Technical Advisory Committee Minutes–1 (April 9, 2003)

Jim Grove, Center for PCC Pavement Technology

TPF-5(066) Material and Construction Optimization for Prevention of Premature Pavement Distress in PCC Pavements.

Purpose of Project: To develop optimal mix design and test methods for monitoring Key performance parameters and conduct demonstration tests in participating states.
http//www.ctre.iastate.edu/pccpoolfund/

Attendees:

Shannon Sweitzer	North Carolina DOT
Jason Blomberg	Missouri DOT
Mike Byers	Indiana Chapter ACPA
Jan Olek	Purdue University
Doug Schwartz	Minnesota DOT
Mauricio Ruiz	Transtec
Rob Rasmussen	Transtec
Dan DeGraaf	Michigan Concrete Paving Association
Jerry Voigt	ACPA
Gordon Smith	Iowa Concrete Paving Association
Tom Bold	North Dakota DOT
Dan Johnston	South Dakota DOT
Moon Won	Texas DOT
George Woolstrum	Nebraska Department of Roads
Tom Van Dam	Michigan Tech University
Max Grogg	FHWA – Iowa Division
John Volker	Wisconsin DOT
Jim Parry	Wisconsin DOT
Scott Schlorholtz	Iowa State University
Jim Grove	Iowa State University

INTRODUCTIONS

The meeting began with a brief introduction of this pooled fund project. Attendees introduced themselves.

HISTORY

Jim Grove presented a brief history of the origins of the project. Its roots are in an FHWA initiative called DP-119 that started in the 1990s. Shortly after it began, funding for this project terminated. The Midwest Concrete Consortium recognized the need and benefit from this effort and in the late 1990s began organizing a pooled fund. That idea was slow in development. The PCC Center at Iowa State University had just been formed and Dale Harrington offered the Center's help to organize this pooled fund study. Iowa volunteered to be the lead state and the PCC Center is now taking the lead in managing this effort.

Jim presented a PowerPoint presentation of the progress of work to-date, the organizational aspects of the project, tasks involved, participants in the project, and funding summary. [This presentation is on the web site] Scott Schlorholtz briefly explained a research project he is currently conducting on PCC mixture uniformity that will tie to the pooled fund. Mauricio Ruiz explained FHWA Task 64, which he is currently leading. This project is a natural companion to this effort because it will look at PCC mix components and their interactions and then develop software to optimize these mixes. The pooled fund will dovetail with this work in the area of mix component testing and materials properties affects on performance. [The PowerPoint presentation is on the pooled fund web site].

SURVEY OF PRACTICE

The survey will include all pavements—new construction and overlays.

Should the survey include cracking that may be caused by design issues? Go ahead and include and if later it seems of be outside our study it can be excluded.

Tom Van Dam suggested sending the survey by email and have a web-based way to respond.

State that this is a history—brief and to the point.

Include projects 15 years or newer. May include up to 20 years old if the problem showed up within 15 years.

Include all levels of problems—from earth shattering to some distress.

Look at what changed from comparable projects or sections where there are no problems.

Jerry Voigt told of the ACPA premature pavement deterioration survey from a few years ago. He will send it to Jim.

Max Grogg suggested sending to all states. Cheryl Richter has the AASHTO list of contacts.

Dan Johnston pointed out that we need to ask about any non-standard test they may be using.

SUITE OF TESTS

The "Suite of Tests" was discussed with the following comments.

Durability — it may be a good overall measure but it will be difficult to easily and quickly test

Curing — the question is: is it working? It probably could be included under shrinkage

Scaling — Missouri and Michigan Tech are developing improvements to linear traverse

What we need is real time air, consolidation, and water/cement ratio

Water/cement — need to add microwave water/cement test. Minnesota's experience is that it does well for verification

Aggregate gradations — should include fineness modulus

Set time — Nebraska uses the Gilmore test

Heat signature — Steve Otto (Holcim) uses it in the field. Rob Rasmussen and Anton Schindler are developing

Image analysis — Tom Van Dam, Jason Blomberg, and Scott Schlorholtz are all working on procedures for this

Plastic air test — need a procedure for behind the paver

CTE concrete test — AASHTO TP-66 needs to be modified

SPECIFIC ISSUES

The remainder of the day involved discussions on various topics of the research. Those discussion items are grouped below, not necessarily in the chronological order of the meeting.

Contracting

Dan Johnson asked who will be doing the work. This is a cooperative effort and many partners are envisioned. The PCC Center will take the lead and coordinate all efforts. Much of the "Suite of Tests" development involves identifying existing tests and establishing their relation to performance. Many of these tests are existing tests, which need either further development, test procedures specified, or merely implementation efforts. For efficiencies, Iowa State will handle this work because of the relatively small amount of work for a large number of tests.

A number of tests need development or new tests need to be created. The research team, with guidance from the Research Coordinating Team, as representatives of the Technical Advisory Committee, will give direction to subcontracting research teams to develop those tests and procedures.

The field demonstration projects conducted in each state will likely be accomplished over a three-year period. The PCC Center will organize and conduct these with assistance from other subcontractors as needed. The Manual of Practices/Troubleshooting Manual will likely be subcontracted.

The final implementation phase has not been fully developed yet, but may involve numerous participants.

Considerable discussion occurred as to how subcontractors will be handled. Unfortunately, the contracting mechanism between FHWA, Iowa DOT, and ISU has not been formally established so no resolve was available. Max Grogg (FHWA), Sandra Larson (Iowa DOT), and Jim Grove (ISU) will meet soon and formalize the contracting relationship so future subcontracts can be initiated. It was agreed that the Executive Committee would act for the Technical Advisory Committee to approve these subcontracts.

Funding

With regard to funding, ACPA will contribute the same amount as one state would contribute. The ACPA chapter in each of the states represented in the pooled fund will as a whole contribute what one state would contribute.

A question was raised about funds to pay for the demo projects. The pooled fund could pay for delta costs — those extra costs associated with additional testing. It cannot pay for normal project costs.

Aggregates

In discussion regarding the depth of focus on aggregate durability issues, the consensus was that this topic is too broad to be a major component of this study. Synthesizing existing practice may be appropriate.

ICAR is looking at aggregate testing issues. Rob Rasmussen will talk to ICAR and obtain information that may be used in this study.

Testing

A need for implementation guidelines for the various tests was voiced. Some will be agency tests; others will be contractor tests. Guidelines should tell who does each test. Is it a field or lab test? It may be something like "13 steps to obtain the desired performance."

A Northwestern University project has a database that may be helpful to this project.

Demonstrations projects

The demonstration project phase likely will be over a three-year period. It will take at least that long to do a demo project in each participating state. These will be shadow projects where the testing will simply be along side an existing project. There was discussion as to what happens if the tests show a potential problem. That will be an issue for each state to decide since it is their project. The state may want to pay the contractor to make a material or construction practice change if the problem is potentially serious.

Other issues

George Woolstrum pointed out the importance of showing early progress. We can do that by showing the test procedures early so we can all start using them.

Moon Won cautioned that we might want to look at distress aspects when defining tests.

Max Grogg suggested creating a "watch list" of pavements that experienced construction difficulties but have not yet exhibited distress

Jerry Voigt reported that ACPA is also doing a survey of a similar nature and could collaborate with our work.

PERMANENT EXECUTIVE COMMITTEE

Action was taken to appoint a permanent Executive Committee. The members who served of the Interim Executive Committee were willing to serve on the permanent committee. It was decided that there needs to be a representative from ACPA and FHWA on the Committee. Therefore Jerry Voigt form ACPA and Marcia Simon from FHWA will be added. Max Grogg and Jenny Balis from FHWA will be ex officio members since they will be the local FHWA contacts in Iowa. The following members were a approved by a vote of the committee:

Executive Committee Members:

Sandra Larson –Iowa
Doug Swartz –Minnesota
George Woolstrum –Nebraska
John Volker –Wisconsin
Dan DeGraaf –Michigan ACPA
Jerry Voigt –ACPA
Marcia Simon –FHWA

Ex officio Members: Max Grogg and Jenny Balis

NEXT MEETING

The next Technical Advisory Committee Meeting will be held in Ames, Iowa on October 14, 2003. This will be in conjunction with the Midwest Concrete Consortium meeting set for October 15-16 also in Ames. Details will be posted on the web site.