

Memo

To: T. Ahlborn, C. Brooks, L. Sutter, B. Shuchman, J. Burns

From: D. Harris and R. Hoensheid

CC: A. Endsley, D. Evans, R. Oats, and K. Vaghefi

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Re: Site identification for the field demonstration and preliminary field instrumentation plan

As part of the field demonstration task of the project, a site selection process was initiated in Quarter 5. The aim of the site selection process is to identify potential bridges that can be evaluated using the suite of remote sensing technologies identified in this study. A primary goal of the site selection is to identify bridges that have varying degrees of degradation which have the potential to be identified and quantified using the remote sensing technologies. The end goal of the site selection is to identify two bridges within the State of Michigan that can be inspected (visual and detailed), tested, and evaluated using both traditional structural health monitoring techniques (strain gauges, deflectometers, live load vehicles, etc.) as well as remote sensing technologies (thermal IR, 3D optics, radar, etc.).

Preliminary site selection criteria were established during meetings with the Michigan Department of Transportation (MDOT) project panel on February 23rd, 2011 and our project Technical Advisory Council on March 3rd, 2011. These criteria include the aspects of bridge condition manifest in the bridge(s), the applicability of sensing technology to features of interest, schedule, proximity of the site to Ann Arbor (i.e. MTRI and CAR), safety, feature crossing, and interruption of traffic. Additionally, during the meeting it was concluded that the site selection should not be narrowed down to one bridge, but two bridges; that the first bridge possessed characteristics of a structurally deficient system (deck rating < 4) and another of slightly higher quality (4 < deck rating < 6). Other key characteristics include highway-over-highway bridges with span lengths greater than 20 feet, a concrete deck surface and no HMA overlay.

Current efforts are focused on refining the site identification protocol and selecting candidate bridges for further consideration. Presently, the selection process has been refined to include 300 candidate bridges and further refinements to the site identification process will continue in the coming quarter. Final selection will be made in conjunction with MDOT input. In addition to the site selection process, future quarter activities will include the formal development of a field instrumentation plan that will highlight procedures, equipment, personnel requirements, logistics and details of the proposed testing program. This instrumentation plan is expected to serve as a

guide for all of the field demonstrations and will also aid MDOT with coordination of traffic control and lane closures.