

May 17, 2017

## North Dakota DOT SHRP2 Round 7 Site Visit Summary

On May 15<sup>th</sup>, Dennis Sack, P.E., travelled to Bismarck, North Dakota for training on May 16<sup>th</sup>. On May 16<sup>th</sup>, he met with members of the NDDOT, as well as the local ND FHWA rep for training and education on Infrared (IR) testing to evaluate delaminations of bridge decks. The training session was held in support of the Round 7 award for R06A for North Dakota. During the initial office portion of the training, the IR test method was discussed, including detailed discussion of the advantages and limitations of the IR method bridge deck evaluation and discussions of the best ways to use IR for this task. There was also discussions about “what to do with the data” after data collection, to close the loop and incorporate the data into an asset management program.

As part of this award, the NDDOT purchased a FLIR T620 IR camera. They used this camera for some initial field testing prior to the training session, and collected very useful data on two bridge decks. The data was found to correlate well with hammer sounding results taken at the same time. This collected data was also presented and discussed in the office portion of the training. After the completion of the office training, the group travelled out to the bridge deck previously tested. The weather at the time of the site visit was cold and cloudy, and allowed the demonstration of the major limitation of the IR method due to lack of heat flux in the deck (from sun warming). The IR camera was initially unable to see the same delaminations that were easily identified in the previous site visit. However, as some sun later shined on the deck, the delaminations slowly became apparent.

The training was very effective in answering questions about the use of IR testing on bridge decks as well as the use of the data for repair planning. It also showed clearly the effects of weather conditions and moisture on the test method.