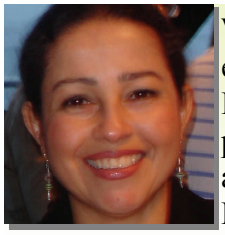
THE PROFILER

Spring 2009

Research Division

From the editor



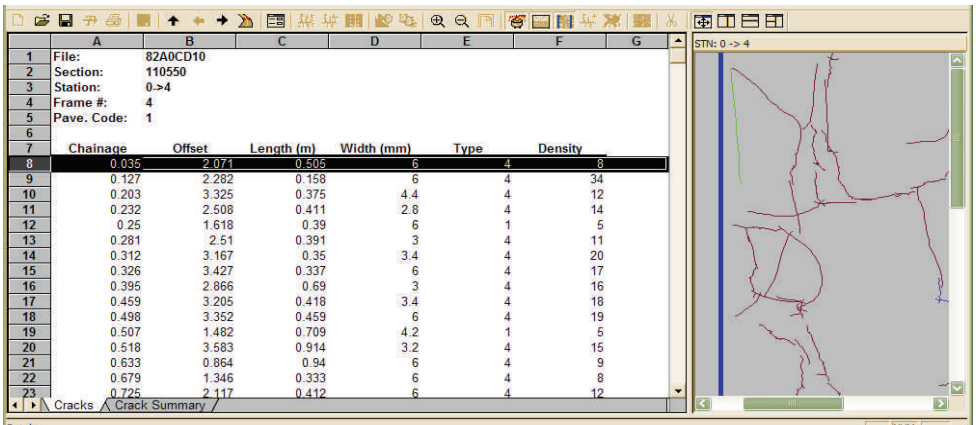
Welcome to the sixth edition of "**The Profiler**," a newsletter published semi-annually by the MDOT Research Division. Inside you will find happenings of the Division including updates on research projects, upcoming conferences, and from time to time spotlights on equipment. If you have any questions,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

Special Points of Interest

- **Automated Distress Rating**
- **INO New Measurement System**
- **Profiler System Upgrade**
- **RAP Use in Asphalt Mixes**
- **Calendar of Events**

Automated Distress Rating

The pavement condition survey is slated to begin in the summer of 2009. The contractor will use 100% automated distress detection instead of the 20% human-rated samples done previously. This will give us a more complete picture of MDOT's pavements and minimize rater subjectivity, as well as shorten data processing time considerably. The survey will be a joint effort between Research and Planning Divisions and will incorporate the new reporting requirements for Planning's Highway Performance Monitoring System (HPMS) Reassessment. For more information contact **Cindy Drake at 601.359.7640 or email cgdrake@mdot.state.ms.us**



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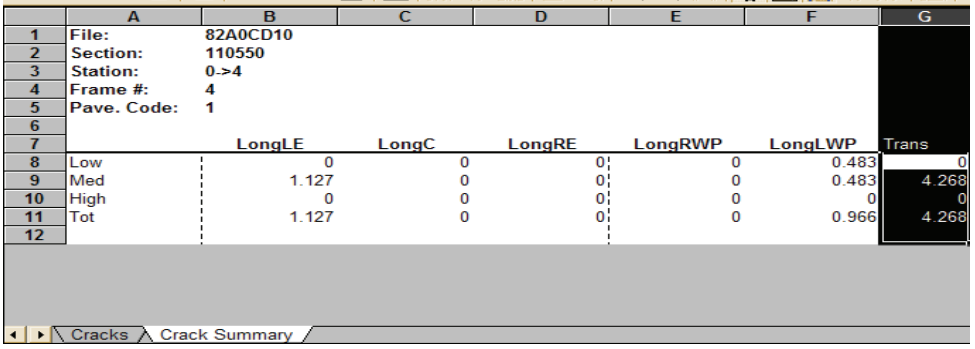
2	Section:	110550					
3	Station:	0->4					
4	Frame #:	4					
5	Pave. Code:	1					
6							
7	Chainage	Offset	Length (m)	Width (mm)	Type	Density	
8	0.035	2.071	0.505	6	4	8	
9	0.127	2.282	0.158	6	4	34	
10	0.203	3.325	0.375	4.4	4	12	
11	0.232	2.508	0.411	2.8	4	14	
12	0.25	1.618	0.39	6	1	5	
13	0.281	2.51	0.391	3	4	11	
14	0.312	3.167	0.35	3.4	4	20	
15	0.326	3.427	0.337	6	4	17	
16	0.395	2.866	0.69	3	4	16	
17	0.459	3.205	0.418	3.4	4	18	
18	0.498	3.352	0.459	6	4	19	
19	0.507	1.482	0.709	4.2	1	5	
20	0.518	3.583	0.914	3.2	4	15	
21	0.633	0.864	0.94	6	4	9	
22	0.679	1.346	0.333	6	4	8	
23	0.725	2.117	0.412	6	4	12	

Cracks / Crack Summary

STN: 0 -> 4



	A	B	C	D	E	F	G
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3	Station:	0->4					
4	Frame #:	4					
5	Pave. Code:	1					
6							
7		LongLE	LongC	LongRE	LongRWP	LongLWP	Trans
8	Low	0	0	0	0	0.483	0
9	Med	1.127	0	0	0	0.483	4.268
10	High	0	0	0	0	0	0
11	Tot	1.127	0	0	0	0.966	4.268
12							

Cracks / Crack Summary

WiseCrax, Software Used for the Automated Rating

INO New Rut Measurement System

Research Division has made the move from 3-laser rut measurement to the new Institut National d'Optique (INO) technology. The INO scanning lasers measure 1,280 transverse points across the roadway at approximately 5-ft intervals and is intended to simulate the straight-edge method of rut measurement. In contrast, the 3-laser system only measured one point in each wheel path and one point in the center. During the 2008 condition survey, both 3-laser and INO rut measurements were collected and analyzed, and the decision was made to use the INO results because of their more comprehensive measurements.

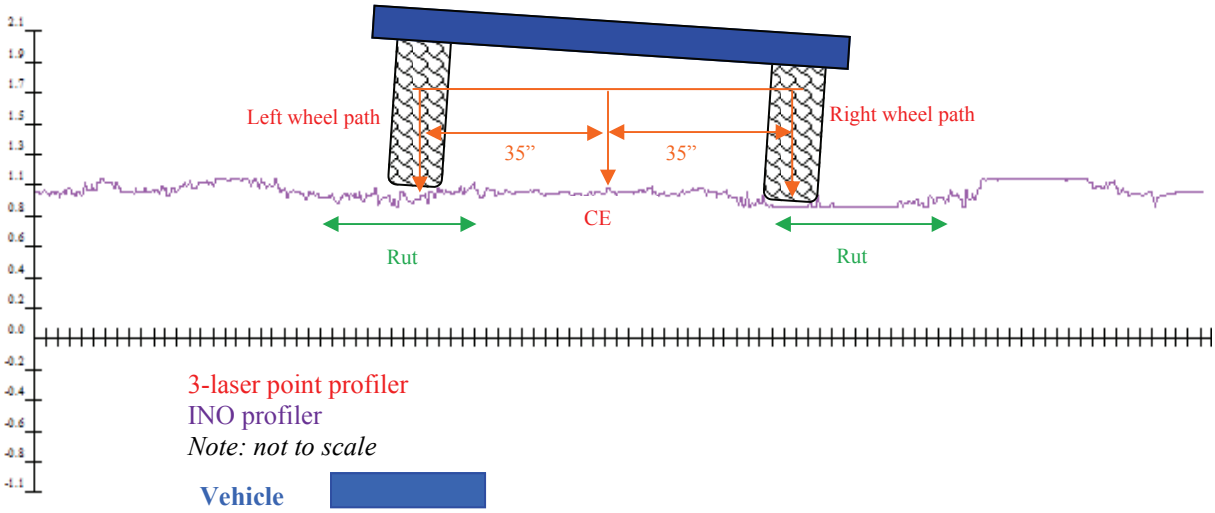
One disadvantage of the 3-laser system was that its rut measurements could be affected by driver wander; e.g., whether the profiler operator stayed in the wheel path. By measuring more points across the entire lane, INO technology eliminates driver wander and provides more consistent measurements.

The total rut average collected in the whole state with the INO was 42% higher than the 3-laser point total rut. We expected this difference because of INO's ability to measure so many more points than the traditional method.

For more information contact **Marta Charria at 601.359.7639 or email mcharria@mdot.state.ms.us**

Research Profiler Van Equipped with Three-Laser and INO Laser System

INO Versus 3-Laser Point Profiler



Profiler System Upgrade

Research Division recently upgraded one of its pavement smoothness profiling devices. Usable hardware from our existing Lightweight Profiler was removed and sent to Tampa Florida along with a Research Division van to be converted into our new High Speed Inertial Profiler. Images of the old and new profilers are shown in the photos below.

Lightweight Profiler

High Speed Profiler

Benefits of having this High Speed Inertial Profiler are as follows:

- Operates at normal road speed (as opposed to 18mph for Lightweight)
- Eliminates the need for traffic control
- Newer technology equates to more and better information

Research Division plans to use this new profiler on a wide range of projects. It will collect smoothness data in both PI and IRI formats. The PI format will allow us to evaluate active construction projects using our current PI smoothness specifications. The IRI format will allow us to collect and evaluate data in our effort to update MDOT's smoothness specifications to an IRI-based format. One area we are exploring with the new High Speed Profiler is the ability to collect faulting data on jointed concrete pavements. This would replace the current method of collection by a hand-held fault meter and subsequently eliminate the need for traffic control while increasing worker safety. Overall this new profiler will save us time (high speed collection), save us money (no traffic control), and increase safety (getting our workers out of highly trafficked roads).

For more information regarding this equipment, contact **Jordan Whittington at 601.359.7637 or email jswhittington@mdot.state.ms.us**

Laboratory Testing and Economic Analysis of High RAP Warm Mixed Asphalt

By Marta Charria

This study was dedicated to the use of high content (50% to 100%) of recycled asphalt (RAP) into the hot mix asphalt (HMA) production process for low and medium traffic loads in the State of Mississippi. It focused mainly on the mixture performance rather than individual components that constitute the mixture. Although the study was broad and did not have sufficient statistical data, it provided information for different parameters and foundation for future studies and the feasibility assessment.

Economic analysis concluded that it is feasible to use RAP along with HMA, also the study concluded additional research should be done. For more information contact **James Watkins at 601.359.7650, email jwatkins@mdot.state.ms.us or**

http://www.gomdot.com/Divisions/Highways/Resources/Research/pdf/Reports/InterimFinal/SS200.pdf

Calendar of Events

Date	Event	Location
May 4-6, 2009	Southeastern Pavement Preservation Partnership http://www.pavementpreservation.org/southeastern/	Baton Rouge, LA
May 11–14, 2009	Southeastern States Pavement Management and Pavement Preservation Partnership Conference www.pavementpreservation.org/southeastern	New Orleans, LA
June 4 , 2009	Intelligent Compaction Open House http://www.intelligentcompaction.com/index.php?q=node/150	Waynesboro, MS
June 2009	Research Peer Exchange	Biloxi, MS
July 19-22, 2009	2009 TRB Joint Summer Conference http://www.trb.org/calendar/	Seattle, WA
July 20-23, 2009	AASHTO Research Advisory Committee Meeting/TRB State Representatives Meeting http://www.RAC2009.com	Orlando, FL
August 2-7, 2009	AASHTO Sub-Committee on Materials http://www.transportation.org/meetings/228.aspx	Anchorage, AL
August 28 - September 2 2009	SASHTO 2009 http://www.sashto.org/	Biloxi, MS
October 4-6, 2009	FWD User's Group Meeting http://pms.nevadadot.com/upcoming.asp	Reno, NV
November 9-12, 2009	Southeastern Asphalt User/Producer Group (SEAUPG) Meeting http://seaupg.org/Pages/GenInfo_05.html	Hilton Head, SC

For more information, you can find us at **http://mdotweb/** under Research Division in the intranet site, or ***www.gomdot.com*** *under Research tab*

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