Minutes of the Meeting  
Transportation Research Board Committee AFK10  
**General Issues in Asphalt Technology**  
Nashville, Tennessee  
March 17-18, 2004

Members and Guests Present:  
Joe Button, Fred Hejl (TRB), Jim Moulthrop (section chair), Jack Weigel, Skip Paul, Don Watson, Ronald Collins, Gary Hicks, Gary Fitts, Gayle King, Dale Decker, Julie Nodes, Frank Fee, Barry Takallou, Rebecca McDaniel, David Newcomb, Pete Grass, Brian Egan, Gary Head, Mark Buncher, Jack Youtcheff, Mike Acott, John D’Angelo, Gerald Reinke, Chuck Van Duesen and Tom Peterson.

**Call to Order**  
Chairman Joe Button called the meeting to order at 8:05 a.m. Button welcomed everyone to the committee meeting.

Button introduced special guests Pete Grass, president of Asphalt Materials; Mike Acott, president of NAPA; Brian Egan, Senior Manager of Field Operations, and Gary Head, Materials Engineer, of Tennessee DOT. Everyone else introduced himself or herself.

Minutes of the last meeting were approved as written.

**Welcome**  
Dave Newcomb introduced Mike Acott, who welcomed the group to the World of Asphalt. Acott noted that NAPA is very involved in TRB committees and the NCHRP process. He explained that the World of Asphalt came about to provide a one-stop shop covering multiple interests. There are currently 3100 registered for the World of Asphalt, but that does not include the many people who register on site. The next World of Asphalt will be held in 2006 in Orlando. In 2005, there will be a strong asphalt emphasis at Con Expo/Con Agg.

Dave Newcomb mentioned some of the exciting new technologies featured at the trade show.

**Presentations**  
Pete Grass reviewed the recent changes at the Asphalt Institute. A task group examined the activities and resources of the Institute and realigned the efforts and dues to meet the needs of their member companies. They are still doing all of the things they were doing before, but at a different level. Field Engineers are now aligned with the user producer groups. The AI got a very clear message from its membership to keep the research lab operating and playing a key role in research. He cited some themes he is hearing from the DOTs around the country, such as how to deal with loss of experienced personnel; concern about compatibility and performance of some of the new materials being used in both binders and mixtures; and questions about the benefits of warranty contracts and how to implement them in various situations. The AI has a role to play in helping with all of these issues, including education, technology transfer, research and
more. Mark Buncher noted that the mission statements of the user producer groups match that of the AI, which is to encourage quality.

Gary Head agreed with Pete Grass’ assessment of DOT concerns. He agreed that the DOTs are very concerned about the loss of expertise and knowledge. Tennessee DOT is working on winning folks over by emphasizing safety (striping), improved visibility, reduced noise, etc. Tennessee DOT has established a relationship with the Roadbuilder’s Association to work cooperatively with industry to build support on specifications, research, etc.

Brian Egan, Senior Manager of Field Operations, summarized some issues TennDOT is facing, including:

- RAP Quality Control
- Fatigue characteristics of HMA/RAP surface mixtures
- Non-nuclear density devices
- Pavement smoothness
- NCAT test track
- Should they change to Superpave or continue with 75-blow Marshall?
- Performance testing in the APA
- Effect of coarse aggregate angularity on rutting performance

See Attachment 1.

Skip Paul reported on the characterization of fracture resistance of mixtures containing RAP with polymer-modified binders. (See Attachment 2.) Another study is looking at variability of air voids and mechanistic properties of plant produced asphalt mixtures at the plant versus field. A third study he mentioned was an evaluation of the first four Superpave mixes placed in the state; these projects were placed in 1998 using coarse gradings. To date, the projects are performing quite well. Paul also reported on the LaDOTD Pavement Research Facility and work with their ALF. Their three projects to date have identified cost-effective alternatives for soil stabilization and base layers.

Gary Hicks provided an update on the National Moisture Seminar held last February in San Diego. (See Attachment 3 for details of presentation.) The proceedings and companion CD, workshop findings and roadmap for future work were published by TRB. This is also available on the TRB and CalTrans websites. This committee has a problem statement on moisture sensitivity; it may be appropriate to update this and resubmit it to SCOR through CalTrans (Randy Iwasaki and others).

Frank Fee reported on Thin HMA Surfacing in New Jersey. (See Attachment 4.) NJDOT is looking for quick application, nighttime paving, minimum lane restrictions, high yield, improved ride quality and/or skid resistance, long life and reduced noise. To date these surfaces are working pretty well. (Florida is also evaluating OGFCs with and without heavy modified tack coat vs. Novachip.)

Jim Moulthrop discussed the Foundation for Pavement Preservation, National Center for Pavement Preservation at Michigan State University, TRB Task Force on Pavement Presentation, and the FHWA Expert Task Group on Pavement Preservation. (See Attachment 5.)
Don Watson provided an update on NCAT activities (*Attachment 6*), including:

- Evaluation of automated sampling and testing devices
- OGFC Mix Design
- Verification of Superpave $N_{\text{design}}$ Compaction Levels
- Noise Testing

Watson also invited everyone to attend the International Symposium on Design and Construction of Long Lasting Asphalt Pavements, June 7-9, 2004, in Auburn.

Gary Fitts reported on Asphalt Institute activities (*Attachment 7*). Fitts mentioned the work in the area of Health, Safety and Environment, including studies of asphalt fumes. He highlighted current research in the AI lab, such as investigating the HMA Fatigue Endurance Limit. He reviewed their current and planned publications. MS-2 will be revised to include Marshall, Superpave, SMA, and OGFC in one book. He covered the roles of the field engineers and their alignment with the user-producer groups.

Dave Newcomb discussed current activities of the National Asphalt Pavement Association. (*See Attachment 8.*) He highlighted their work on the Virtual Superpave Lab; porous asphalt pavement for water retention and recharge; PerRoad, the Perpetual Pavement Design Guide Version 2.4, which is available on the Asphalt Pavement Alliance website; and other work. He reported that FHWA and NAPA are planning to jointly sponsor workshops in conjunction with the next round of user-producer group meetings to explore on a regional basis what changes state DOTs are making in Superpave, what is working and what is not working.

Jack Youtcheff filled in for Tom Harman and gave a report on FHWA’s current research efforts (*Attachment 9*). He reported first on the current ALF experiment, which is investigating 12 binders with one aggregate gradation. In general, Youtcheff reported that no single binder property captured the rutting performance demonstrated in the ALF. Other on-going work includes:

- Lime determination in HMA
- Evaluation of GSB-88 seal coat material
- Transparent asphalt
- Effects of polyphosphoric acid
- A quick screening tool for moisture sensitivity

**Business Items of a General Nature**

Joe Button reviewed the membership status on the committee, which is currently undergoing rotation to be effective April 14, 2004. Button thanked outgoing members Dale Decker, Denis Donnelly, Bob Horan, Ken Khandal, and Randy West for their numerous contributions. He welcomed new members Tim Aschenbrener, Gary Fitts, Gary Hicks, Julie Nodes, and Rebecca McDaniel. The current (as of March 17, 2004) membership consists of seven producers, two users, and ten general interest for a total of 19 members.

Joe Button reviewed the 2004 TRB sessions and workshop sponsored by this committee. Frank Fee commented on the session “Integration of HMA Mixture and Structural Designs,” which identified issues relating to implementation of the 200X Design Guide. The papers from this session will be prepared and published as a TRB E-circular.
similar session might be appropriate in 2006; Fee noted that 2005 would be too early for a reprise.

Button then led a discussion of the need for circulars. The “Integration” circular was actually proposed by AFK50, although this committee co-sponsored the session. Button noted that he had prepared a synthesis for TxDOT on Permeable Asphalt Pavement Surfaces that could be a useful circular. He will distribute it to the committee via e-mail for review and consideration for publishing as a circular.

At approximately 5:00 pm, Button adjourned the meeting until the next morning.

The meeting continued on Thursday, March 18, at 8:00 a.m.

Button asked if anyone had suggestions for state-of-the-art reports or circulars. Fred Hejl indicated that TR News had a theme issue on Pavement Preservation recently; it is unlikely there will be a theme issue on asphalt for a couple of years, but individual articles could be published.

The group then discussed the status of State-of-the-Practice reviews on Stone Matrix Asphalt. Don Watson indicated he was not aware of Allen Cooley starting this before he left NCAT. Fred Hejl commented that one of the other asphalt committees submitted SMA as a synthesis topic, but it is not yet known if the Synthesis panel will fund this. Watson added that the symposium *SMA in the USA*, held in Maryland in 2002, could be a good resource for a synthesis.

The committee also reviewed its current Problem Statements. Last year this committee submitted a problem statement on Tack Coats through Skip Paul. *Optimization of Tack Coat Type and Quantity for Asphalt Pavements* was rated 13th out of over 150 problem statements and has a good chance of being funded. Paul is a member of SCOR and will argue for funding the Tack Coat study. AFK10 also submitted a synthesis request on tackle coats. Button pointed out that, if the research project is funded, there will be no need to fund the. Paul added that other problem statements of interest to this committee were also highly rated, including *Development of a Procedure for Determining Mixing and Compaction Temperatures and Methods to Control Reflection Cracking*.

There was considerable discussion of potential topics for Workshops and Sessions for the 2005 TRB Meeting.

- Construction committee (AFH60-Ray Brown) is planning a session on *Rubbilization*. AFK10 could offer to co-sponsor. Dale Decker is organizing the session, which includes only invited papers. Paul suggested this could be a super-session, and we could focus on performance while Ray's committee focuses on design and construction. Dale Decker (leader), Gary Fitts and Dave Newcomb will work on planning this. Decker will ask the Pavement Rehabilitation committee (AFD70-Roger Olson) if they want to co-sponsor.
- Noise was suggested as a session topic. *Surface Mixes for Noise Abatement* is being planned by the Surface Requirements committee (AFK40-Aschenbrener).
Upon reflection, it was decided that this is being adequately covered by other committees.

- Barry Takallou suggested a session on international use of asphalt rubber. Nonbituminous Components committee (AFK30- Brian Prowell) is already planning a session on asphalt rubber organized by John Haddock. The committee definitely wants to see papers, not just presentations. Takallou will coordinate with Haddock to have two sessions, perhaps both co-sponsored. Frank Fee will offer suggestions to Barry in organizing this.

- Gayle King suggested building a session around one or more of the top rated topics from SCOR, such as mixing and compaction temperatures, tack coats, or mitigation of reflective cracking. Louay Mohammed is organizing a session on tack coats. Hussain Bahia, NCAT, Aroon Shenoy and Gerry Reinke have all done work on mixing and compaction temperatures. King will organize a session on this topic. Construction committee is planning a session on Compaction Issues, being organized by Tim Aschenbrener and Jim Scherocman. King will contact Aschenbrener to coordinate a super-session or workshop. After discussion, we decided to try to offer this as a workshop jointly with the construction committee, and to publish the papers as a circular so that they are all published together. Newcomb commented that we still do not have a fundamental understanding of compaction. Newcomb had earlier written a problem statement (Modeling HMA Compaction); he will send it to the committee for consideration. Decker added that the equipment committee died a few years ago and no one has picked up the issues.

- Ron Collins asked if it is too early to have a session on automated process control of hot mix asphalt, which could include intelligent compaction. It was decided that it is too early.

- Gary Fitts asked if there is another committee looking at polyphosphoric acid. A session could be a good opportunity to examine its application to asphalt binder. The committee on non-bituminous might be interested in this. They are currently looking at a session on innovations in asphalt technology that could include polyphosphoric acid; Joe Button is the organizer.

- Mark Buncher asked if this committee would be interested in co-sponsoring a session on Constructing Perpetual Pavements. Button indicated that this committee would be interested and suggested a Texas construction project that could generate a paper. Fitts added that there are a number of projects constructed under traffic including IH710 and IH35 that could be of interest. Fee suggested a New Jersey project on IH295 parallel to the NJ turnpike.

To summarize the extensive discussion, the committee decided to pursue sponsoring or co-sponsoring sessions and a workshop on the following four topics:

- Super-session on Rubblization with Ray Brown’s committee
- International Uses of Asphalt Rubber
- Constructing Perpetual Pavements with Ray Brown’s committee
- Workshop on Mix Compaction, if other committees are willing

Button distributed a listing of planned meetings from The ISAP Reporter (Attachment 10).
Old Action Items (from 2003 minutes)

A. Gerry Huber looked into organizing a session on Racetrack Design and Construction. The committee decided to drop this topic.

B. The committee was considering two NCHRP Synthesis Proposals. We do not know the status of the synthesis on QC/QA State of the Practice. A second possible synthesis topic was Tack Coats for HMA Overlays. Since a problem statement on this topic appears likely to get funding, this synthesis topic will be tabled until we know the final disposition of the problem statement.

C. A circular on Simple Performance Tests is nearing completion. Review comments were returned to authors, but responses have not been received. Frank Fee will follow up with the authors to bring this to conclusion.

D. The committee had previously recommended writing a TR News article on Warm Mix Asphalt. Dave Newcomb said that Matt Corrigan had written an article on this that would be appropriate to publish as a TR News article, if it has not been previously published. Newcomb will follow-up on this.

E. According to Don Watson, Doug Hanson had agreed to write a TR News article on noise for the committee. A primer on what is happening would be appropriate. Decker said he had already written something on this for NAPA but it has not yet been published. It may be possible to use that instead. Decker and Newcomb will look into this.

Articles should be submitted directly to Fred Hejl with a copy to Joe Button by July 1.

F. The committee discussed current Research Need Statements (RNS).
   - Laboratory Compaction Methods to Establish Achievable Target Density Requirements for HMA Construction: This will be dropped and replaced by the problem statement prepared by Newcomb. It will be revised, and submitted through Louisiana, Arizona, and AFK10.
   - Low Cost, High Quality HMA and Mix Design for HMA Overlays: Eileen Sheehy submitted the first through NJDOT. The idea was to build on the good performance of SMA to design a lower cost stone skeleton mix using fractionated aggregates to design an SMA-like mix from by-product fines. Based on RAC and SCOR committees, it will likely not get funded this year. May perhaps be modified based on review comments and re-submitted next year. Skip Paul will send comments to Ron Collins, who will send a combined problem statement on the two topics above to ICAR for potential funding. ICAR may be interested in funding research related to “products of opportunity” or under-utilized resources. AFK10 will keep it as a current RNS.
   - Tack Coat Type and Quantity for HMA Overlays – Discussed earlier. Submitted by LaDOTD and may be funded by NCHRP.
   - Avoiding Moisture Susceptible Asphalt Mixtures – Barry Takallou and Joe Button prepared this RNS, and it has not gone forward. Dale Decker suggested revisiting this problem statement in light of the Moisture Sensitivity Workshop
and resubmitting it. Button will send the statement as written to Jim Moulthrop, Gary Hicks, Barry Takallou, Dale Decker and Skip Paul for review and revision. There are also ideas in the workshop that should be considered. Aschenbrener is on AASHTO SOM and may be able to lend support. California would also likely support it; Gary Hicks will pursue this.

Revised or new RNSs are due to Joe Button by May 15, 2004.

Finishing up the organization reports, Joe Button distributed a handout on current asphalt-related studies at TTI (Attachment 11). He highlighted the study Evaluation of the Fatigue Resistance of Rut Resistant Mixes, where Amy Epps Martin is evaluating various test methods to suggest a specification test. He also highlighted Superpave Performance Testing, which studied mixes from six states and certain specially-made lab mixes using the simple performance test, Frequency Sweep, APA, and Hamburg. They concluded that dynamic modulus does not address rutting, but flow number correlated better with APA results. He also highlighted Developing an Upgraded Overlay Tester to Characterize Reflected Cracking Resistance of Asphalt Concrete. TxDOT is considering implementing a simplified version of the overlay tester as a potential specification test for certain highways.

The AFK10 Committee tour this year will be the World of Asphalt demonstration of Warm Mix Asphalt and a tour of a Vulcan quarry. The tour will leave at noon today.

Joe Button invited the committee to hold next year's meeting at TTI. He proposes asking Bob Lytton to speak about free energy, Dallas Little to talk about the fundamental work he is doing with this; Eyad Masad to talk about objective measurements of aggregate shape, texture and angularity, as well as void structure; Dale Rand and assistants to talk about related TxDOT activities. Gayle King added that he would be really interested in hearing Amy Epps Martin's fatigue recommendations. The tour could be of the TTI labs, including Charles Glover's chemistry lab. Glover has done a lot of work on aging, including development of Stirred Air Flow Test as possible replacement for RTFO. Button’s offer was accepted unanimously. The tentative dates for the meeting are April 20-21, 2005, in College Station.

**Incidental Items**

Dale Decker noted that he would recommend not tying in this meeting with another meeting. It makes it too long a trip.

Becky McDaniel noted that the North Central Superpave Center has a searchable database on its website (http://bridge.ecn.purdue.edu/~spave/). The NCSC tries to keep this as up-to-date and thorough as possible to provide one place to search for ongoing and completed research and all other information sources they can identify.

Jim Moulthrop added that he is trying to better integrate maintenance activities with construction, maintenance and design. He would like to see us think more about how we can start bringing in more of the maintenance activities in what we do as a committee.
Joe Button adjourned the meeting with thanks to Dave Newcomb for hosting the committee and thanks to Pete Grass and Mark Buncher for joining us. He also thanked Fred Hejl for all of his work and the committee for all of their input and ideas.

**Action Items**

- Joe Button will send the Permeable Asphalt synthesis to the committee members for review to see if it is worthy of publication as a circular.
- Dale Decker, Gary Fitts and Dave Newcomb will organize a super-session on Rubblization in conjunction with the Construction committee (AFK60-Ray Brown) and Rehabilitation committee (Roger Olson), if they are interested.
- Barry Takallou will organize a session on International Uses of Asphalt Rubber with suggestions from Frank Fee.
- Gayle King will work with Tim Aschenbrener and Jim Scherocman of the Construction Committee (AFK60-Ray Brown) to organize a workshop on Compaction, including field compaction temperatures.
- Frank Fee who will follow up with the authors of papers on implementation of the Simple Performance Tests in an attempt to produce a TRB circular.
- Dave Newcomb will determine whether NAPA has published an article on Warm Mix Asphalt written by Matt Corrigan. If not, he will forward it to Fred Hejl by July 1, with a copy to Joe Button, for possible publication in TR News.
- Don Watson will ask Doug Hanson again about writing an article on Pavement Noise. Dale Decker will investigate whether an article he wrote for NAPA on Pavement Noise has been published. If not, he will send it to Fred Hejl by July 1, with a copy to Joe Button, for possible publication in TR News.
- Dave Newcomb will send his problem statement on compaction to Skip Paul with copies to the rest of the committee for possible revision and submittal to NCHRP through Louisiana, Arizona and AFK10. The revised statement is due by mid-May to Joe Button.
- Skip Paul will send copies of the SCOR and RAC review comments on Low Cost-High Quality HMA and Mix Design for HMA Overlays to Ron Collins for revision and merging into one research needs statement for resubmittal to TRB and submittal to ICAR for possible funding.
- Joe Button will send the research needs statement on Avoiding Moisture Susceptible Asphalt Mixtures as written to Jim Moulthrop, Gary Hicks, Barry Takallou, Dale Decker, and Skip Paul for review and revision by mid-May. Gary Hicks will work on garnering the support of CalTrans for this need statement.

Minutes recorded by
Rebecca S. McDaniel
March 17-18, 2004