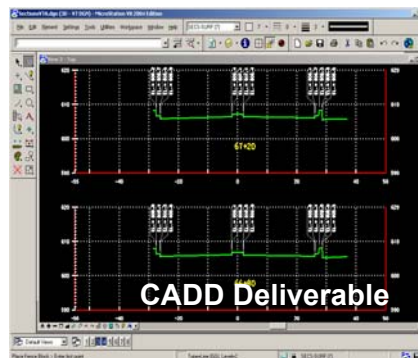
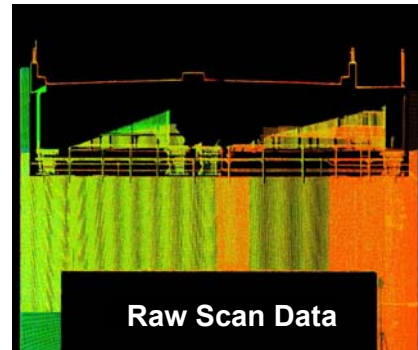


Queenstown-Lewiston Bridge

GPI



3D Laser Scanning

Client/Owner: Niagara Falls Bridge Commission

Project Location: Niagara Falls, New York

GPI used its state of the art 3D Laser Scanning technology, precision low altitude photogrammetry and conventional survey to provide cross sectional information for the Queenstown-Lewiston Bridge border crossing. Topographic data was also provided for the approaches on both the Canadian and American sides of the border. The MicroStation CADD deliverables were produced in significantly less time and money than would have been required by only using conventional survey methods.

The purpose of the 3D Laser Scanning and survey was to establish accurate cross sections across the bridge. A future lane addition is planned for one side of the bridge in an attempt to relieve traffic back-ups at the border. As well as the cross sectional information, the Bridge Commission required accurate pier cap elevations. Due to the design of the structure and its passing over the Niagara River Gorge, acquiring these elevations using conventional survey would have required traffic disruptions on the bridge and the use of bucket trucks. This approach would have been difficult and would have been a safety risk for the survey personnel. The 3D scan data was acquired for the piers and across the bridge deck from safe locations, out of traffic.

The decision was made to use 3D Laser Scanning because of its ease of use in hard to access areas. The 3D Laser Scanning provided a lot more raw data for review and use. All raw scan data was acquired from behind traffic barriers, eliminating the need for traffic control on the bridge. The raw data was registered to New York state plane coordinates utilizing GPS Survey techniques. The deliverables included a 3D MicroStation drawing. With the raw data scans archived as the digital field book for the project, future inquiries about the structure can be addressed from the office without mobilizing a field crew and necessitating traffic control.

Completion Date: 2003