A production of the Research Division

Spring 2007

THE PROFILER

Special points of interest

- **New PM software**
- **High performance Pavement Tape**
- **Research Project Proposal**
- **What is IRI?**
- **Calendar of events**
- **Reflecting Cracking**

Welcome to the third edition of "The Profiler," a newsletter published semi-annually by the MDOT Research Division. Inside you will find happenings of the department 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

New Pavement Management Software

A Request for Proposal (RFP) for new pavement management system (PMS) software to replace TMIS (Transportation Management Information System) is scheduled to go out early in 2008. MDOT, along with Applied Pavement Technology, Inc., is conducting a needs assessment for the new software. We look forward to updating our pavement management sys tem and providing users with ease of use and more analytical tools. For more information about the new software contact Cindy Drake at 601.359.7640 or cgdrake@mdot.state.ms.us

High Performance Pavement Marking Tape

In an effort to increase the safety of Mississippi highways, MDOT is currently evaluating 3M Stamark Wet Reflective High Performance Pavement Marking Tape Series 380I-ES WR and 381I-ES WR. These series of tapes are durable pavement marking tapes with specially designed optics that provide superior retro-reflective performance under both wet and dry conditions.

The experimental features were placed in four locations across the state. The evaluation includes observing installation, measurement of dry reflective performance, measurement of wet reflective performance, and monitoring the durability of the material base on physical presence.

For more information about this product evaluation, contact Jeff Wages at 601.359.7643 or jwages@mdot.state.ms.us

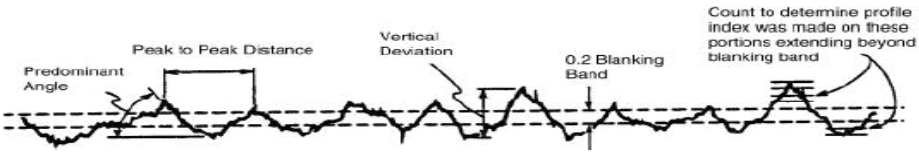
A call for MDOT Research Project Proposals

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 2008 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 http://www.gomdot.com/research/pdf/Research_Needs_08.pdf for the electronic version of the form.

If there are questions or comments, contact Randy Battey at 601.359-7650 or randyb@mdot.state.ms.us

Deadline for submitting proposals to the Research Division is July 02, 2007.

Questions & answers for the International Roughness Index, (IRI)



1. What is International Roughness Index (IRI)? IRI is collected with a laser profiler and was developed as a scale for roughness based on the response of a vehicle to the road. It is determined by obtaining a measurement of the road profile, and simulating the way a vehicle would respond to it.(1)

2. Why are we transitioning from profilograph index to IRI? Historically, profilographs have been the tool of choice for measurement of new construction although only a small relationship exists between profilograph output and vehicle response (ride quality, dynamic loads, vehicle wear, etc.). One reason profilographs have continued to be used by industry is that they give a well-established method to pinpoint hotspots in the pavement. On the other hand, IRI has a great relationship to vehicle response; therefore, a good IRI is equal to a good ride quality. Also, IRI can be collected at highway speeds using a high-speed profiler without the need for traffic control and lane closure. The only drawback with an IRI specification is the lack of a method to pinpoint hotspots (localized roughness). However, we know we can use Proval software to locate the hotspots.(2)

3. How are bumps (hotspots or localized roughness) which are in the profilograph specification accounted for in an IRI specification? The IRI specification will contain two segments to check for roughness. One is a 528-foot section with a long reporting interval for general acceptance, and the other is a 25-foot segment with a short reporting interval for finding rough features. This method provides a direct way to pinpoint rough spots that drive up the overall IRI. It also provides road builders with feedback that can be used to refine the paving process. Proval contains a module with a diamond grinding simulation, which will be used to ensure that corrective action is implemented only at locations where a grinder would actually improve the IRI. For example, the dips would not be shown in the grinder simulation because they cannot be ground out of a pavement.(2)

4. **When will the IRI specification be implemented in MDOT?** In two to three years MDOT will implement an IRI specification for construction acceptance. Before we implement the IRI specification, we will pilot a few projects to work out any problems before going statewide with the specification.

For more information call James Watkins at 601.359.7650 or jwatkins@mdot.state.ms.us

1. Sayers, M.W. and S. M. Karamihas. *The Little Book of Profiling*, University of Michigan Transportation Research Institute, September 1998.

2. Swan, M. and S. M. Karamihas. *Use of a Ride Quality Index for Construction Quality Control and Acceptance Specifications* In Transportation Research Record 1861, TRB, National Research Council, Washington D.C., 2003, pp. 10-16.

Calendar of events

July 7 – July 9
2007 Transportation Research Board (TRB) Summer Conference
Chicago, IL http://www.trb.org/calendar/

July
MDOT Research Division Condition Survey schedule to begin

July 29 – Aug 2
AASHTO Construction Sub-Committee Summer Meeting Biloxi, MS
http://www.gomdot.com/events/soc/default.htm

Aug 3 – Aug 8
SASHTO 2007 Huntsville, AL http://www.sashto2007.org/

Aug 6 – Aug 9
AASHTO Research Advisory Committee Meeting Seattle, WA
http://www.wsdot.wa.gov/NR/rdonlyres/3E2BF256-7910-4938-AF09-7692F0BA066F/0NRAC2007Webpage32007.doc

Sept 30 – Aug 2
FWD User's Group Meeting Ames, IA http://pms.nevadadot.com/upcoming.asp

Oct 14 – Oct 17
Road Profiler User's Group Meeting Danville, VA http://www.rpug.org/2007/intro.htm

Nov 12 – Nov 15
Southeastern Asphalt User/Producer Group (SEAUPG) Meeting
San Antonio, TX
http://www.seaupg.org/Pages/GenInfo_05.htm

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Reflective cracking and asphalt overlay

"Formation of reflective cracking of pavement overlays that has confronted highway engineers for many years, can be reduced by using geotextile paving fabric "

Joint Reflective cracking

Jackson State University and Burns Cooley and Dennis are conducting a study to determine if the formation of reflective cracking of pavement overlays that has confronted highway engineers for many years, can be reduced by using geotextile paving fabric in conjunction with construction practices such as milling and sealing existing cracks. Stress-relieving inter-layers, such as paving fabrics, have been used in an attempt to reduce or delay reflective cracking.

The primary objective of this project is to conduct long-term monitoring of the paving fabric interlayer systems to evaluate its effectiveness and performance.

The selected site for the study is the westbound outside lane of US 80 in Pearl. A comprehensive testing, monitoring, and analysis program is planned, where twelve 500-ft pavement sections of a two-lane highway are constructed, and then monitored for seven years. Particular attention is directed towards investigating the influence of overlay thickness on long-term performance.

A comparison between the performance of paving fabric treatment systems for milled and non-milled surfaces, as well as a comparison between the performance of paving fabrics on sealed and non-sealed surfaces are reported. For more information contact Jeff Wages at 601.359.7643 or jwages@mdot.state.ms.us

The Profiler

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