State of Wisconsin/Department of Transportation
RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: June 30, 2009

Program: SPR-0010(36) FFY99	**Part: II Research and Development**
Project Title: Guidelines for Implementing the Bridge Health Index **Administrative Contact:** Jason Bittner **WisDOT Technical Contact:** Scot Becker/Travis McDaniel **Approved by COR/Steering Committee:** $50,329 **Project Investigator (agency & contact):** Teresa Adams, UW-Madison	**Project ID:** MRUTC 08-07 (0092-07-14) **Sponsor:** MRUTC **Approved Starting Date:** 7/1/07 **Approved Ending Date:** 12/31/2008; requested 9/30/2009.

Description:

Total study budget	Expenditures for current quarter	Total Expenditures to date	Percent Complete
$50,329	**$7,304**	**$49,499**	**90%**

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

Task 1: Bridge Health Index Definition

Task 1 was completed and the final report is being prepared.

Task 2: Bridge Health Index Implementation Survey

Task 2 was complete and the final report is being prepared.

Task 3 and 4: Sensitivity Analysis of Failure Cost and Element Condition on Bridge Health Index

Sensitivity analysis of Bridge Health Index (BHI) to variations in element failure cost as well as in element condition is complete. The detailed process and the discussion of the result of each analysis will be shown in the final report.

Bridge Health Index by considering Smart Flag

The research team obtained the rule how to reflect the smart flag to calculate BHI from Kansa DOT. They use smart flag to make adjustment to the BHI, after they separate health index into deck, superstructure, substructure and culvert health index per structure. In other words, they calculate separate health index of each bridge component (deck, super, substructure and culvert) and adjust each component health index by following their rules. Here is their BHI adjustment rule for bridge deck.

Deck Health index (#358 for top of the deck, #359 for bottom of the deck)

If the Top Deck Smart Flag = 1, the deck health index is not adjusted.
If the Top Deck Smart Flag = 2, the maximum deck health index = 95.
If the Top Deck Smart Flag = 3, the maximum deck health index = 85.
If the Top Deck Smart Flag = 4, the maximum deck health index = 70.

If the Bottom Deck Smart Flag = 1, the deck health index is not adjusted.
If the Bottom Deck Smart Flag = 2, the deck health index is not adjusted.
If the Bottom Deck Smart Flag = 3, the maximum deck health index = 95.
If the Bottom Deck Smart Flag = 4, the maximum deck health index = 85.

If the Bottom Deck Smart Flag = 5, the maximum deck health index = 70.

The research team attempted to apply these rules for calculating BHI in Wisconsin bridges. BHIs with considering deck smart flag rules compare to the BHIs without considering deck smart flag rules.

Work Next Quarter:

- Complete the final report.

Circumstances affecting progress/budget:

Gantt Chart:

			2009											
2009Task	**% complete**		**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1. Health Index Definition	100%	Proposed												
		Actual												
2. HI Implementation Guidelines	100%	Proposed												
		Actual												
3. Sensitivity Analysis of Failure Cost on Bridge HI	100%	Proposed												
		Actual												
4. Sensitivity Analysis of Bridge Condition on Bridge HI	100%	Proposed												
		Actual												
5. Final Report	75%	Proposed												
		Actual												