ROWAN UNIVERSITY
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Supporting Bridge Deck Condition Assessment Through the Use of TLS

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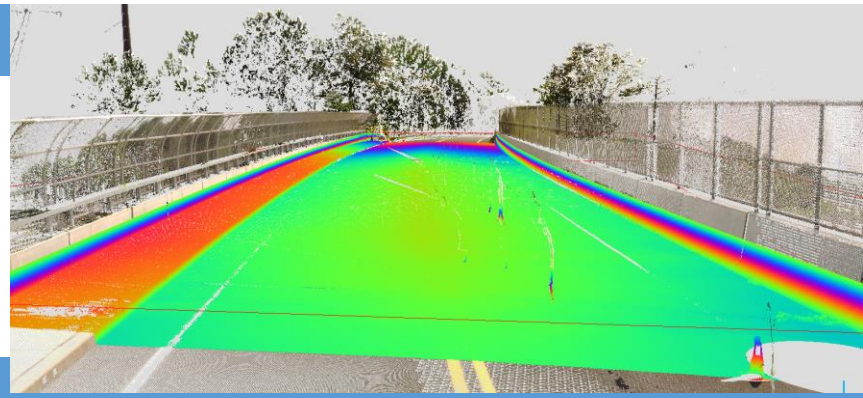
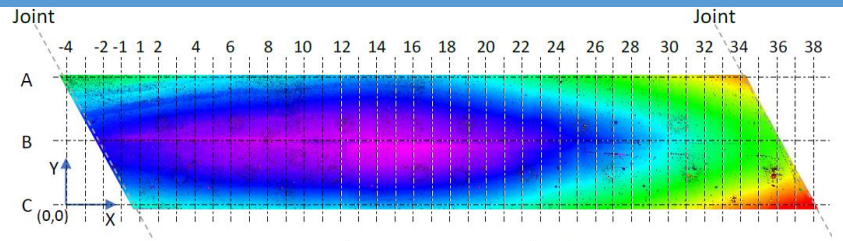
PROJECT GOALS

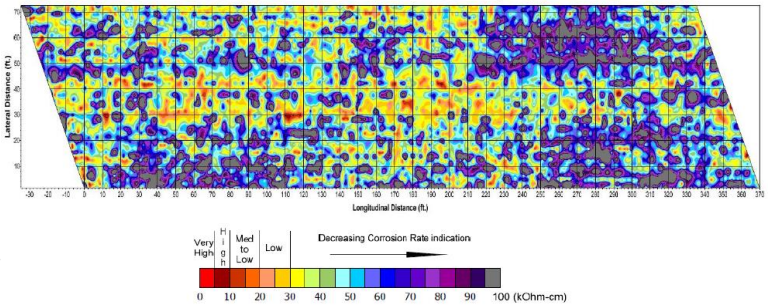
The overall goal of this research is to quantify TLS's contributions on supporting bridge deck condition assessment. During this research the team will pay attention to the following objectives: (1) analyze the correlation between the deck's surface geometry and the reported condition rating, and (2) evaluate the impact of deploying TLS as a screening tool to prioritize detail deck inspection. To achieve the proposed goal and objectives, a total of eight bridge decks will be scanned in the state in New Jersey.



BACKGROUND KNOWLEDGE: BRIDGE 0832162



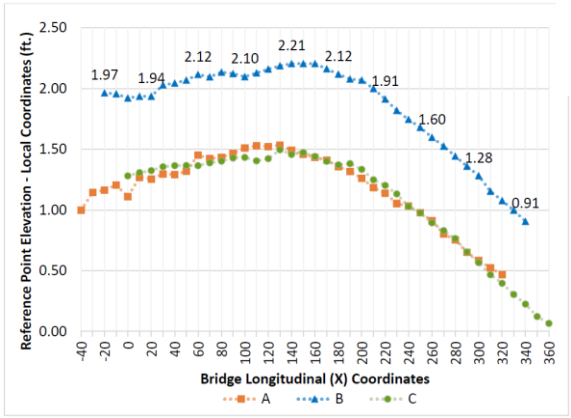
Bridge 0832162. Point Cloud Image.



Bridge 0832162 Electrical Resistivity map – 2015 inspection report.

Bridge Deck Slope Analysis:

The left-half of the bridge deck presented a slope of 0.43%, while the right-half of the deck presented a slope of -1.82%



Profile of Axes A, B, and C. Bridge 0832162.

Electrical Resistivity Data Analysis:

The left-half of the bridge deck presented higher levels of potential corrosion, compared to the right-half of the deck. This can indicate that the steeper slope on the right-half of the deck is allowing water to run off the deck easier minimizing deterioration effects.

DATA ANALYSIS AND EXPECTED RESULTS

The bridge deck surface geometry gathered via TLS on 8 New Jersey bridges studied in this project will be compared to the historical NBI deck condition. The selected bridges have current deck condition raging between 4 (poor) to 9 (excellent). The decks in condition 4 are used to validate the correlation between the surface geometry and the rating, while the decks with condition 9 are used to detect vulnerable areas and predict deteriorating patterns. Other variables as Average Daily Traffic (ADT) will also be considered during the analysis.