

Mobile Laser Scanning with 1cm Accuracy



Mobile mapping system StreetMapper has achieved accuracies of better than 1cm on a Californian test area specifically designed to evaluate mobile laser scanning systems. Operated by Terrametrix and designed by Nottingham-based 3D Laser Mapping, the StreetMapper system was put through its paces on a stretch of highway in San Diego. The route was chosen by the Californian Department of Transportation (Caltrans) to help companies advance mobile laser scanning technology through independent evaluation against known control points.

The Caltrans test area covers a half-mile stretch of High Occupancy Vehicle (HOV) lane highway in San Diego. The route was originally selected as it was accessible to field crews to establish the control points and offered a variety of

traffic conditions to 'test' the mobile mapping systems performance in real world conditions. The route also had changes in elevation and obstructions (signs and overpass) to further challenge the systems. A two-lane section of the highway was measured by Caltrans using calibrated, high accuracy surveying equipment and techniques in order to establish the 1,500 plus control points.

Using StreetMapper Terrametrix surveyed the test area in just 45 minutes and raw processed data was delivered to Caltrans and University College Davis for inclusion in a mobile terrestrial LiDAR study. Initial reports are very positive showing a RMS error report as follows: number of Control Points 1567, average dz 0.9mm, minimum dz -15mm, maximum dz +18mm, average magnitude 5mm, root mean square 7mm and standard deviation 7mm.

"For years we have been anticipating this technology in hopes that it could collect high accuracy pavement data, allowing us to remove one of the riskiest tasks from our work," commented Dave Olander, Field Survey Officer for Caltrans. "The test area was designed for anyone working on mobile laser scanning to have an area to evaluate their systems and supports other projects we are working on to advance developments in mobile laser scanning technology."

StreetMapper has been specifically designed for the rapid 3D mapping of highways, runways, railways, infrastructure and buildings using vehicle-mounted lasers. Travelling at normal road speeds, StreetMapper offers a 360-degree field of view with high precision mapping to a range of 300 metres. Capturing every detail along the highway corridor including barriers, gulleys and overhead wires, surveyors can create highly accurate 3D computer models for planning, maintenance, wide load route assessment and post-incident investigations.