Infrasense Scans Michigan Bridge Decks for Delamination Using Ground Penetrating Radar, Infrared Thermography

Infrasense, Inc. recently scanned 57 bridge decks throughout the Southwest region of Michigan to assess the condition of the decks. Infrasense used a combination of high-speed Ground Penetrating Radar (GPR) and high-speed Infrared Thermography to scan the selected decks.

Arlington, MA (PRWEB) September 30, 2013 -- Infrasense, Inc., a national leader in detecting subsurface conditions, has recently completed subsurface investigations for 57 bridge decks in Michigan's southwest region. Most of the bridge decks of this project were surveyed with high-speed Ground Penetrating Radar (GPR) and high-resolution video, and select decks were surveyed using high-speed Infrared Thermography. These tests provide a condition assessment of the reinforced concrete bridge decks without requiring any cores or exposed rebar, and with no disruption to traffic flow.

Ground penetrating radar (GPR) data is collected to estimate rebar depth and corrosion conditions. The GPR data is collected in a series of lines spaced 3 feet transversely across the width of the deck, with each line representing a cross sectional slice of the deck at a particular offset. Decks in good condition consist of strong and uniform radar reflections from the rebar. GPR data with weak and inconsistent reflections indicate rebar-level deterioration in the bridge deck. As a part of the GPR data collection, high-resolution video was collected to allow for subsequent mapping of deck surface conditions (i.e. patching, spalling, and severe cracking.

The infrared data is collected in a series of passes across each deck, with each pass covering a deck width of between 12 and 15 feet. For a typical interstate deck with 2 lanes and left and right shoulders, the survey is carried out in four passes — one in each lane and one in each shoulder. The survey produces a series of infrared images that are subsequently stitched together to produce a full-scale plan view infrared map. High-resolution optical video is collected simultaneously with the infrared video in order to identify any surface features that may appear in the infrared data. Structural features such as patches and sealed cracks, or surface features such as staining and debris, can be identified during the analysis to ensure an accurate assessment of the bridge deck condition.

Infrasense also offers a combination of both GPR and infrared to create a more effective bridge deck condition assessment. By combining IR and GPR surveys, the maximum amount of information can be obtained for the least cost. Decks with concrete overlays illustrate how GPR and IR methods complement each other. Infrared surveys are effective in detecting overlay debonding, while GPR is effective in detecting rebar-level deterioration. Combining GPR and IR methods becomes economical when applied with a two-level analysis approach comprised of an initial high-level analysis to obtain quantities of concrete deterioration, and subsequent selection of decks that would benefit from a more detailed analysis and mapping of the deck damage.

About Infrasense, Inc.

Since 1987, Infrasense, Inc. has applied the most current technologies to the most difficult challenges in subsurface scanning. Infrasense’s engineers are able to nondestructively extract critical information from a diverse range of structures. The firm has conducted research to advance the field of subsurface detection, while also providing valuable information to clients across the country. Learn more about Infrasense, Inc. and its services at www.infrasense.com
Contact Information
Ken Maser
Infrasense, Inc.
http://www.infrasense.com
(781) 648-0440

Online Web 2.0 Version
You can read the online version of this press release here.