

CUSTOMER

Hoopers Forensics

PROJECT

Roadway surveying and locus inspections

SOLUTION

Trimble X7 3D Laser Scanner and Trimble Forensics Capture field software

Redefining Collision Investigation

How Trimble's X7 3D Laser Scanning workflow transformed roadway surveying for Hoopers Forensics, enabling them to create sophisticated deliverables, address field health and safety concerns, and significantly curtail the necessity for extra on-site visits.

With over 50 years of experience, motor engineering and independent vehicle assessors Hoopers Forensics have established their reputation as market leaders within the industry. They have earned this distinction by consistently delivering a trusted and comprehensive service to insurance providers, law enforcement agencies, financial institutions, accident management firms, and private individuals across the United Kingdom.

The company is committed to applying an innovative approach to its operations, whilst also expanding its existing portfolio of forensic services to include areas such as damage consistency analysis, large loss and complex investigations, and ECU (engine control unit) vehicle data downloads.

Challenging sites

In 2023, the company appointed a new Head of Forensic Services in Russell Danton, a qualified forensic reconstruction expert with over 19 years of experience in the fields of collision investigation, reconstruction and road safety research. With a comprehensive understanding of the various methods of recording information on roadways, ranging from basic road wheel measurements to advanced techniques like photogrammetry and 3D Laser Scanning, Russell was keen to resolve some of the common challenges typically encountered by Hoopers in their fieldwork:-

Traditional tape and road wheel methods meant that investigators were required to interact with live traffic to survey the site and capture data, and with the safety of investigators dictating access, this could be time consuming.

Although the investigators possessed extensive expertise in the field, relying on a chain and offset method raised concerns about the accuracy of the results. This approach depended on the straightness of the tape and the precise recording of measurements, introducing an element of uncertainty.

If a measurement was missed, such as the height of a road sign or width of a central reservation, a return to site would be required. Additionally, it was vital to capture all the information first time because evidence at scenes can decay quickly.

As civilian collision investigators, the Hoopers team was not afforded the same access to a location as police officers which again affected the data collection workflow.

Finally, the type of information collected using these methods meant that the end deliverable had limited uses.



Point cloud captured by the Trimble X7

Stand out Trimble X7 benefits for Hoopers:

- Ease of use and intuitive workflow
- Auto-calibration function with a report ensuring every job is calibrated
- Post processing Auto-Classify tool for easy cleaning up of the point cloud
- On-site registration ensures that nothing is missed
- Ability to produce a far more sophisticated deliverable
- Good support and back up from KOREC



A typical Forensics Capture screen



Out on site with the Trimble X7

Problem solving with a 3D Laser Scanning workflow

With over 8 years of laser scanning experience, Russell knew that the introduction of this technology into the large loss and complex investigation team and fire investigation team could enable Hoopers to overcome many of their site challenges and also enhance the analysis capabilities and deliverables within their reports. He therefore began researching scanning solutions from three different manufacturers choosing to contact KOREC to find out more about Trimble's X7 system.

Several features of the Trimble X7 impressed the Hoopers team who found it extremely easy to use on site and carry out the multiple scan setups they needed without issue. The team could now safely collect all the data and roadway they required from the side of the road with no need to enter the live carriageway to capture the centre road markings. They could also leave the site certain that every detail they required had been captured thanks to the In-field auto registration of scan data. This feature ensured peace of mind and "fool proof" use because the investigator could check on site that every detail has been captured.

In an industry dependent on detail and accuracy, Russell also rated the auto-calibration function which enables a calibration check for every job, including a report, which meant that the team were always confident in the quality and accuracy of the data they collected*.

An additional business benefit for Russell and his team was the competitive price of the X7 and more specifically, the yearly subscription for the forensic suite of software that they also opted for. (Trimble Forensics Capture is powerful and intuitive field software that simplifies scene evidence gathering and enables a seamless transition to Trimble Forensics Reveal desktop software for in-depth analysis.)

Finally, once back in the office, Russell was impressed by the Auto-Classify tool for cleaning out rogue points from the point cloud of passing vehicles or pedestrians on busy roads. This function also allows certain aspects of the scan data to be 'switched' on and off.

Typical usage

Hoopers typically use the Trimble X7 to survey roadways and junctions for use in collision investigation



"I've been pleased with the way KOREC has worked with us to up our workflow..... answering my questions on what I can and can't do or how to do things differently to obtain the desired deliverable."

Russell Danton, Head of Forensic Services, Hoopers



Point cloud captured by the Trimble X7

“ The Trimble software has been very impressive. It is very intuitive to use and to follow a basic workflow to process, clean and present the data in many ways for the deliverables. ”

Russell Danton, Head of Forensic Services, Hoopers



and reconstruction. This means that they can now produce highly accurate scene plans and locus maps to show the area of the collision/incident, road measurements and any issues with the road environment.

The X7 is also used to enhance Hoopers' analysis where the three-dimensional environment can assist in providing visuals with animations of the collisions or to capture the likely line of sight of the drivers/riders or witnesses. This not only demonstrates the evidence but also allows for the testing of witness evidence against the physical evidence.

Case study – recent locus inspection

At a recent locus inspection, Russell had to conduct a laser survey of an A Classified 'live' road which was a dual carriageway. This was following an incident where a lorry had collided with the rear of a stationary broken down vehicle, which then subsequently struck a pedestrian to the side of the vehicle.

Using the Trimble X7, Russell surveyed a 450m stretch of road on a mixture of setup parameters undertaking 30 scan setups along the carriageway to ensure sufficient overlap,

increasing resolution at the point of impact site. Despite this being a rural road with few distinguishing features, Russell was able to easily add in an additional setup for the automatic registration process.

The requested deliverable was a 2D plan showing the road measurements and an overview of the 3D environment showing the vehicles on the impact location on the approach to the point of impact to show how visible the one vehicle was to the driver. This will be used at a later stage in further reconstruction analysis and a possible animation of the incident.

Russell concludes that the Trimble X7 and Forensic Capture software has proved to be an impressive combination for the Hoopers team. "The workflow provided by this 3D solution is awesome creating a highly accurate digital twin of the environment, meaning we know we have all the data from the site visit. Additionally, any sequence of road measurements can be recoded correctly with no worry that you forgot to measure the height of a road sign or the width of the central reservation. I've also been really pleased with the how KOREC has worked with us to set up our workflow."

* For owners of the Trimble X7, this feature also eliminates the need to send the X7 abroad for calibration unlike other brands of scanner. By avoiding the need for this and the subsequent expense of hiring an alternative during that time, this feature can reduce the cost of ownership by more than £3-4k annually.

CONTACT US

Please do get in touch for further information on any of the products or services mentioned in this case study, a demonstration, support or just a chat about your requirements.

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