

Infrasense Scans Highway Pavement in Minnesota Using High Speed Ground Penetrating Radar

Infrasense recently scanned 12 sections of highway pavement in the Minneapolis-St. Paul area using high speed ground penetrating radar. Pavement data was collected in a lane and shoulder in both directions with no disruption to normal traffic flow or closure of lanes, and the results will be used in future Metro District rehabilitation planning.

Boston, MA ([PRWEB](#)) November 23, 2015 -- Infrasense, Inc. recently completed a subsurface pavement structure investigation of 12 sections of pavement in Minnesota's Metro District using high-speed ground penetrating radar (GPR). The sections were surveyed in both driving directions to obtain continuous structure information for both bound and unbound material layers. For most sections, both a driving lane and the right shoulder were surveyed in order to detect any changes in structure across the pavement. After data collection was completed, a preliminary review of the continuous GPR data was completed to identify homogenous areas of pavement structure and locate representative locations for subsequent core sampling. The results of this project will be used for future rehabilitation planning.

The pavement structure data was collected with a single air-coupled radar antenna manufactured by [Geophysical Survey Systems Inc.](#) (GSSI), and was synchronized with a Global Positioning System (GPS) to provide coordinate locations for the detected pavement thicknesses. Data collection was performed at driving speeds allowing traffic to flow without any disruption. Pavement structure results were provided in geospatial, tabular, and graphical formats.

Infrasense has played a key role in the development and implementation of [GPR for pavement assessments](#) over the past 25 years. Currently, the most common application of this state-of-the-art technology is the determination of pavement layer thickness because, unlike traditional coring, GPR requires no lane closures and provides a timely and cost-effective means of collecting continuous thickness data. This data may be used for network-level pavement management, project-level rehabilitation design, or quality assurance of newly constructed pavements. Infrasense surveys have covered over 10,000 lane miles of pavement. Projects range in size from our [recent asphalt thickness project](#) on a Boston viaduct, to a survey of over 2600 miles of county roads in North Dakota working with the North Dakota State University's [Upper Great Plains Transportation Institute](#).

At the network level, GPR can provide layer structure data used to identify homogeneous sections and to compute the remaining life of segments of the network. Computation of remaining life enables highway agencies to optimize their programming and planning of pavement rehabilitation. A number of agencies have implemented GPR at the network level, including the California Department of Transportation (CalTrans) and the Oklahoma DOT.

At the project level, GPR data provides information that enables owner agencies and consultants optimize rehabilitation design by providing accurate information on the current pavement structure. GPR data is also used to implement pavement recycling by providing details on the thickness of the bound material and how it varies over the project length.

Many GPR pavement thickness studies focus on supporting FWD operations. Pavement strength evaluations using a Falling Weight Deflectometer (FWD) provide useful data to pavement engineers for estimating

remaining life and planning rehabilitation. Accurate pavement layer thickness data enhances FWD pavement strength evaluations, because thickness data is required for calculation of the pavement moduli, and GPR can provide this continuous thickness information quickly and efficiently. Infrasense has provided pavement thickness data for 24 airports in South Carolina in order to supplement FWD testing on the runways, taxiways, and aprons, where limited access meant the high speed GPR surveys were especially suited for the job.

Layer thickness estimates are also useful for quality assurance/quality control (QA/QC) for construction of new pavements and overlays. GPR can provide a faster and more complete means of nondestructively obtaining QA/QC data than coring. Inadequate layer thickness can be quickly identified, and construction pay factors may be determined.

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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