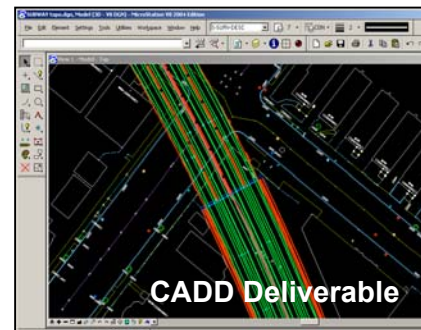
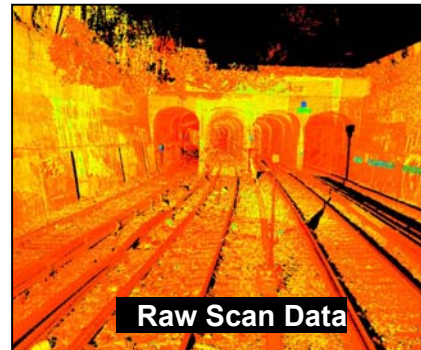

21st Avenue Bridge & Subway

GPI

3D Laser Scanning



Client/Owner: New York City Dept. of Transportation

Project Location: Queens, New York

GPI was contracted to provide **survey** information for 1,000' of New York City Subway tunnel and topographic data at street level. The purpose of the **survey** was to have accurate profile and section drawings showing the elevations of the tops of rails along with the tunnel walls. The drawings were used to determine clearances for design and re-construction of the current tunnel/bridge. To **survey** the project conventionally would have been difficult due to time constraints for track closures and difficulties associated with a streetscape **survey**.

By using it's state of the art **3D Laser Scanners**, GPI provided as-built plans for a total of 4 tunnels, each 1,000' in length, eliminating the need for significant track closures and reducing project time significantly. The resulting data files were archived for future use, preventing costly and time consuming call-backs if future **survey** data is needed. High accuracy control was obtained assuring the accuracy of the final product.

The **survey** was completed without train service interruptions and was **data collected** to coincide with a scheduled weekend shut-down. GPI used **3D Laser Scanning** and scanned the rails providing raw data scans in 25' sections. The raw scan data was registered to New York State Plane Coordinates using **GPS** and conventional **survey** techniques. Following the **integration** and processing of the **data** the final **deliverables** consisted of **MicroStation DGN** and **AutoCAD DWG** drawings, as well as **InRoads DTM** surface models. The **DTM's** were created depicting the tops of rails as well as complete tunnel profiles along the length of the project. A complete **3D model** was created integrating the **3D Laser Scanning** data acquired at street level with the scan data acquired in the tunnels. This allowed profile drawings to be created accurately showing the clearances between the highest points within the tunnels and the lowest points at street level.

Completion Date: 2005