Infrasense Carries out Ground Penetrating Radar (GPR) and Infrared Thermography Evaluation of Pavement Structure in Minnesota, District 5

This past summer, Infrasense conducted a non-destructive survey and report on 4 lanes of a 21 mile section of I-86. The project provided the client with a comprehensive set of condition results to facilitate a data-driven approach to analyzing pavement condition.

Minnesota (PRWEB) March 30, 2018 -- This past summer, Infrasense conducted a multi-faceted non-destructive survey and report for 84 lane miles of a section of I-86, made up of abutted concrete panels. The project provided the client with a comprehensive set of condition results to identify and map out distressed panels along the roadway. Surveys were performed at normal driving speed with no disruption to traffic.

The GPR data collection system included a pair of 1 GHz horn antennas and a SIR 30 control unit, both manufactured by GSSI in the United States. The infrared survey was performed using a FLIR camera mounted on top of the survey vehicle along with a 4K high resolution visual feed for reference. The final report included a quantitative table of deterioration, delamination, cracking, spalling, repaired/replaced panels, and panels recommended for replacement. Infrasense provided plan-view maps of their findings, along with a quantities summary table providing quantitative figures for each mile of each lane.

The GPR pavement surveys are carried out according to ASTM specifications. The resulting data shows a cross-sectional slice of the pavement strata at various offsets. Each slice includes the surface, the top mat of reinforcing steel, and the bottom of the slab. The amplitude of these layers is calculated and then quantities and maps of concrete deterioration and concrete cover are produced. The resulting maps are provided in both PDF and CADD compatible formats.

The infrared surveys were carried out according to ASTM specifications. The infrared data is reviewed simultaneously with the video data to differentiate delaminated areas from surface features (discoloration, oil stains, sand and rust deposits, etc.) that appear in the infrared, but are unrelated to subsurface conditions. Subsurface delaminations produce a thermal barrier and result in higher surface temperatures as the sun heats up the surface. These higher temperature areas are detected with the infrared camera, and subsequently quantified and mapped.

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