

## Case Study

## Enhanced delineation

## A38 Derbyshire



### Background

In 2017 Highways England commissioned upgrade works to be undertaken on the A38, an ageing dual carriageway providing a major transport route through the Midlands. The condition of the road was poor; an ageing highway and localised surface defects had caused potholes, deep ruts and the white lining was heavily degraded. The geometry, lack of street lighting and short on-and-off slip roads contributed to poor visibility of the road layout ahead.

The challenge facing Highways England was to bring an older road up to modern standards without the ability to amend the layout, whilst minimising disruption to road users. The objective was to deliver a lasting, 20-year solution that would improve the road users' experience, increase visibility for drivers and require minimal future maintenance to avoid disrupting the 23,000 motorists who use the road daily.

When compared to more modern road designs, the slip roads on the A38 had a smaller entrance point and were shorter in length whilst some of the bends were sharper. Unable to reconfigure the layout, Highways England had to find a solution that would provide enhanced delineation to give drivers the best view of the layout ahead without using streetlighting.

### Key Benefits

- Minimal maintenance reduces disruption to drivers
- Increased visibility gives drivers longer to react
- Enhanced driver experience
- Solar powered and effective all year round
- Safer for motorcyclists
- Longer lasting and more durable than reflective road studs

Previously, retro-reflective road studs had been used for carriageway and slip road delineation. However, the performance of these had tended to degrade quickly, requiring regular upgrades and replacements. For Highways England, this meant visibility for drivers was often sub-standard, and the costs associated with replacing the degraded studs, combined with the disruption to the travelling public during the replacement work, was becoming a significant issue.

### Solution

Highways England chose to upgrade from retro reflective road studs and install more than 5,000 of Clearview's SolarLite Active Road Studs on both carriageways along a 10 kilometre stretch of the road. With an operational lifespan of up to eight years, the studs require less maintenance than retro reflective road studs, reducing the frequency for future repairs and road closures and subsequently minimising disruption to drivers.

Red, amber and green studs were used to highlight the edge of carriageways and slip road entry/ exit points. White studs were installed along the centre of the road.

The SolarLite Active Road Studs store solar energy during the day and illuminate as darkness falls to provide effective year-round performance that does not deteriorate over time. Using powerful LED lights, the studs provide a view of the road ahead ten times further than that provided by traditional retro-reflective studs. This gives drivers ten times longer to react to changes in the topography.

The studs have a low profile of less than 4mm so do not present a hazard to motorcyclists and have been proved to reduce night-time accidents by more than 70 percent.

Combined with other improvements including some of the latest high visibility lane markings (that can be seen at night and in adverse weather conditions), delineation along the A38 has been enhanced.

*"We're always looking for new ways to further improve journeys and safety for drivers and this is a great example of that. This section of carriageway has no street lighting, so the solar road studs and improved lane markings make a real difference. At the same time the new technology is more durable, meaning less disruption for motorists in the long term thanks to fewer roadworks."*

**Matthew Carruthers**

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