obtain the required pavement structure and texture. The industry standard for curing time is 10-14 days or a maximum moisture content of 1.5%, which appear to be very conservative. When the exposed CIR layer is required to carry traffic for many weeks before the wearing surface is placed, it increases the risk of a premature failure in both CIR layer and overlay.

OBJECTIVES

This study was performed to explore technically sound ways to identify minimum in-place CIR properties necessary to permit placement of the HMA overlay. To represent the curing process of CIR pavement in the field construction, three different laboratory curing procedures were examined:

1) uncovered, 2) semi-covered and 3) covered specimens.

CONCLUSIONS

The indirect tensile strength of specimens in all three curing conditions did not increase during an early stage of curing but increased during a later stage of curing usually when the moisture content falls below 1.5%. Dynamic modulus and flow number increased as curing time increased and moisture contents decreased. For the same curing time, CIR-foam specimens exhibited the higher tensile strength and less moisture content than CIR-emulsion. The laboratory test results concluded that the method of curing temperature and length of the curing period significantly affect the properties of the CIR mixtures. The moisture loss index was developed to predict the moisture condition in the field and, in the future, this index be calibrated with the measurements of temperature and moisture of a CIR layer in the field.

Q: On the moisture loss index did you consider pavement temperature?

A: No; but we will in future field testing. We used air temperature only.

Q: In your graph, there is little change between 2% and 1.5% - there was little change in the strength; does that indicate that we could set our requirement at 2%, 1.75 or slightly higher?

A: My personal opinion is that 1.5% is probably the magic number, and using 2% or a little higher, results in similar strength. It's difficult to measure strength in the field, so we allow that moisture can be a little higher; however, strength is similar in that range.

C: We've even used 2.2% and not seen any apparent harmful effects on pavement. We've been pressed in autumn when we didn't get a lot of drying time; 1.5% can be a real restriction and cause terrible scheduling problems.

A: Results in the laboratory may not be the same as field results.

C: Relying on the nuclear gauge may not be as accurate as lab results.

Motion to Approve

Motion by M. Nahra. 2nd by D. Waid.

13 aye, 0 nay, 0 abstaining.

PROPOSAL CONTINUATION TR-553 “Examination of Curing Criteria for Cold In-Place Recycling,” (*Measuring Temperature, Moisture, Deflection and Distress for the Test Section Cores*)
Hosin “David” Lee, The University of Iowa (\$64,924)

PROBLEM

Phase I (TR-553) was conducted to explore more effective ways to identify minimum in-place CIR properties necessary to permit placement of the HMA overlay, focusing on laboratory experimentation that simulated the field curing conditions and determined the various moisture levels affect the indirect tensile strength of both CIR-foam and CIR-emulsion. However, a fundamental question was raised during the Phase I study regarding a relationship between field moisture content measured using a nuclear gauge and the laboratory moisture content in gyratory compacted specimens cured under varying temperature and moisture conditions, so it is critical to measure moisture and temperature throughout the CIR layer, which can be related to the laboratory test results obtained from Phase I.

OBJECTIVES

The main objectives of this Phase II study will be to:

- Measure the moisture levels throughout a CIR layer
- Develop a relationship between field moisture measurements and laboratory moisture
- Measurements develop a curing index to determine the optimum curing time of CIR layer before overlay

PRODUCTS

The main product anticipated from this research is a simple curing index that the industry and agency can apply to monitor the CIR layer for a timely placement of the wearing surface. A set of curing indices which can determine an optimum timing of an overlay is expected to come out of the proposed study for implementation.

Motion to Approve

Motion by J. Berger. 2nd by B. Moore.
13 aye, 0 nay, 0 abstaining.

PROPOSAL - Update of Bridge J Standards, Dean Bierwagen, Iowa DOT (\$113,239)

PROBLEM

The Iowa Highway Research Board has recently released updated Three-span, Continuous Concrete Slab Bridge Standards (J Standards). The standards were updated to bring the superstructure design up to current LRFD design standards. At the time of the update, the AASHTO LRFD substructure design standards were not ready for use. Recent changes in Iowa DOT design standards for abutment wings, barrier rail end sections and paving notches have also been completed but were not included in the J standard update. There is a need to update the J standards to LRFD substructure design and to update the barrier rail end section, paving notch, and wing design.

OBJECTIVES

The objective of this project is to update the design and detailing of the continuous concrete slab standards (J Standards), including:

1. J standards – This will include the J24-06, J30-06, J40-06 and J44-06 standards: a) Abutment pile, b) Pile bents, c) Bridge Design Manual Review, d) Update wing, e) Update barrier rail end section, f) Update paving notch and g) Miscellaneous revisions.

Abutment details will be revised to include temporary paving block detail. Also update all related standard reinforcing schedules and quantity tables to match changes. Revise TL-4 Open Rail to show 3/4 inch chamfer at post locations.

PRODUCTS

A revised set of bridge standards will be provided under this contract. All associated design files and supporting calculations will be submitted to the Iowa DOT, Office of Bridges and Structures.

Q: Will it be adequate once 13" are notched out of the back wall?

A: Stanley will do an independent evaluation.

C: Designers at Stanley have used a two foot back wall using a 10" notch with the approach slab tied to notch; they're not having any problems.

C: Minor revisions for Section G at the request of county engineers to put temporary paving block back will be made, but this is a minor change; another item will be Open Rail. Stanley borrowed detail from Nebraska; they have developed a vertical crack right at the post because of continuity of open rail. It's been proposed that a chamfer be used right at the post to keep it from having jagged shrinkage crack.

Q: Is this 100% funding through IHRB or is some funding coming from Bridges & Structures?

A: It was discussed and it was suggested it be funded 100% by the counties, although there will be some benefits to the state.

Q: On the last set of standards, the state did contribute to the balance.

C: There is enough benefit to the county's that it is cost-efficient.

Motion to Approve at 100% Funding by Counties

Motion by M. Nahra. 2nd by B. Moore.

13 aye, 0 nay, 0 abstaining.

FINAL REPORT TR-505, "Improving Portland Cement Concrete Mix Consistency and Production Rate through Two-Stage Mixing," Tyson Rupnow, Iowa State University (\$164,764)

PROBLEM

A two-stage concrete mixing process involves mixing a slurry and water, then adding the slurry to coarse and fine aggregate to form concrete. Some research indicates that this process might facilitate dispersion of cementitious materials and improve cement hydration, the characteristics of the interfacial transition zone (ITZ) between aggregate and paste, and concrete homogeneity.

OBJECTIVES

The goal of the study was to find optimal mixing procedures for production of a homogeneous and workable mixture and quality concrete using a two-stage mixing operation through:

- Achieving optimal mixing energy and time for a homogeneous quality concrete material
- Characterizing the homogeneity and flow property of the pastes
- Investigating effective methods for coating aggregate particles with cement slurry
- Studying the effect of the two-stage mixing procedure on concrete properties
- Obtaining the improved production rates

CONCLUSIONS

Based on the research results from the present study, the following recommendations should be considered for continuing research and implementation of the two-stage concrete mixing process:

- It is believed that the two-stage mixing method will increase concrete strength. Laboratory results from this study showed an 8-10% increase, field results showed a 5-10% increase, and literature results showed a 10-20% increase.
- The two-stage mixing method will improve concrete uniformity significantly. Additional research/field studies are needed to verify the conclusions from Phases I and II.
- In future field studies, the same materials and mix proportions should be used for both mixing methods (two-stage and conventional).
- More repetitions of the designated tests should be conducted. Besides slump testing, mortar (sieved from the field concrete) flowability should be tested using a flow table.
- Additional studies are needed on the effects of AEA in two-stage mixing methods to overcome potential difficulties in entraining air—namely, dosage rates and sequences.
- Further investigation is needed in the case of ternary combinations to show the effect of two-stage mixing methods.

Q: Can you elaborate on the improvement in permeability?

A: Basically, it went from low to very-low or moderate to low; it improved by one class.

Q: Were adjustments made because of loss of air content?

A: Yes, adjustments were made regularly.

Q: Has a location been found for Phase III?

A: We're working with the IA DOT to find a site.

Q: If you find some answers will you come back to the Board with a proposal for Phase III?

A: Yes.

Motion to Approve

Motion by J. Adam. 2nd by V. Dumdei.

13 aye, 0 nay, 0 abstaining.

PROPOSAL *Updating U.S. Precipitation Frequency Estimates for the Midwestern Region*, Marian Baker, National Weather Service (\$137,937)

PROBLEM

The National Weather Service (NWS) rainfall maps have not been updated for approximately 50 years. This means that the design of storm sewers, culverts, dams, detention basins, etc. has been performed using outdated data. The NWS proposes updating precipitation frequency estimates (TP-40) for the Midwest States (MN, SD, ND, MO, IA, NE, and KS) by including the last 50 years of rainfall data. This project is part of a national effort to update the rainfall/frequency relationships for the entire United States.

OBJECTIVES

The project will review and process all reasonably available rainfall data, including rainfall data archived by NOAA's National Climatic Data Center (NCDC) and other data available from sources such as State Climatologists and federal, state and local agencies (as appropriate); state of the art techniques and processes developed and applied for NOAA Atlas 14 will be applied.

PRODUCT

A web based Precipitation Frequency Data Server will be developed for accessing Precipitation frequency estimates for rainfall durations of 5, 15, 30, and 60 minutes, 2, 3, 6, 12, 24 and 48 hours, 4, 7, 10, 20, 30, 45, and 60 days with frequencies of 1, 2, 5, 10, 25, 50, 100, 200, and 500 years. Contour maps and high resolution grids will be available for each combination of rainfall frequency and duration. Charts of the seasonal distribution of annual rainfall will be developed and the results will be documented. The study results will be a web based publication available at www.nws.noaa.gov/ohd/hdsc.

POOLED FUND STUDY

This research will be conducted by the NWS and is being conducted as a pooled fund project sponsored by FHWA under the direction of Geoff Bonnin, director of the NWS Hydrometeorological Design Studies Center. \$60,000 will be contributed to the study from Iowa DOT SPR funds.

Q: Can this be combined with USGS storm gage studies?

A: Although similar technology will be used, different data will be collected. Streamstats is based on stream gages and is a separate entity from this, which collects rainfall duration using rainfall gauges (small watersheds, for example).

C: Any precipitation data will be useful to cities.

Q: How often will data be updated?

A: We can get that answer.

C: Climatic changes will not be reflected in the numbers.

Motion to Approve

Motion by M. Nahra. 2nd by J. Joiner.

13 aye, 0 nay, 0 abstaining.

REVIEW AND APPROVAL OF FINAL FY2008 RFPs

07-09 Context Sensitive Bridge Design: Looking Above the Substructure at Bridge Rails and Approach Railing for Low Volume Roads (\$50,000) (12 months)

Mark: This study will consider how other states are addressing their rail issues, including their guidelines. A cost/benefit analysis, and whether it's worth having or not having rails, and also looking at other innovative railings such as cable strand, etc., will be made.

C: We haven't updated our county engineer design standards on rails since low-volume road standards came out from AASHTO. New standards are needed. This is what TRB would call a synthesis project: examining the scope of research and bringing in the new standards to determine what direction is best.

C: Our national research body uses \$50,000, but there's not any real lab work. This will be for literature review and compilation of data. What about \$35,000?

C: SHRP synthesis research at \$35,000 is considered by most as being leaders for further involvement, and more work and funding is given later.

C: Is this only for bridge and approach rail?

A: Yes, primarily.

07-03 Infrastructure Impacts of Iowa's Changing Economy

Mark: This project will examine the changes in the use of our road system as new ethanol and bio-diesel plants are built; other topics that need consideration are how new windfarms and wind generating facilities being built in Iowa will impact use of roads...use, weight and size of trucks are increasing, commodities being shipped are changing. Also, taxation issues that arise as cities annex these properties needs to be examined and how that affects the county's ability to acquire funding and maintain the system.

C: A county's maximum levy for secondary roads is \$3.00375 of one cent for rural property; we can only apply \$0.16875 to city property. Delaware County has two ethanol plants; rural properties were annexed for those. So we have \$125M facility that generates \$375,000 a year toward road funding that's still rural to care for, and that road system is being trucked with loads of grain, stover and other products coming in. Once the city annexes those properties, we can only levy . \$0.16875, and that's if the city hasn't put it into a tax-increment finance district. We have 15-20 years the county isn't going to be eligible for any of that tax money. Unfortunately, Secondary roads suffer from the impact from heavier loads.

Part of it is looking at the design standards on the roads, geometrics and the number of trucks expected...there are unknowns. How much can be stored on site vs. hauling year round? In regard to wind farms, what about tridem trailers moving through intersections without the radius for those turns?

Q: Do we have any statistics on these ethanol facilities? the number of trucks per day?

A: Iowa DOT has done some projections and estimates 100 trucks a day on roads.

C: I don't care if it's 100% Secondary project funded, but this is one project we need to do. We're a long way from cellulose ethanol, but when it does get here, it's going to be something to adjust to.

Some counties are looking at putting windfarms in, and they're needing to look at spot improvements at intersections to allow those oversize loads to maneuver out there. When grading a farm-to-market section, you need to consider the whole corridor; you can't really put a farm-to-market road in on a 66' Right-of-Way. The intermediate roads system just might need changes at intersections.

This is the result of just a couple of us working on it; it can be modified and things can be added so we can get the results we're looking for.

Mark: Personnel from our Systems Planning Office will be the technical contacts on this; we will have people with experience working on this.

C: Spring (March and April) has been the time when a lot of corn contracts have traditionally been due (when looking at grain export). We're getting into a system now that's probably running more grain on our roads year-round to keep these plants fed: now, if we're looking at other products also being brought in from rural areas, and talking about putting a strain on a road that was designed to serve the 80-160 acre farm. It's stressing our systems and our ability to maintain those roads.

Mark: I probably won't send this out until the middle of next week, so if you have any comments, corrections or additions please let me know and I'll make those.

C: One of the things counties are looking at is changing what those maximum allowed levys are; they haven't been adjusted since 1982 or maybe longer. The increase in value isn't keeping up with the cost of maintaining the road system. But \$0.16875 doesn't cut it; we're not looking at being able to serve

communities with a collector road system, we're looking at a lot of the roads carrying a larger load than they used to.

C: This report would be looked at very carefully by the legislature on both sides of the aisle. One of the things they'll want considered are the impacts of *not* providing the infrastructure for these businesses. The initial reaction might be no more taxes or a property tax relief type of thing.

C: We're looking at a study that will examine questions like, 'If we have no changes in road use tax funds, no changes in property tax laws, where are we in 5, 10, 20 years down the line?' and 'What kind of road systems will we have?' That may be a different issue. This is looking at 'What's the impact?'

NEW BUSINESS

Mark: This is not actually a new project; we had discussed the need for a new load rating on county standards. Ron Meyer has put that out and Stanley Consultants has responded. Their cost would be \$110,300 which would be a maximum. Ron hasn't negotiated with them at this point; this project would update the standards for load ratings. This would be the third upgrade to the standards. I think they (Stanley) have done the others.

C: We at the counties have an issue with getting up to standard with NBIS; getting up to load rating factor for bridges built since 1990. So it goes into our 1987 standards. We only have those evaluated by allowable stress design right now; to stay in compliance with current standards we need to update.

C: Is this Phase IV?

A: I believe so - HR-239.

C: Regarding gusset plates for stresses, after another look we think maybe we could identify a few road truss standards under certain conditions and get FHWA endorsement. We may have to add that to this. I don't have that figure yet. There's no urgency, we have time.

Q: We have \$110K for these tasks and you want to add another task, is the correct?

A: We'll put this on hold.

C: I'd like to do the slabs now and do a supplement as other tasks are ready.

Motion to Approve at 100% Secondary

Motion by B. Moore. 2nd by S. Rinehart.

13 aye, 0 nay, 0 abstaining.

TRAVEL MEETING

Mark: May is typically our Travel Meeting. We've discussed a Minnesota Roads (MnRoad) tour. We'd need one day to travel up, one day for the tour and the following morning, could have our business meeting before returning. We could also entertain other options.

C: MnRoad has a pooled fund study that IHRB is participating in to look at the effects of large agriculture equipment on Secondary road pavements.

Ed: They finished construction in October and will be testing in the next two weeks. The location is just NW of Minneapolis/St. Paul. I'll send out the latest Quarterly Report and test plan to the Board.

Mark: We should consider moving the Travel Meeting to September so we travel in the new fiscal year; it would be better for IA DOT employees. This is one option; we can entertain other requests. My suggestion is to wait until September.

C: We could find out if travel's going to be a problem or not.

Mark: I haven't visited with MnRoads on this yet; I need to check into their schedule. I'll try and collect more information and have that ready for our April meeting.

Note: Jim Cable discussed a Travel Meeting option to the Board - A visit to see the 'Iron Horse' that breaks up pavement very quickly of 6" or less with no need to close to traffic.

Mark: Please get me some more information.

RESEARCH TOPICS

Mark: Research topics need to be received by the end of next week. I just need a paragraph of information so others on the Board can quickly gain an understanding of the project. The deadline was March 3, but we've moved that to Friday, March 7, 2008.

NEW SECURITY REQUIREMENTS

Mark: The IA DOT has increased security with new changes taking place before our next meeting in April. The only access for non-DOT employees will be through the Main Entrance with Visitor Passes and an escort to the meeting room; conducting a meeting like this will be almost impossible. We don't have the staff to escort people back and forth. So, we've decided to move these meetings off-site and are looking at other facilities. Hopefully we'll have a decision made regarding where we'll be meeting soon. We'll email Members/Alts where the new meeting facility will be along with directions as soon as the decision has been made.

ADJOURN

Motion to Adjourn

Motion by J. Joiner, 2nd by J. Adam.

Motion carried with 13 aye, 0 nay, 0 abstaining.

The April 2008 meeting of the Iowa Highway Research Board will be held **FRIDAY, April 25, 2008 at 9:00 a.m. at the Ames Holiday Inn Conference Center, 2609 University Avenue, Ames, Iowa.**

Mark J. Dunn, IHRB Secretary