Complete Bridge Condition Assessment System

BridgeScan™

www.geophysical.com

BridgeScan™ is a complete, affordable GPR system that provides an effective tool for quickly determining the condition of aging bridge decks, parking structures, balconies and other concrete structures. The system is also used to obtain accurate concrete cover depth on new structures. With BridgeScan, repair costs can be estimated correctly, saving time and money.

Typical Uses

- Bridge deck condition assessment
- Concrete cover depth on new structures
- Concrete inspection – locate metallic and non-metallic targets in walls/floors
- Measure slab thickness
- Void detection and location
- Inspection of other reinforced concrete structures

Acquire Data

- Identify areas of deterioration inside reinforced concrete within bridge decks, parking structures, balconies, etc.
- Obtain accurate concrete cover depth and overlay thickness

Deliver Results

- Convenient self-contained cart-based design
- Integration with GPS
- Application specific software for bridge deck condition assessments

Value

- Flexible system for concrete inspection and utility mapping applications
- Save money–Estimate structural condition accurately
- Two-year warranty

GSSI

"Our research studies indicate that GPR is an efficient and cost effective tool to analyze bridge deterioration mapping and pavement analysis. When applied, it saves our clients time and money."

Brad Rister, University of Kentucky Transportation Center

BridgeScan Solutions

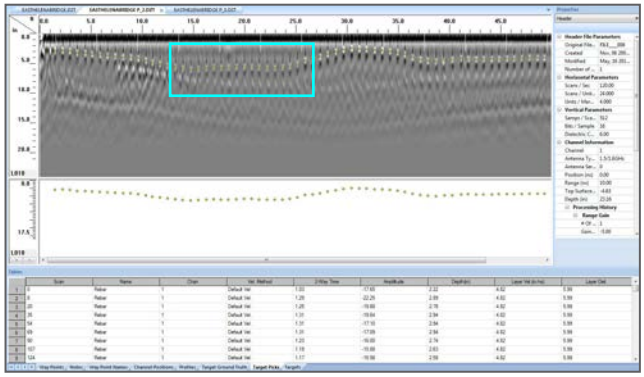
The American Society of Civil Engineers reported that as of 2013, apporximagely 25% of the nation's bridges remain structurally deficient or functionally obsolete (ASCE, 2013).

Traditional bridge deck inspection methods, like hammer soundings and chain dragging, rely on a person to interpret acoustical feedback to determine good and bad areas of concrete. Existing asphalt overlays must be removed prior to using these methods, and results vary depending on the operator's technique and interpretation of results. Assessment data normally consists of areas of the deck marked simply good or bad.

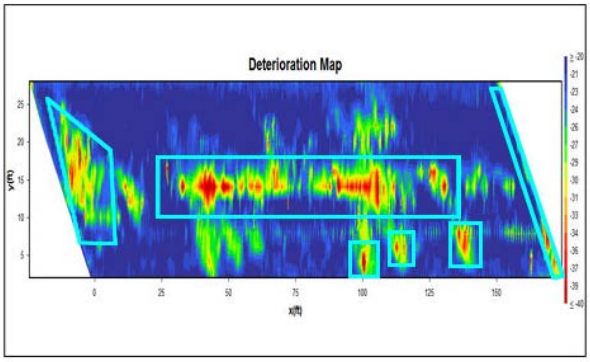
The application of GPR provides accurate condition assessment of bridge decks as well as other reinforced concrete structures. Hundreds of bridge decks have been evaluated using GPR.

Bridge Deck Condition Assessments

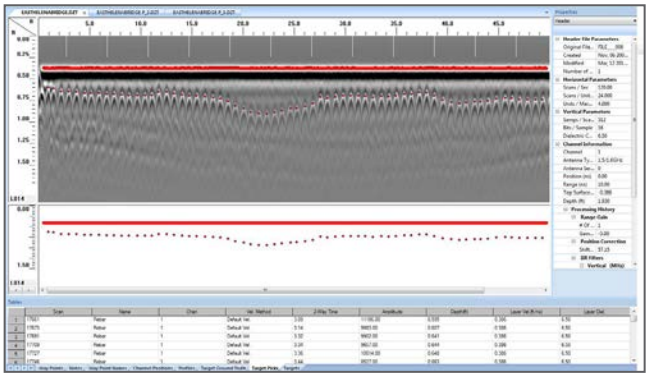
Engineers and transportation professionals need a reliable method to collect quantitative data on bridge decks. GSSI's BridgeScan is designed for bridge condition assessment, providing for accurate representation of the bridge data by automatically accommodating for bridge skew angle.



Zone of deterioration



Zones of deterioration



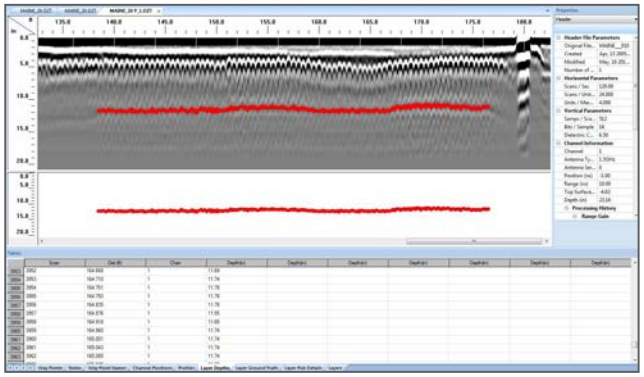
Rebar
Interpreted results
Deck surface

Concrete Cover Assessments

Engineers use concrete cover information to determine if reinforcement bars are protected from environmental effects. Transportation infrastructure professionals use BridgeScan to identify areas in which the cover is non-compliant.

Measure Bridge Deck Thickness

Ground penetrating radar provides a nondestructive technique for transportation professionals in evaluating bridge deck thickness. GPR can obtain reliable thickness measurements in minutes and eliminate the need to core.

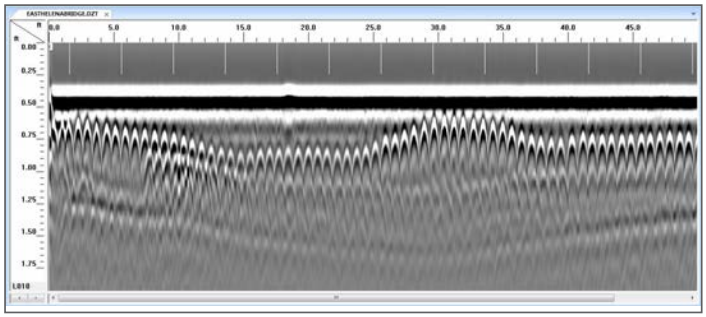


Reflection from bridge bottom

BridgeScan Procedure

1 Data Collection

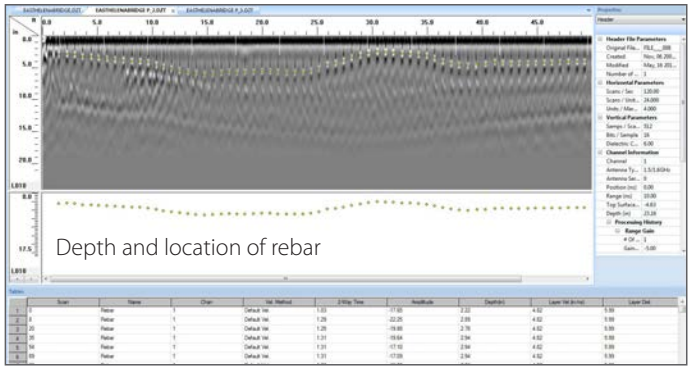
Collect the bridge data using a grid pattern and single lane closure.



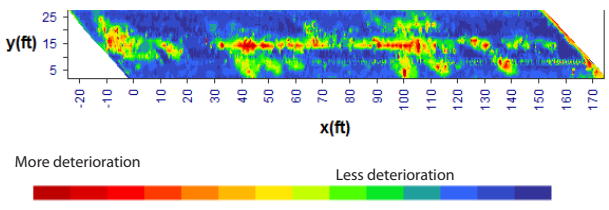
2 Data Processing

Interactive Interpretation Mode

Post-process the GPR bridge data in specially designed software to account for bridge skew angle.



Depth and location of rebar



3D BridgeScan data displayed with DPlot® software

BridgeScan Flexibility

The BridgeScan flexibility allows you to convert the system—no new data collection software needed. Use the same control unit for multiple applications.

Concrete Scanning and Inspection

Use ground penetrating radar to locate embedment within concrete structures prior to cutting or coring. Collect quantifiable data on rebar location and areas of delamination.

Utility Locating and Mapping

Construction professionals, utility locators and engineers can locate the depth and position of metallic and non-metallic pipes in real time using the GSSI UtilityScan. GPR can enhance one's overall understanding of subsurface targets and obstructions.

Control Unit Specifications	
Image Capacity	Internal: 500 2'x2' data images
External Memory	Based on Compact Flash size
Internal Memory	2 GB
Display	8.4 inch, full-color, 800x600 resolution, 64K colors, clearly visible in sunlight
Post-processing	On-screen
Battery	Internal (3 hours), 10.8 VDC
Ports	RS232, Compact Flash memory, USB master & slave
Environmental	Water-resistant

System Includes
SIR® 3000 control unit
1600 MHz
Survey cart with encoder wheel
2 meter control cable
2 batteries
Battery charger
Custom transit case for control unit
AC adapter
User manual
Sunshade

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