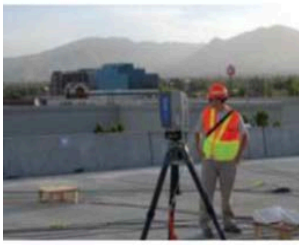
Surveying & Construction
Deflection Analysis using 3D Scanning

Problem/Challenge

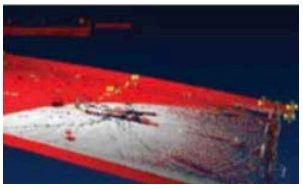


A recent case study using 3D Scanning technology was used in a project to measure the amount of *deflection on a 100ft x 50ft bridge* as it was being transported a mile and a half from its staging area to its final resting place on a stretch of interstate.

Solution

ACQUIP offers this service with scanners capable of digitizing structures very far away, up to hundreds of feet from a single location. Several scans can be aligned, or registered, together to capture even greater distances. The resulting scan images are comprised of X-Y-Z coordinate points, allowing measurements and analysis to be completed instantaneously.

During the transport, the 3D scanner was placed atop the bridge, along with several stress sensors. Scans were generated every 4-5 minutes and compared to stress sensor data, so that deflection could not only be detected, but analyzed at any interval of movement. The deflection was calculated by superimposing different scans together. In this case, the laser scanner detected massive deflection on one corner of the bridge. This analysis helps engineers know exactly where reinforcements need to be placed in order to prevent further damage or future collapse.



ROI/Value

The movement of the bridge was completed throughout one weekend. The rapid speed of the 3D scanner made it possible for the analysis to be completed almost instantaneously. This was crucial for enabling reinforcements to be made in a timely fashion, minimizing the amount - and high cost - of damages to the bridge.