Welcome to the fourth edition of “The Profiler,” a newsletter published semi-annually by the MDOT Research Division. Inside you will find happenings of the Division including updates on research projects, upcoming conferences, and from time to time spotlights on equipment. If you have any questions, feel free to contact Marta Charria at 601.359.7639 or mcharria@mdot.state.ms.us

From the editor

Friction Testing Operations

In January 2008 the Mississippi Department of Transportation Research Division obtained a new International Cybernetics Pavement Skid Friction Test System model SFT 5042, commonly referred to as the skid truck. It replaces the 8-year-old Dynatest 1290 Pavement Friction Tester. The skid truck is used to determine if:

- Pavement Management System projects need resurfacing or rehabilitation.
- New paving projects and roads which have had multiple accidents are safe.
- Pavements utilizing new aggregates are providing adequate skid resistance.

One of the main concerns of highway safety is the skid resistance of wet pavement which is measured by the friction number or FN. The skid truck obtains and records the FN for a pavement which ranges from 0 to 100.

This vehicle has a 300-gallon water tank in the truck bed, which enables about 50 miles to be tested before the water tank needs refilling. During a test the truck is run at 40 mph, and the driver side trailer tire locks up for 2 seconds every ½ mile. During the test a nozzle sprays water in front of the locked up tire to simulate wet conditions. The skid test information is analyzed by the skid truck computer to determine the FN.

For more information on Friction Testing Operations contact Gary Browning at 601.359.7644 or e-mail gbrowning@mdot.state.ms.us

Special Points of Interest

- Friction Testing Operations
- Subsurface Drainage Systems
- Study of Chip & Scrub Seals
- Peer Exchange
- Calendar of Events
A recent study was completed through the Department of Civil and Environmental Engineering at Mississippi State University that investigated MDOT’s subsurface drainage systems. A report titled “Evaluation of Performance and Maintenance of Pavement Subdrainage Systems in Mississippi” met the requirements for Jordan Whittington’s masters thesis as well as the final report for MDOT State Study 189. The main focus of the study was to instrument and monitor both concrete and asphalt pavements that contained subsurface drainage systems. Study sections were identified and instrumented along US 82 in Oktibbeha County. Instrumentation for the study included rain gauges, tipping buckets for measuring outflow, data loggers, deep cycle batteries for power, and enclosures to protect from weather. Using this instrumentation, data could be collected and used to determine the total volume of rainfall that fell on a pavement as well as the volume of water that was being discharged by the edge drains. Using the total outflow volumes and the total precipitation volume, a percentage of water removed from the system can be determined. For various rainfall events on the asphalt pavement in this study, percentage of water removed ranged from 21.8% to 44.9%. Percentages of water removed on the concrete section ranged from 1.6% to 6.3%. Rainfall and outflow data were also plotted with one another in order to graphically show response times. An example of these graphs is shown below.

A need for consistent maintenance of Mississippi sub drainage systems was also identified within the study. The Research Division addressed maintenance concerns and needs at the Statewide Maintenance Meeting held in Tupelo, April 10. For more information, contact Jordan Whittington at 601.359.7645 or e-mail jswhittington@mdot.state.ms.us

A call for MDOT Research Project Proposals

In September, the MDOT’s Research Advisory Committee (RAC) meets to evaluate and approve the Research Work Program for the upcoming Federal Fiscal Year, October 1st through September 30th. The RAC is hereby soliciting fiscal year 2009 Research Problem Statements. Please utilize the “Suggestion for Research” form when submitting problem statements. Note that submissions are required in both electronic and hard copy format. Go to the following link: http://www.gomdot.com/Divisions/Highways/Resources/pdf/Research/ResearchNeedsSuggestions.pdf for the electronic version of the form.

If there are questions or comments, contact Randy Battey at 601.359.7650 or e-mail randyb@mdot.state.ms.us

Deadline for submitting proposals to the Research Division is July 3, 2008.
The study focuses on material characterization and performance. The Research Division of MDOT is currently involved in a laboratory and field study of chip seals and scrub seals with Mississippi State University. The study focuses on material characterization and performance in order to develop and/or improve material specifications and other procedures that allow for efficient management of the Mississippi highway network. Chip and scrub seals are used throughout the state on low volume roads to improve the surface of pavements and to retard future deterioration of the pavement structure. To date, two test sections have been placed, the first on SR 35 in Tallahatchie county and the second on SR 17 in Carroll County.

The proposed research contains four components. Component 1 consists of the evaluation of the two test sections using friction data, deflection data, aggregate retention test, condition assessments and coring data. Component 2 is the evaluation of the Vialit test for characterization of adhesive strengths of binders. Component 3 consists of the laboratory testing of CRS2, PASS-CR and CRS2P. Component 4 consists of the construction of another test site to incorporate key variables such as fog seal, CRS2, CRS2P, PASS-CR, and various construction techniques. For more information, call Jeff Wages at 601.359.7643 or e-mail jwages@mdot.state.ms.us.

Peer Exchange 2008

The Mississippi Department of Transportation will host a Peer Exchange of its research program on June 17, 2008. The regulation instituting peer reviews (now peer exchanges) became effective on August 22, 1994. The authorizing language for these exchanges can be found in the Title 23 Code of Federal Regulations Part 420, Subpart B – Research, Development and Technology Transfer Program Management (Section 420.207 – Conditions for grant approval).

Peer Exchange is a process wherein a team composed of state and federal research managers are invited to discuss and review the host state’s research program. Information from both the review team and the host agency is exchanged with the intent of improving the research process in the host state as well as the team members’ states.

The Peer Exchange 2008 team will be composed of the following members:

- Mr. Rick Collins  Texas DOT
- Mr. Mark Morvant       Louisiana DOT
- Mr. Dick McReynolds  Kansas DOT
- Mr. Gary Frederick    New York DOT

The Peer Exchange will focus on research program development, to include but not limited to:
- Standardizing the proposal process.
- Criteria used to evaluate a researcher’s qualifications and experience.
- Research proposal evaluation/clarification of approval process.

For more information call James Watkins at 601.359.7650 or e-mail jwatkins@mdot.state.ms.us
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| June 1-4, 2008   | 2008 Southeastern States Pavement Management & Design Conference  
| June 15-18, 2008 | Transportation Research Board (TRB) Summer Conference  
| June 17-20, 2008 | MDOT Research Division Peer Exchange                                                                                                                                                                     | Biloxi, MS       |
| July 14-17, 2008 | AASHTO Research Advisory Committee Meeting  
| August 8-13, 2008| SASHTO 2008  
http://www.sashto.org/                                                                                                                                                                               | Orlando, FL      |
| October 5-7, 2008| FWD Users Group Meeting                                                                                                                                                                                  | Colorado Springs , CO |
| October 26-30, 2008| Road Profiler User’s Group Meeting  
http://www.rpug.org/2008/intro.html                                                                                                             | Austin, TX       |
http://www.gomdot.com/Home/UpcomingEvents/Conferences/MTI/MTI.aspx                                                                                | Choctaw, MS      |
| November 17-20, 2008| 2008 Southeastern Asphalt User/Producer Group Meeting  
http://www.seaupg.org/                                                                                                                        | Birmingham, AL   |