

## **Infrasense Scans 14 Florida Bridge Decks Using Infrared Thermography, Ground Penetrating Radar, and Targeted Impact-Echo Response Testing**

*Infrasense recently performed a multi-technique and multi-phase evaluation of 14 bridge structures near Jacksonville, Florida for the State DOT. A combination of Infrared Thermography (IR), High-Resolution video (HRV), Ground Penetrating Radar (GPR), and impact-echo (IE) testing were used to produce a comprehensive condition analysis of the bridge structures.*

Jacksonville, Florida ([PRWEB](#)) July 29, 2016 -- Infrasense, Inc., a national leader in nondestructive evaluation of transportation infrastructure, has recently performed comprehensive condition surveys of 14 bridge decks in Florida's Northeast District 2 region. A suite of nondestructive tests was performed, including infrared thermography scanning (IR), high resolution video (HRV), ground penetrating radar (GPR), and impact echo testing (IE). These tests provide a condition assessment of the reinforced concrete bridge decks with minimal interruption to vehicular traffic.

The GPR, IR, and HRV surveys were completed without lane closures. The data collection is conducted at traffic speed, within a survey vehicle, utilizing custom mounts and proprietary software, with little to no impact on the normal flow of traffic. Impact echo testing followed the analysis of the traffic speed data, facilitating the systematic validation of deterioration and delamination targets. With the safety of the field crew in mind, lane closures were utilized for the targeted IE testing, which was completed at night, minimizing the impact on the flow of traffic.

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. Infrared data and high resolution video are collected simultaneously in a series of passes across each deck, with each pass covering a deck width of between 12 and 15 feet. The IR and HRV images are compared and used to create condition maps without the influence of surface anomalies (shadows, patching and surface staining) that impact the final results. Impact echo testing is utilized to confirm the findings of the IR and GPR surveys. By analyzing wave frequencies through the concrete, the impact-echo equipment is capable of detecting delamination at any depth throughout the thickness of the deck.

Many agencies apply GPR and IR separately as tools for bridge deck assessment, or use only one preferred method. Each method has specific strengths and weaknesses, and Infrasense uses a combination of both to create a more effective bridge deck condition assessment. By combining the IR and GPR surveys, the maximum amount of information can be obtained for the least cost. The inclusion of targeted Impact Echo testing completes the analysis, allowing for systematic confirmation of the IR and GPR targets, calibrating the results to a higher degree and thus providing more accurate repair quantities.

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 <http://www.infrasense.com>.



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