

MULTI-TECHNOLOGY APPROACH TO BRIDGE DECK NDE

THE MULTI-TECHNOLOGY APPROACH TO BRIDGE DECK NDE IS A METHODOLOGY IN WHICH AERIAL IMAGING, VEHICLE-BASED NDE SCANNING, AND TRADITIONAL TESTING METHODS ARE STRATEGICALLY COMBINED TO DELIVER QUANTITATIVE INFORMATION FOR IMPROVED ASSET MANAGEMENT.

0 FIXED WING OR UNMANNED AERIAL SYSTEM (UAS)

Infrared and visual imaging to provide quantities of:

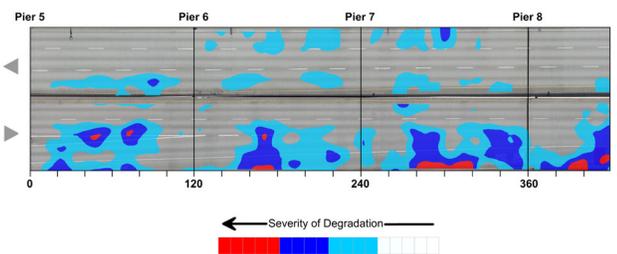
- + Shallow delamination
- + Overlay debonding
- + Spalling and patching



1 HIGHWAY SPEED VEHICLE-BASED SCANNING

Continuous wave step frequency (CWSF) ground penetrating radar (GPR) with 3D Radar™ are analyzed to quantify and map:

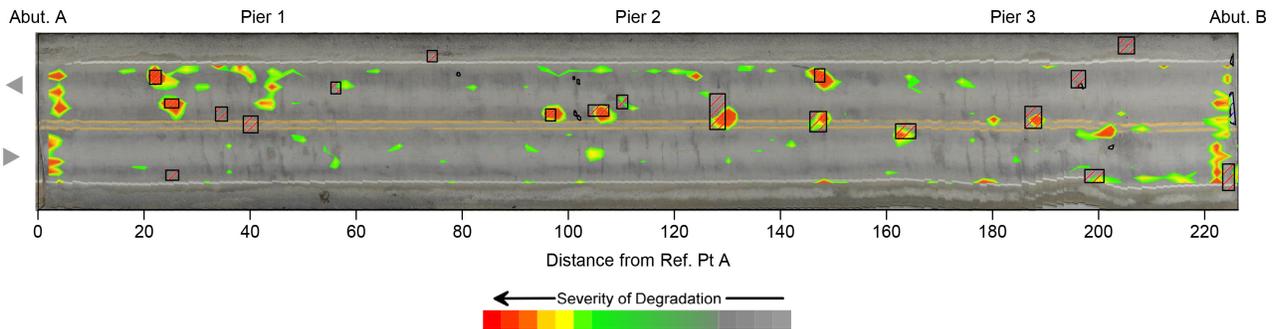
- + Delamination at top rebar
- + Overlay debonding
- + Corrosion activity
- + Spalling, patching, and cracking





DECK ACOUSTIC RESPONSE (SOUNДАР)

SounDAR collects rolling-speed acoustic data through a programmed array of impactors and customized microphones. The recorded data is similar in principle to chain-drag and impact-echo, and is analyzed to identify areas of decreased structural integrity including delaminations throughout the bridge deck.



VALIDATION & MONITORING

Validation

- + Chloride ion penetration testing
- + Petrographic analysis of core samples
- + Half-cell potential measurements
- + Manual chain-drag

Monitoring

Performance of structures can be monitored through repeated multi-technology surveys or via dedicated on-site data collection systems.

BDI's Structural Testing System (STS) and Structural Monitoring System (SMS) are integrated to evaluate pavement performance utilizing specialized sensors and data acquisition components for Accelerated Pavement Test (APT) facilities, road construction, airport projects, and in-service roads across the US and around the world. They can also be applied in laboratory or field settings allowing for research projects or large scale, high-speed, permanent monitoring systems.

BDI's NDE division utilizes its advanced technologies to provide improved NDE service solutions for pavement thickness and defect identification and mapping.

