the profiler
Research Division

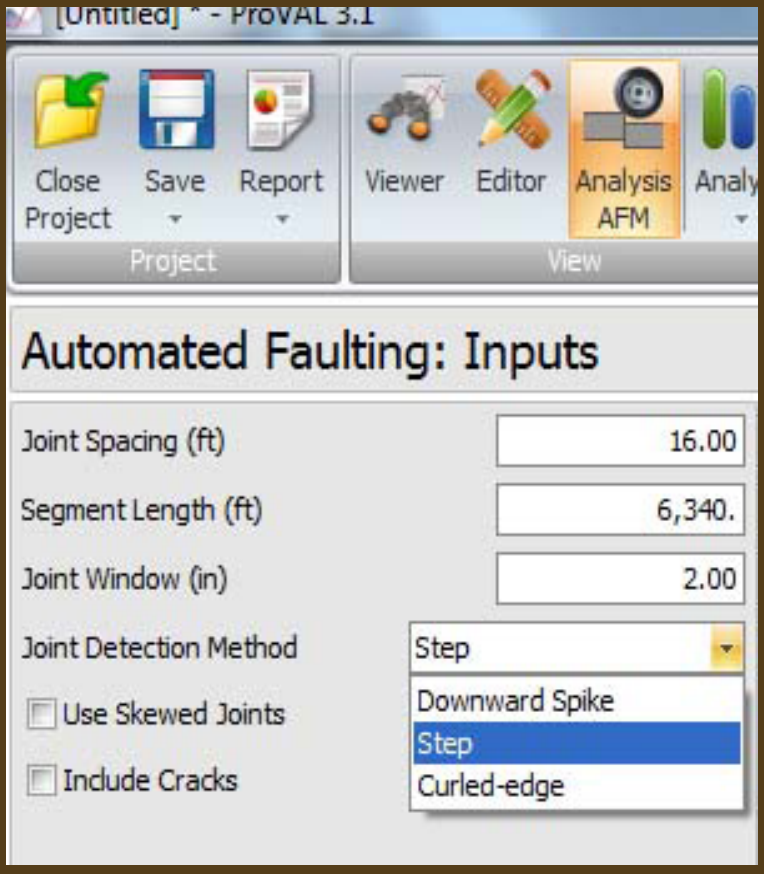
Spring 2011

MDOT's Faulting Calculation Into FHWA ProVal Software

Accurate automated measurement of concrete joint faulting has historically been difficult for faults lower than ¼". Accurate faulting data is important both at the project and network levels, such as for warranty projects, condition survey data, and triggering of slab grinding maintenance treatment. Getting precise measurements involved using a manual device such as the Georgia Fault Meter and measuring and recording measured faulting on a sampled percentage of the slabs in a given pavement. This entailed lane closure and risks of personnel being in danger due to passing traffic. With this in mind MDOT Research Division wrote a Visual FoxPro program which reads an output file generated from profiler data, searches for the joints and faults using the profile data, and calculates and reports the faulting on the joints. To verify the algorithm's accuracy, faulting data was collected the manual, traditional way on many different sites throughout the state in various conditions. These conditions included concrete with little or no faulting, pavements with some faulting, pavements with joint sealant, tined concrete pavements, concrete with faulting, cracking, and joint spalling, and on pavement with skewed joints.

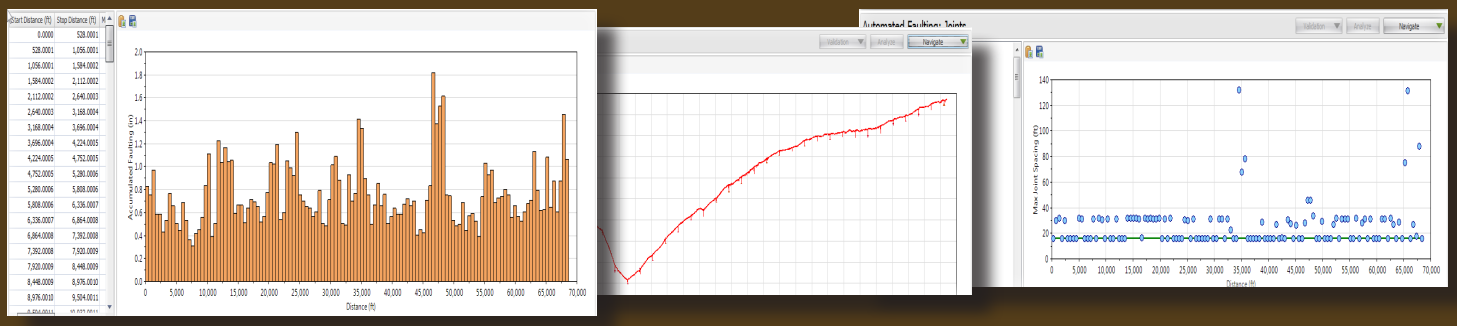
Inside

With financial support from the Federal Highway Administration, the TransTec Group incorporated MDOT's , Florida DOT's, and Steve Karamihas's (University of Michigan) algorithms into ProVAL. ProVAL is a free FHWA-developed software that analyzes pavement profiles, usually in the context of roughness and construction acceptance. However, since MDOT's faulting algorithm uses the same profile data that ProVAL uses to analyze roughness, and since other states were interested in better automated fault-



ing data analysis and calculation, putting these faulting algorithms into ProVAL made sense. This enables a profiler operator to output a data file, read the file into ProVAL, and calculate and report accurate joint faulting, which saves money and time, user costs and delays due to lane closures, and improves employee safety by keeping personnel off the road.

For more information, please contact James Watkins, State Research Engineer, at 601-359-7650, or email him at **jwatkins@mdot.state.ms.us**



Graphics from Proval 3.1 Software

International Roughness Index (IRI) Training

Training on the upcoming International Roughness Index (IRI) specification for new construction acceptance was held in Jackson on February 9, 2011. Inertial-profiler-collected roughness data which better represents ride quality will replace the current California Profilograph traces and Profilograph Index (PI). IRI has long been used for network-level data collection and annual Highway Performance Monitoring System (HPMS) reporting, and the majority of the States in the US have already implemented IRI specs for new construction acceptance.

Dr. George Chang and Ms. Jennifer Rutledge of the Transtec Group taught MDOT project office (from Districts 3, 5, and 7) and Research Division personnel to understand IRI and to use ProVAL software to analyze collected highway profile data. ProVAL (www.RoadProfile.com) was developed through a research sponsored by the Transportation Pooled Fund involving twenty-one states, Federal Highway Administration, Long-Term Pavement Performance program (LTPP), and the Transtec Group. ProVAL analysis will show where the new road and its segments meet the specifications, or need remediation, for roughness in 3 categories:

A. New construction, construction with 3 or more lifts, or mill plus 2 lifts;

B. Mill and single lift, mill plus leveling plus surface lift, or two-lift overlays without milling;

C. Single-lift overlays without milling or leveling plus surface lift without milling.

This year the new spec will be piloted on four projects throughout Districts 3, 5, and 7 (see table next page).

More district, project office, and contractor personnel will be trained at later dates. Studies show that smoother roads generally result in higher driver satisfaction, longer pavement life, decreased vehicle and road maintenance costs, and possibly decreased fuel consumption. Further, IRI can be collected using highway-

speed profilers without lane closure and personnel on the road required by the California Profilograph. This will result in better worker safety for both MDOT and contractors.

For more information, please contact James Watkins, State Research Engineer, at 601-359-7650, or email him at **jwatkins@mdot.state.ms.us.**

District	Project No.	Route/Termini	County	Let Date	Type Project
7	MP-7588-16(001)/304057	SR588 from Intersection of US84 East to Jones County Line	Covington	May 2011	Single-Lift Overlay
3	STP-0054-01(052)/ 106118	SR27 from No of SR28 to I-55	Copiah	March 2011	Single-Lift Overlay
5	STP-6928-00(010)/ 105896	US51 from 1.4 miles N of SR463 to 10.9 miles N of 463	Madison	February 2011	Mill/Overlay,New Asphalt, Saw/Seal Joints
5	STP-0039-02(046)/ 105895	SR18 from Brandon city limits to Rock Hill for 7.453 miles	Rankin	February 2011	Mill/Overlay

Pilot Projects

IRI Training Class Held in February 2011

Calendar of Events		
May 2-6 , 2011	AASHTO 2011 Spring Meeting http://apps.nevadadot.com/aashto/info.asp	Las Vegas , NV
May 4 -6, 2011	2011 SEPPP Annual Meeting **http://www.tsp2.org/node/1690**	Oklahoma City, OK
May 25-27, 2011	Maintenance Meeting **http://www.regonline.com/builder/site/Default.aspx?EventID=939383**	Oxford, MS
July 25-28, 2011	AASHTO RAC/TRB State Representatives Annual Meeting **http://research.transportation.org/Pages/default.aspx**	Salt Lake City, UT
August 20-24, 2011	SASHTO 2011 **http://www.sashto.org/sashto2011/Default.aspx**	Louisville, KY
September 27-29, 2011	23rd Annual RPUG Meeting **http://www.rpug.org/index.php?q=node/7**	Stateline, NV

For more information , you can find us at http://rschweb/Newsletters.html on the intranet,

or

http://gomdot.com/Divisions/Highways/Resources.aspx?Div=Research

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