

[← Back](#)

How the latest technology is having a real impact on road building

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Press Release



National Highways is looking to take the 'guesswork' out of a key stage in road construction and improve safety for road workers by trialling new technology in heavy plant.

New technology has been trialled by National Highways that will speed up road construction and improve safety.

The first-of-a-kind technology takes the 'guesswork' out of compaction making sure the heavy plant gets the job done first time ensuring safe and durable foundations in road building.

As part of a commitment to developing and promoting Connected and Autonomous Plant, National Highways teamed up with partners Finning UK & Ireland and Galliford Try to trial the Intelligent Compaction innovation.

It was put to the test on a scheme in the South West being carried out by Galliford Try where National Highways is upgrading a stretch of the A303 between Sparkford and Ilchester to dual carriageway.

Compaction is one of the first activities to happen on site so any issues can impact the whole construction programme and increase costs. Intelligent Compaction provides reassurance that there is the required strength in the foundation and work can progress.

Using 3D mapping and a sophisticated sensor system, the technology ensures that the right level of compaction is achieved first time and spots any uneven areas which could cause settlement issues down the line.



Caption: The trial takes place on the A303 scheme. For footage visit [here](#):

National Highways Head of Innovation, Claire Hamar, said:

“We are constantly exploring new innovative ways to design, build and maintain our roads and are committed to making connected and autonomous plant the norm in construction. We believe that embracing innovation is the path to more efficient and safer projects.

“A huge positive that we discovered in the Intelligent Compaction trial was the improved efficiency and environmental benefits - as work did not need to be repeated so, thanks to the reduced fuel use, we had reduced carbon.

“Not only is the work completed more quickly saving resources and taxpayers’ money but, most importantly, it improves safety and reduces risk.”



Caption: The technology inside the driver's cab which manages the compaction

Finning is the world's largest dealer of Cat equipment. The machines used in the trial are fitted with Cat machine drive power technology and Cat compaction meter value.

Using these features, the driver is able to set the target depth and compaction level required via a user-friendly interface in the cab. This enables the operator to pre-set the drive functions so the roller is automated and operates within the required parameters. This ensures the task is completed safely and eliminates the need for a worker to be out on site during the compaction process to check the levels.

Jonathan Davies, Industry Manager, Industrial, Waste and Paving at Finning UK & Ireland, said:

“Technology increases performance and operational efficiency with the machine operating effectively with reduced fuel consumption. Cat soil compactors have two types of sensors that measure the ground stiffness as well as an accelerometer base system, which is common in the industry, and complemented by a proprietary rolling resistance system so it works particularly well in cohesive and clay like material which is common across the UK.

“Without the use of such technology, the only way to be sure of the compaction level across a site is through random testing, which can cause delays on site and safety issues.”

Jon de Souza, Innovation and Research Lead at Galliford Try, said:

“We were delighted to be able to demonstrate our commitment to innovation through the collaborative delivery of this research trial. We believe that connected and autonomous plant has the potential to transform construction over the coming years, improving safety and productivity while reducing carbon emissions.

“We look forward to continuing our work with National Highways to trial this technology across our infrastructure delivery.”

Funding for the trial came from National Highway's Innovation and Modernisation designated fund. This is one of four funds focused on making a positive difference for people, the economy and planet. From 2020 to 2025 we're investing £936m from the four ring-fenced funds which are Innovation and Modernisation, Safety and Congestion, Environment and Wellbeing and Users and Communities.

Notes to Editors

Representatives from National Highways, Caterpillar Finning and Galliford Try talk about the trials on this video:

<https://youtu.be/0-Aa7E08OY4>

The term Connected and Autonomous Plant refers to construction plant that is connected to its environment through sensors or wireless transfer of data between a remote operator while the autonomy element refers to aspects of the vehicle's operation and also movement around a site.

National Highways is committed to the CAP Roadmap, launched in June 2020, which identified challenges and workstreams to support a goal of making automation business as usual in construction by 2035.

For more information visit this webpage:

<https://nationalhighways.co.uk/our-work/innovation-and-research/connected-and-autonomous-plant-to-2035/>

More details about the A303 Sparkford to Ilchester upgrade can be found here:

<https://nationalhighways.co.uk/our-roads/south-west/a303-sparkford-to-ilchester/>

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