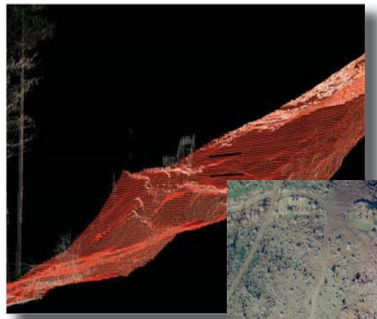
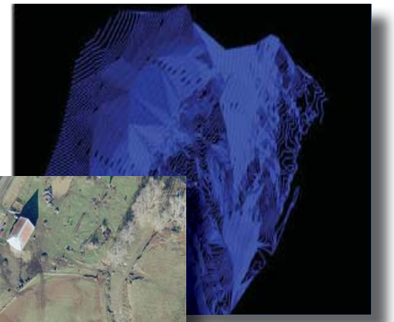
WSDOT Emergency Mapping

Flood Mapping - The SR 6 Slide 2007

InRoads 3D surface generated from laser scan mapping.

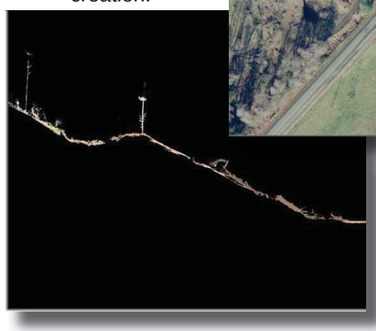


CAD InRoads surface of the slide area.

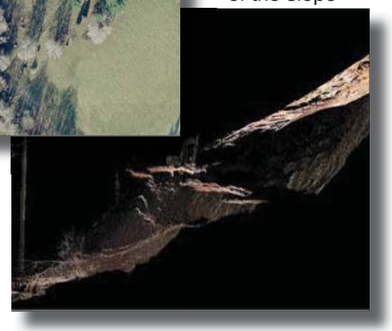


This is the aerial photo of the SR 6 Slide showing severe slide damage.

A cross section of a Point Cloud dataset used for CAD map creation.



Scanned dataset of the slope



Contacts & Information

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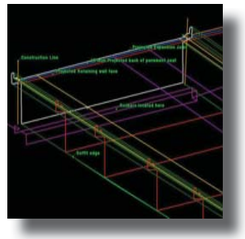
WEB: http://www.wsdot.wa.gov/mapsdata/Photogrammetry/3DTL.htm

WSDOT High Precision Mapping

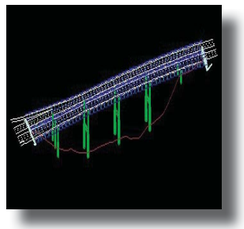
Facilitating Project Delivery With Cutting Edge Technology

Bridge, Viaduct and Tunnel Mapping



Many aspects of project planning and development benefit from high precision scanning and mapping. This is especially true when accurate information for the calculation of structure monitoring and movement is needed. Scanning captures a 3D point cloud representing a specific moment in time. This “moment in time” can reveal slight variances in the structure providing Project Engineers and other interested parties involved with valuable, decision making information.

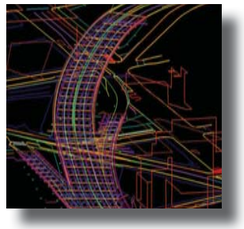
Point cloud datasets have also been useful for calculating structure deformations and full CAD modeling.

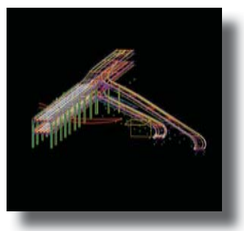


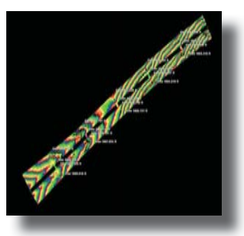
3D Terrestrial Laser Scanning Benefits

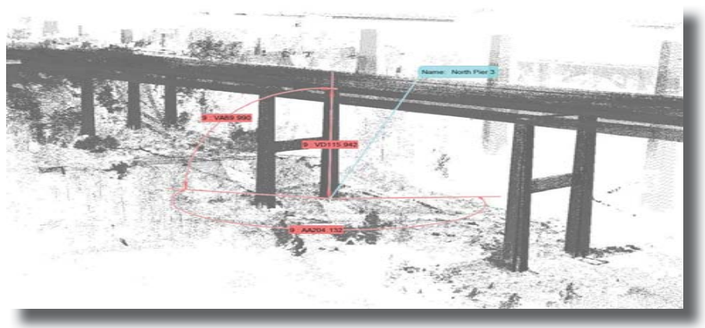
- Greater safety for motorists and survey crews by working away from the traffic
- Decreased traffic disruption by collecting data from a safe distance
- Reduce the time collecting field data by 20-30% compared to contional survey
- Reduce or eliminate return work site visits
- Expand data collection to difficult areas such as slopes, tunnels, high buildings and structures.
- Enhance projects by combining photogrammetry CAD, Airborn and Terrestrial Laser Scanning
- Georeference data (point clouds) using Global Position System (GPS) and traditional survey monument control
- 3 dimensional virtual surveying
- Effective scanning range is 220 feet in all directions for roadway sur faces and greater for vertical distances.
- Integrated high-resolution digitial camera mounted on the scanner pro vides coverage of scanned scenes.
- CAD design files and digital terrain models (DTM) compatible with WSDOT design software and procedures.
- Point Clouds can be overlaid in the design file to facilitate interpretation.

Note: Terrestrial Laser Scanning is not a replacement for Survey and Photogrammetry. It is an additional tool to enhance the map ping process.







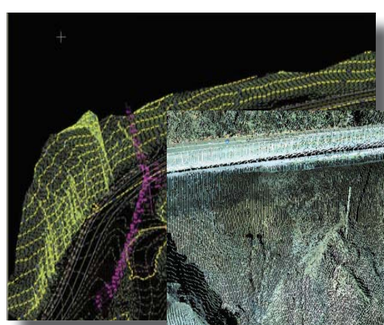


WSDOT Emergency Assessment Mapping

Slide and Slope Mapping - SR 410 Bear Canyon Area

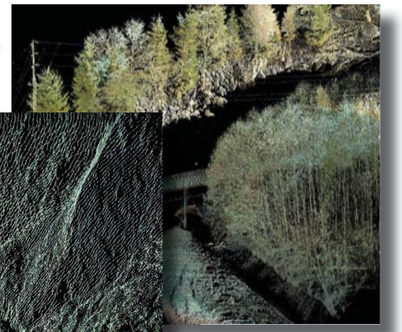
The SR410 Slide Area Mapping project, requested by the Northwest Region, required a variety of WSDOT mapping “tools” to acquire the highly precise data needed for the project.

The project combined scanning/mapping of the road surface and rock faces, along with survey field collected data and airborne Lidar for an overall project dataset.

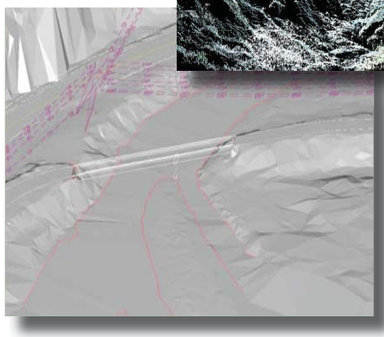


This scanner image shows slope erosion from the roadway

3D Terrestrial Laser scan of the White River along SR 410 (image left) along with rock slopes and roadway (image below).



Safety is a concern in dangerous and remote areas. Scanning allows the crews to capture large amounts of data from safe locations



Computer Aided Drafting (CAD) and InRoads surface models were generated from the scanned dataset.

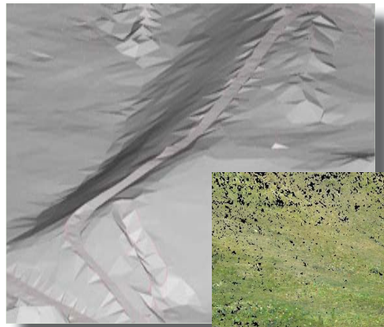
WSDOT Environmental Assessment Mapping

Quarry Mapping – Arlington Pit, Site D245

The examples below are taken from D245 pit site near Arlington, WA. The main focus of the project was the creation of a 3D CAD model and DTM surface. The CAD model was used for volume calculations along with the creation of cross sections for the area.

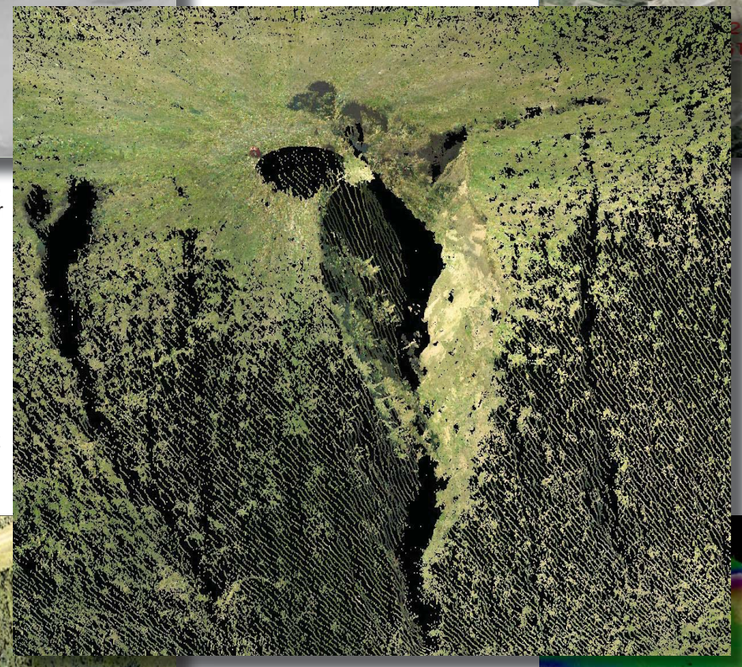
The Photogrammetry/3DTL crew was able to deliver the project to the customer within two days.

One day for scanning the pit, the second day for CAD modeling and 3D surface creation.



InRoads 3D surface generated from laser scan mapping.

This image is from the scanner showing severe slope errosion.



Ortho overlay of scanning project area

Point Cloud dataset used for CAD map creation.

Ortho overlay of scanning project area