

**State of Wisconsin/Department of Transportation**  
RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: March 31, 2007

<b>Program: SPR-0010(36) FFY99</b>		<b>Part: II Research and Development</b>	
<b>Project Title:</b> Testing Wisconsin Asphalt Mixtures for the AASHTO 2002 Mechanistic Design Procedure		<b>Project ID:</b> 0092-04-07	
<b>Administrative Contact:</b> Nikki Hatch		<b>Sponsor:</b> Wisconsin Department of Transportation	
<b>WisDOT Technical Contact:</b> Len Makowski		<b>Approved Starting Date:</b> 04/02/2004	
<b>Approved by COR/Steering Committee:</b>		<b>Original End Date:</b> 02/02/2007	
<b>Project Investigator (agency &amp; contact):</b> Iowa State University, R. Christopher Williams, 482A Town Engineering Building, Ames IA 50011, Ph. 515-294-4419, Fax 515-294-7424		<b>Current End Date:</b>	
		<b>Number of Extensions:</b>	

**Percent Complete:**

At the conclusion of this quarter ISU is approximately 95% of the way completed with this project. Project team review of the draft database is in progress and will be submitted to the TOC for review within the next two weeks.

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

A no cost time extension was requested in this quarter's reporting period as described below.

**Reason for No Cost Time Extension:**

A no cost time extension has been requested to ensure adequate review of the draft final report, which has been submitted.

**Project Description:**

The Wisconsin Department of Transportation (WisDOT) currently uses the AASHTO 1972 Interim Guide for the Design of Pavement Structures for hot mix asphalt. This pavement design procedure is a strictly empirical pavement design approach, however with the latest research and available computer capabilities, mechanistic pavement design procedures have become more feasible. The AASHTO 2002 Guide for Design of New and Rehabilitated Pavement Structures and associated software has been built on the mechanical properties of the pavement layers while still using functions to predict pavement life, thus making it a mechanistic-empirical pavement design approach. This pavement design procedure also allows for default values of the mechanical properties to be used, which is based on previous measurements of these properties.

The intent of this project is to examine typical hot mix asphalt (HMA) pavements that are constructed in the state of Wisconsin. The analysis will compare the suggested pavement structures based on the current (1972) pavement design guide and that of the new (2002) pavement design guide. In order to develop the pavement structure as outlined by the AASHTO 2002 Pavement Design Guide the mechanical properties of the HMA layers must be measured. These properties include Dynamic Modulus and Flow Number, which have been found to be significant predictors of rutting and fatigue by Witczak et. al. (2002). Properties of the other layers in the system have been obtained from the WisDOT pavement design inputs.

A cross-section of typical HMA pavements has been formulated into a research project matrix, for the greatest benefit for the WisDOT. Iowa State University (ISU) will sample these mixtures during the 2004 paving season. These mixtures will then tested in accordance with the AASHTO 2002 Design Guide for the aforementioned testing procedures and compiled into a library of values for the WisDOT.

**Progress This Quarter:**

(Includes project committee mtgs, work plan status, contract status, significant progress, etc.)

The draft final report was submitted to the TOC for review. The development of the database was undertaken and nearly completed.

**Work Next Quarter:**

The draft final database will be submitted to the TOC for review and comments on the draft final report will be addressed. It is expected that this project will be completed in the upcoming quarter.

**Circumstances Affecting Progress/Budget:**

The draft final report is a substantial document and took more time than anticipated pulling together with appropriate formatting. A quality Microsoft Access database system for all the materials testing work has been developed for this project. Reasonable ways of presenting the data is being finalized so that the database can be used by practitioners for inputs to the MEPDG. An advance copy of the database has been provided to the WHRP for use by others.

**Gantt Chart:**

ID	Task Name	% Complete	2004				2005				2006				2007
			Jan	Apr	July	Oct	Jan	Apr	July	Oct	Jan	Apr	July	Oct	Jan
1	Literature Review	100	██████████												
2	Dev. Of Research Plan & Materials Collection	100	██████████												
3	Laboratory Testing of Specimens	100	██████████												
4	Analysis of Laboratory Data	100					██████████								
5	Interim Report	100					██████████								
6	AASHTO Design Guide Simulation	100									██████████				
7	Development of Library of Values	100									██████████				
8	Final Report	95									██████████				

Move Contract from MTU to ISU