

Bridge Deck Deterioration

Bridge decks require regular inspection. GPR has proven to be a very effective method of non-destructively evaluating degradation and delamination. The ASTM # D6087-05 standard describes the principles for using GPR for this purpose.

RoadMap GPR Services has optimized its systems to conduct bridge deck investigations. Our SmartTrailer with multiple sensors facilitates acquisition of data at highway speeds to minimize traffic management costs. Our hand-push SmartCart units enable detailed local studies when lane closure is planned for other reasons.

The yellow rectangle, in Figure 1, shows a surveyed bridge on the Google Earth map. Local data from "Site 1", are shown in Figure 2, and illustrate using RoadMap high resolution ground coupled data to analyze rebar reflectivity.

The individual response amplitudes when presented in plan map form are indicative of deck delamination or zones of deterioration. Figure 3 shows the colour coded response amplitudes.

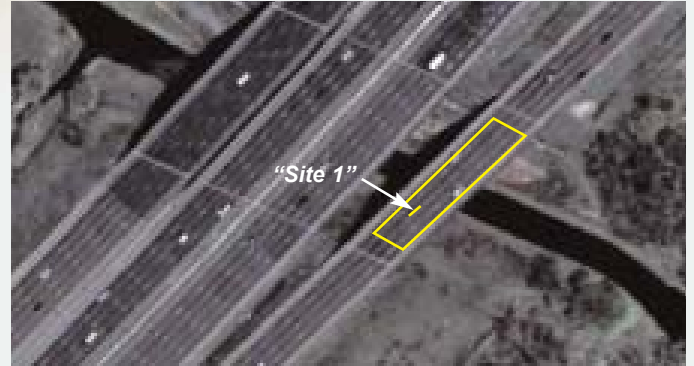


Figure 1: Google Earth map showing the bridge surveyed.

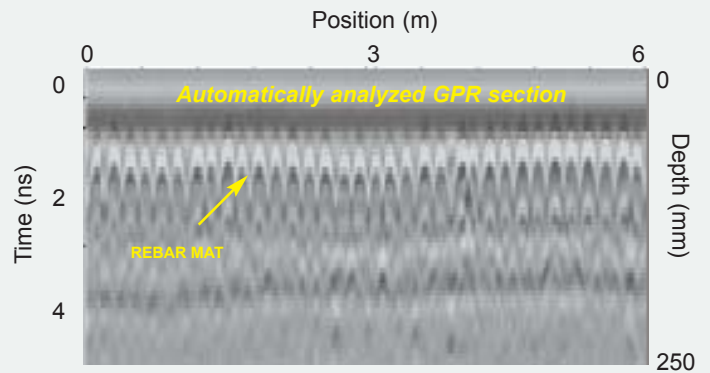


Figure 2: Unique RoadMap Analyst software characterizes rebar response to create bridge deck deterioration assessment.

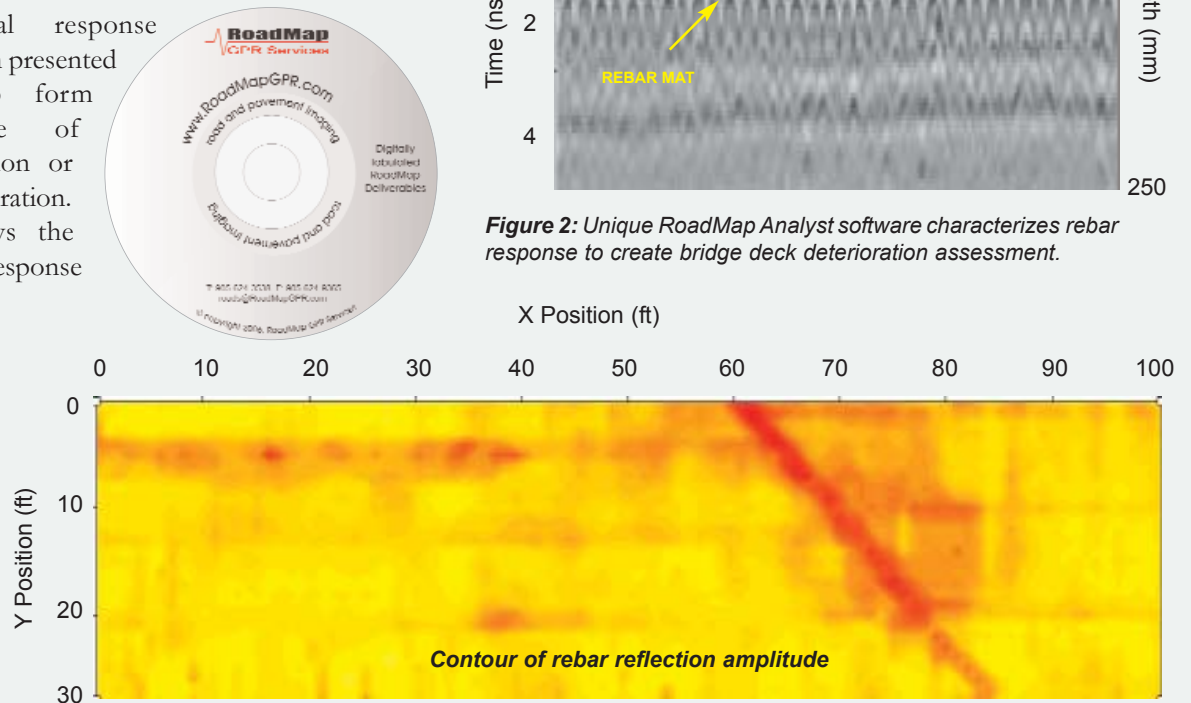


Figure 3: GPR rebar reflectivity data translated into a false colour image to indicate the degree of degradation or delamination (red shade indicates the degree of deterioration).

