State of Wisconsin/Department of Transportation

RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: December 31, 2007

Program: SPR-0010(36) FFY99	Part: II Research and Development
Project Title: Implementation Project for Developing Rational Overlay Design Procedures for Flexible Pavements	**Project ID: 0092-07-12**
Administrative Contact: Nikki Hatch	**Sponsor: Wisconsin Department of Transportation**
WisDOT Technical Contact: Len Makowski	**Approved Starting Date: April 24, 2007**
Approved by COR/Steering Committee:	**Original End Date: December 31, 2007**
Project Investigator (agency & contact): James A. Crovetti	**Current End Date: December 31, 2007**
	Number of Extensions: 0

Percent Complete: 85

Request a No Cost Time Extension (Please Select One): [X] **YES** [ ] **NO**

Reason for No Cost Time Extension:
The Principal Investigator received a request from WisDOT BTS to provide a capstone workshop on the developed overlay design procedures during the newly scheduled FWD training course, to be held in Madison on April 15-17, 2008. The PI has agreed to delay the finish of this project to incorporate the requested workshop. Comments from WisDOT participants, received prior to May 15, 2008 will be incorporated into final design spreadsheets and wording of the revised FDM Procedure 14-10-30.

Project Description: This project will develop revised procedures for the structural design of HMA overlays on existing HMA pavements. The developed procedures will be demonstrated in workshops to be conducted throughout the State. This project will also develop revisions, as necessary, to the WisDOT Facilities Development Manual (FDM).

Progress This Quarter:
(Includes project committee mtgs, work plan status, contract status, significant progress, etc.)

A project presentation was made at the Asphalt Paving Conference on November 14, 2007. This presentation highlighted the software being developed as part of this project and requested review by audience members.

The overlay design software was updated to include the ability incorporate asphalt milling prior to overlay. This update was in response to the request by members of the PEUG that the developed software be expanded to incorporate the possibility of design HMA overlays on milled HMA pavements. New equations were developed to isolate the flexural rigidity (ET^3) of the in-place HMA layer(s) using deflection data obtained prior to milling. The thickness of the HMA layer(s) is a required input to calculate the effective structural coefficient of the HMA. Once this value is known, the reduction in effective structural number for the in-place pavement can be determined based on the proposed depth of milling.

FWD deflection testing was conducted on STH 81 near Platteville before and after milling operations. The existing pavement included an approximately 5 inch thick HMA layer and the milling depth was approximately 2.75 inches at the pavement centerline, tapering to approximately 2.5 inches at the edge. Testing was conducted along the outer wheel path of the eastbound lane. Figure 1 present summary plots of the estimated effective structural number (SNeff) of the in-place pavement after milling. The Pre-Mill Estimate profile represents the estimated post-mill SNeff calculated from FWD data collected before milling, using the newly developed equations in conjunction with thickness data supplied by the project engineer. The Post-Mill Calculation profile represents the estimated in-place SNeff values computed from FWD data collected after milling using the originally developed equations. As shown Figure 1, good agreement is obtained between the estimated SNeff values calculated from each data set.

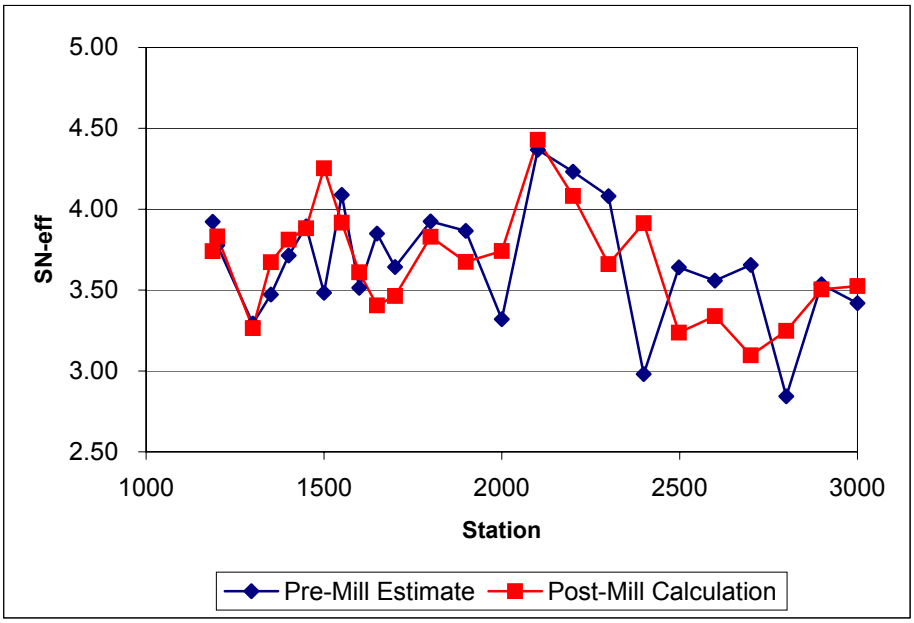

Figure 1: Effective Structural Number Estimated From Pre- and Post-Mill Deflection Data

Work Next Quarter:

A presentation/demonstration of the revised software is scheduled for April 16, 2008 as part of FWD Training Course to be held in Madison, WI. Comments received from the audience will be obtained and used to finalize the overlay design software and proposed revisions to the WisDOT facilities Development Manual. The final project report will be submitted to WisDOT for review by May 31, 2007. Comments will be incorporated into a Final report which will be submitted by June 30, 2008.

Circumstances Affecting Progress/Budget:

The Principal Investigator received a request from WisDOT BTS to provide a capstone workshop on the developed overlay design procedures during the newly scheduled FWD training course, to be held in Madison on April 15-17, 2008. The PI has agreed to delay the finish of this project to incorporate the requested workshop. Comments from WisDOT participants, received prior to May 15, 2008 will be incorporated into final design spreadsheets and wording of the revised FDM Procedure 14-10-30.

Gantt Chart:

Implementation of Rational Overlay Design Procedures for Flexible Pavements		CY 2007								
		A	M	J	J	A	S	O	N	D
Task 1:Revisions to FDM Procedure 14-10-30	Proposed	P	P	P	P	P				
	Actual	A	A	A	A					
Task 2: Develop Overlay Design Software	Proposed				P	P				
	Actual			A	A	A	A	A	A	
Task 3: Knowledge Transfer	Proposed				P	P	P	P	P	
	Actual				A	A	A	A	A	
Task 4: Follow Up	Proposed				P	P	P	P	P	P
	Actual				A	A	A	A	A	A

Implementation of Rational Overlay Design Procedures for Flexible Pavements		CY 2008								
		J	F	M	A	M	J	J	A	S
Task 1:Revisions to FDM Procedure 14-10-30	Proposed			P	P	P				
	Actual									
Task 2: Develop Overlay Design Software	Proposed									
	Actual									
Task 3: Knowledge Transfer	Proposed				P					
	Actual									
Task 4: Follow Up	Proposed				P	P				
	Actual									