

Case Study

Improving lane adherence

at Switch Island

Background

Switch Island is one of England's busiest motorway junctions, handling over 90,000 vehicles every day. The M57, M58 and three A roads join at Switch Island. In the two years leading up to this installation there were 49 collisions at the junction—almost one every two weeks.

Investigations into this collision rate identified several contributory factors. One such factor was poor lane adherence, with drivers drifting between lanes or changing lanes at the last minute, increasing the risk of side-on collisions. Another issue was the longevity of the lane markings; with drivers crossing the junction from multiple directions, the road markings were both potentially confusing and frequently driven over. This caused the white lining to rapidly fade and wear away, which presented additional safety issues when the lining needed repair and congestion issues when the work was undertaken.

Solution

Following early involvement with the design consultants, Clearview's IRS2 Intelligent Road Studs were identified as part of the solution to the issues faced at Switch Island and 175 of the studs were installed across three sections of the junction.

"We're committed to improving journeys and safety for road users and are open to all solutions that can help us do this. The Intelligent Road Studs are a product we have used before, but not at a motorway to motorway junction and not in the north west region. Connecting the studs to the traffic signals is a first for Highways England and we've found this innovative use of them to be a very effective way of guiding drivers, helping them stay in the correct lane and so avoiding the risk of a collision."

Phil Tyrrell Service Delivery Manager, Highways England

Synchronised with the traffic signals, the studs illuminate when the green phase commences and turn off when the signals change to amber. Intelligent road studs feature bright LEDs that can be seen 10 times further away than traditional retro reflective road studs. By actively emitting light, the studs remain visible even in daylight as well as during heavy rain or fog. They provide very clear delineation of the lanes to safely guide drivers through the junction. Furthermore, the studs provide a more durable solution than white lining in this specific circumstance.

Previous installations of IRS2 Intelligent Road Studs have been found to reduce lane transgressions by over 50 percent. It is hoped they will have a similarly transformative effect at Switch Island.

Other improvements at the junctions include higher traffic signal heads to be seen beyond buses and HGVs and additional gantry signs to help drivers move into the correct lane as early as possible. Improvements were also made to the road layout and road markings with additions such as coloured high friction surfaces.

Key Benefits ▼

- Encouraging drivers to stay in lane, resulting in fewer lane transgressions and therefore reducing collisions
- Providing clearer guidance to road users, improving road user confidence and reducing stress
- More durable than white lining in this specific junction layout, requiring less maintenance and so reducing congestion and risk to road workers
- Highly popular with drivers, judging from the positive comments on social media platforms
- Proven to be effective in all lighting conditions