

SMART TAPER

A Lean Collaborative Project

Kier Area 13

Phase 1 Project Update

Highway Resource Solutions Ltd (Keith Dawson)

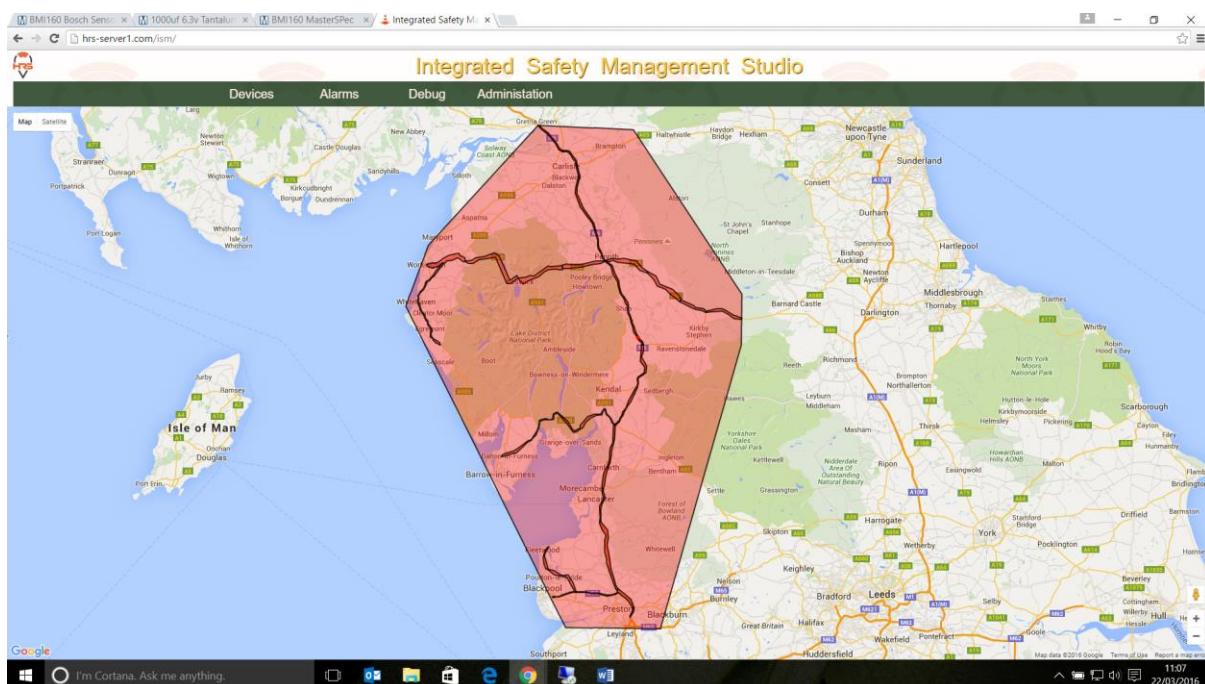


The Intellicone® enabled Smart Tapers are currently being trialed in Area 13 to demonstrate and quantify the benefits of using technology to monitor cone taper deployments and integrity. This will be achieved by deploying the technology on 3 tapers during a 3 month period.

HRS are working with Kier Traffic Management teams to facilitate the trial and adjust the equipment/approach in accordance with findings and working practices on an ongoing basis. The first phase of the trial is to brief the TM Operatives and NCC on the project, and deploy 1 taper set for 2 weeks. This will enable the system to be further developed and optimised for Area 13's working practices.

The Smart Taper system provides real time information on the location of a cone taper and real time alerts of taper strike information. When a Taper Beacon is deployed, the taper deployments are recorded against their time, date, longitude and latitude locations. When a taper alarm is activated (when one or more cone are knocked over) an automated message is sent via a text message or automated phone call to one or more designated phone numbers. These alert messages include marker post locations, so they may be referenced against the job SRW number and actioned accordingly.

During Phase 1, the Area 13 network has been mapped and geo-fenced according to the maintenance link locations (shown below) and a set of trial equipment has been prepared. The first set of equipment was provided on Tuesday 15th March, during which time approximately 20 operatives (over 3 shifts) were trained on the project and how the technology should be used. The project was received very well with all operatives becoming very engaged and liking the idea of the system. The Network Control Centre (NCC) was also briefed on the project and a discussion took place on to how to interface with the existing systems.



The first cone taper was deployed on Thursday 17th March at 8:32am and removed at 14:03pm on the northbound carriageway of the M6 just after Junction 38 near Orton.

During the inductions, the TM and NCC operatives provided their feedback on the system and following suggestions were made to improve the system's functionality:

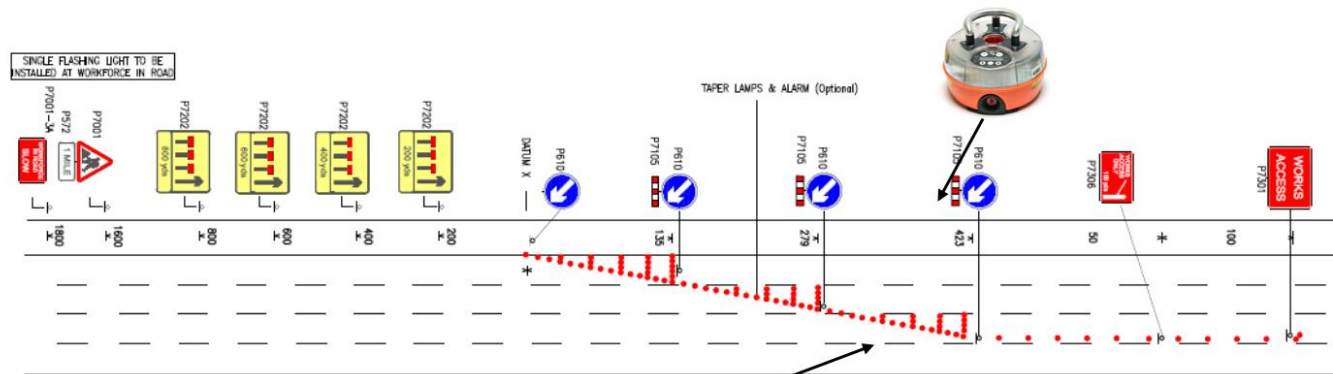
1. The system should be able to send email alerts to the general NCC address and not be limited to phone calls or text messages. This would be easier to see and action, especially during peak times.
2. The system should be able to identify how many cone lamps have been displaced, so the operatives or NCC can judge how urgent the situation is and the severity of the taper strike.
3. The system should be viewable on an independent web page on a monitor set up in the main TM office. This would enable managers and supervisors to view their closure locations and the integrity of each taper in real time.
4. The system should be capable of providing an email, SMS or phone message containing the marker post location when a taper is deployed or removed. This will immediately enable the NCC to cross check and ensure that all cone tapers are reported by the TM operatives, and may be used in the future to automate the call in process.
5. Cone taper strikes should be mapped according to their location, date and time so trends and position of safe taper locations may be improved and updated. This information could be provided in a nightly email, in addition to a wider safety report split up into Area 13 maintenance link sections. This information may also be cross-referenced against the locations of known barrier strikes to look for trends in the road network.
6. The 3m Sentry detector may be placed at the start of the taper to identify how many vehicles are constituting a near-miss by moving very close to the taper (definition of near miss required).

For a separate application, it was identified that the Sentry sensor may also be used at temporary traffic lights to inform operatives in real time if the traffic at different locations is flowing or queuing, at different times of day.

All of the above suggestions are currently being investigated and developed, so they may be rolled out during the next stage of the trial with 3 taper sets. The first phase will continue to run until the new suggestions have been implemented and the results of the first phase have been compared with the actual closure locations.

Smart Taper

Taper Beacon



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