



Smart motorways through a road worker's eyes

Connect Plus Services are responsible for smart motorways between M25 junctions 23 to 27, and 5 to 7. During construction, all the depots and operatives affected by smart motorways and involved in the installation of traffic management in these sections were asked for their thoughts on how smart motorways could be made as safe as possible.

The traffic management team put together flow charts and working practices for the installation of traffic management and, when construction was completed, the same team checked the working methods to make sure that they worked.

Smart motorways on the M25 have LED signs on the verge operated by the control room and blind signs in the central reserve, operated by remote control.

Installing traffic management on smart motorways has been ongoing for the past 8 months. So far, over 100 closures have been installed in the M25 sections. No operatives are required to cross the carriageway in these sections. There are currently 23 fixed taper locations and these cover every layout needed to maintain these sections of road - full carriageway closures, and every lane closure configuration.

Taper locations are approximately 800 yards from slip roads, where possible, and co-located with emergency refuge areas, so the traffic management crew can pull into the refuge area before installing the taper.

Dual vehicle working is now a compulsory requirement as part of improving road worker safety.



Eliminating carriageway crossings

Just five years ago 96 individual carriageway crossings were typically required to set out one outer lane closure. Today the number of crossings required is zero.



Spending time with staff in the Highways Agency's South East region in December, CEO Graham Dalton heard some inspiring news about how the industry has come together, supported by RoWSaF, to work collaboratively to eliminate live carriageway crossings. He said, "Five years ago, we didn't know whether we could achieve this change or if it would prove prohibitively expensive, but we set about doing it anyway, putting our trust in innovation and teamwork between companies. The result has been some outstanding collaborative working which enabled us to bring forward our goal to stop live carriageway crossings by two years, to December 2014."

In January 2015, EM Highways, Connect Plus and Balfour Beatty/Mott MacDonald (the Highways Agency's asset support contractors in Areas 3, 5 and 10), reported that for the third month in a row they had all delivered the Highways Agency's maintenance programme for

their area with zero carriageway crossings. Other service providers also report having achieved zero crossings, which is great news. Getting to that point required three things to come together; the vision for zero crossings, the evidence that it was possible to achieve zero crossings without risking the lives of road workers and road users, and the support from service providers to trial and then implement new ways of working.

The vision came from the Highways Agency in their role as client and was fully supported by its service providers. Evidence that it was possible without increasing risk for road users required a range of on-road trials and for Transport Research Laboratory (TRL) to use these to gather data to provide independent scientific results and evidence. Once solid evidence was in place that the approach worked and could deliver zero crossings, it was then up to the Highways Agency to enable it and service providers to adopt it.

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The story of zero carriageway crossings began in December 2011 with the publication of IAN150/11 which, based on trials carried out by Balfour Beatty/Mott MacDonald in Area 4 and A-One+ in Area 10, allowed omission of some signs in the central reservation (signs simplification). In 2012 IAN150/11 was expanded to include off side signs removal (OSSR) for some lane closures, based on trials in Area 3 by EnterpriseMouchel and Chevron Traffic Management.

Further trials by Balfour Beatty and Connect Plus led to three updates to the OSSR guidance in quick succession between March and November 2014 which extended it to cover most lane closure types. This enables traffic management to be installed at most relaxation scheme works with zero carriageway crossings (see the latest from RoWSaF).

The aim has always been safety first – all trials were carried out using already scheduled road works to make sure that road workers didn't have to set out additional road works simply to collect data. The success of the trials and the subsequent guidance has improved safety but has required a lot of changes to working practices. According to Rees Evans, the EM Highways Area 3 ASC General Manager, "There has clearly been a step change in how we implement traffic management, brought about by improvements over the last four years. There has been great commitment from the Area 3 team, staff and operatives alike, in their involvement in trials and in developing and implementing changed methods of working to achieve this end goal – something that they can be very proud of."

Keen to find out how workers on the road have received these changes, we've been in touch with three operatives who've all embraced these changes positively. Mick Hawkins, at the Chieveley Depot, said, "As an operative in a TM crew I'm fully aware that the industry as a whole is working towards zero crossings and I can see why, because it's probably the most dangerous activity we do." Colin Whitehorn and Tony Tostavine from the Park Gate Depot think that zero crossings are brilliant because the team has to spend less time in live traffic. Tony added, "Given the time span for achieving zero crossings, I think we've adapted really well. Not having to walk in front of live traffic is a much safer way of putting out advanced signs."

Achieving zero carriageway crossings is probably the biggest single improvement in safety for road workers. It's an example of how collaborative effort in pursuing a shared target can not only deliver, but deliver with pace. Bringing together client, science and user has allowed us to reduce risks, improve safety for road users and road workers and take another step toward the ultimate vision of zero accidents.

The latest from RoWSaF

Published interim advice notes (IANS)

IAN 181/14 guidance on the use of impact protection vehicles for temporary traffic management

This IAN provides guidance to service providers on the purpose of IPVs and on the management of risk associated with their use. It outlines how the risks to road workers and road users should be assessed through a site specific risk assessment, including consideration of the operational method used, specifically the need to select the appropriate choice of dual or single vehicle working.

This IAN is intended for use in conjunction with the [HTMA guidance](#) on TTM vehicle selection and operation.



IAN150/14 revision 2 offside signs removal

This interim advice note extends the offside signs removal technique to:

- Direct one, two or three lane offside closures on a four lane carriageway.
- Single lane offside closures on a two lane motorway.

- Single lane nearside closures on two lane all-purpose trunk roads.

This will further enable the supply chain to meet the Highways Agency's target to eliminate carriageway crossings by road maintenance workers. We are asking service providers to provide feedback on their operational experience of using the new layouts.

Monitored roll-outs are now in planning to test the feasibility of offside signs removal for 50/60mph dual carriageways, and for the closure of lane two on two lane all-purpose trunk roads with or without 50/60mph speed limits.

Designing for maintenance

IAN 69/14 provides improved guidance to assist designers in discharging their legal duties in a consistent way under the Construction (Design and Maintenance) Regulations 2007, particularly as they relate to improving the health and safety of those undertaking operational and maintenance activity. The IAN provides additional guidance in support of the repair and maintenance strategy statement (R&MSS).

The Highways Agency Delivery Hub health, safety and environment

[Raising the bar 4](#)

Temporary safety barriers good practice in the implementation of temporary barrier to protect the workforce and travelling public.

IAN 150/14 revision 2

Makes a very significant contribution to the Highways Agency's target of eliminating the routine crossing of live carriageways by road maintenance workers. The extension of the guidance to include direct offside three lane closures on four lane carriageways allows smart motorway sections to be maintained with zero carriageway crossings, improving road worker safety. Extending the guidance to two lane dual motorways and all-purpose trunk roads enables adoption of the offside signs removal technique in a much greater number of maintenance closures. It enables designers of future schemes, including smart motorways, to realise the potential for a significant reduction in the requirement to install permanent or semi-permanent signs (electromechanical or LED) in the central reserve. This will reduce road worker risk associated with the construction and ongoing maintenance of these central reserve signs, as well as realising capital saving on the purchase of signs, construction of associated permanent supporting infrastructure (such as power and communications cabling) as well as the need for blisters to be cast into the concrete central reserve.

Road worker safety strategy and action plan

In issue 10 we talked about the work RoWSaF has undertaken to determine the top risks to road workers. That work is progressing and the findings will feed through into a revised strategy and action plan for road worker safety that will address as a priority:

- Continued work to reduce risk to road worker operatives working on live carriageways – addressing targets to eliminate carriageway crossings on foot, eliminate the need for road workers to be on foot on a live carriageway, and to substantially reduce the risk to those working on the rear of or around works vehicles on live carriageways.
- Reducing incursions into works by breaches of the cone line, temporary barrier strikes, accidental follow-ins or unauthorised deliberate entry.
- Interventions to improve the health of workers carrying out traffic management activities.
- Building and promoting road worker behavioural safety.
- Improving driver awareness of road works to decrease risk to road workers.
- Building engagement with local authorities to share best practice and influence take up of safe practice.
- A number of quick win improvements to worker safety to be progressed through RoWSaF task and finish groups, focussed on:
 - Reducing risk when installing splitters, allowing access to exit slip roads from within the road works.
 - Reinforcing good practice in operating Stop/Go boards.
 - Traffic management vehicles reversing to take off closures.
 - The enforcement of speed limits through road works.

aimingforzero

Promoting workforce safety

During recent concrete bay replacements on the M25, Connect Plus Services employed local traffic officers from Surrey Police to monitor the lane closures to enforce red X and speed limit compliance.

The officers were in attendance for ten shifts, monitoring two closures per night from the first cone laid until removal. Together with the police, the aim was to enforce and promote workforce safety.

Over the ten shifts, the police reported almost fifty public engagements which ranged from successful prosecutions and fixed penalties to advice and warnings.

The exercise succeeded in educating the public on what they should do when they enter road works and also raised the awareness of road worker safety. After the success of this campaign it is hoped further joint projects will follow with other forces around the M25.

The latest from RoWSaF

Coming soon

Use of MS4 VMS signs to warn of road works lane closures and the use of gantry AMI signalling for temporary speed limit signing at road works.

The intent is for these techniques to be used for routine road works on smart motorways before they are rolled out for wider application on the network. Trials on the M4 using MS4s have completed successfully. Trials using advanced motorway indicators have been put on hold pending a change to traffic signs regulations Traffic Signs Regulation and General Direction 2002 (TSRGD) which will allow traffic management vehicles to pass under red X signals whilst undertaking planned traffic management. The TSRGD update is expected in Spring 2015. In parallel with the trials, work is underway to complete software changes to the regional control centre systems which will allow operators to set signs and signals for incidents or planned maintenance.

Removal of road danger lamps

Trials completed at the end of December and data



analysis is now underway. Based on an initial review of data from the trials, the outcome is looking positive that in some circumstances road danger lamps will be able to be removed. If this is proven in the overall findings report an interim advice note will be published.

Temporary traffic management remote controlled signs

Following EU consultation, the specification for remote controlled signs (TR2603) was published in December 2014. The next phase of this project is now being commissioned. This will look at standardising the control systems for these signs and also determine user perceptions of the different types already in use.

Lighting of temporary road works signs

The lighting of road works signs on roads lit with streetlights is a requirement set out in the TSRGD, which is the law. However, it is recognised within the industry that modern high performance signing materials do not need to be lit to make them clear to road users on lit roads, yet by law, temporary sign lights must still be used to light these signs. An update of TSRGD due in Spring this year will introduce an approach where lighting may be omitted for most road works signs used on lit roads, subject to appropriate risk assessment of the risk to road users.

Convoy control vehicle for lead-in zone installation

Following a demonstration of a concept vehicle with a fixed plate version of the CONVOY VEHICLE NO OVERTAKING sign for use with the upper blitz lights during installation of the lead-in zone, authorisation by the Department for Transport has been granted. Trial vehicles are being built with the intent to start on-road trials as soon as the vehicles are completed.

Use of green cones

Discussions have been held with Department for Transport lawyers on whether green cones can lawfully be used to mark works entrances. These discussions have resulted in clarification regarding the use of non-prescribed signs at road works, which will enable the Highways Agency to publish an update to the health and safety toolkit.

Use of temporary rumble strips

Discussions with Department for Transport lawyers and traffic policy specialists have clarified that use of temporary rumble strips for a controlled on-road trial is likely to be possible. Work to understand and control the risk to road users and road workers from the use of these strips is underway in order to ensure trials can commence on-road as soon as possible.

Preventing harm together

The Highways Agency major projects health and safety hub held its 8th conference on 3 December 2014.

Attendance was exceptional with nearly 200 people representing over 30 organisations.

The objective of the day was to welcome the new collaborative delivery framework (CDF) partners and gain a better understanding of what has been achieved through collaboration and to set a health, safety and wellbeing vision for the future.

The morning comprised of presentations from Peter Adams (Highways Agency, Major Projects Board Director) who set the scene and ambition, and an excellent case study from Crossrail's Steve Halls. Jeremy Bird (Highways Agency, National Health and Safety Team) explained the challenges ahead, Duncan Elliott (Carillion), Lucy Wickham (Mouchel) and Dave Merrick (EM Highways) showed what our delivery partners have achieved. Tony Turton (Highways Agency) explained the concept of CDF and the opportunities available to further improve, through collaborative leadership and behaviour.

Eleven presenters held discussions on various collaborative health and safety initiatives and discussed what support is available. The topics included occupational health, behavioural based safety, plant person interface, health and safety

laboratory, A14 scheme, independent inspection, health and safety excellence wheel, CITB National Skills Academy and the Road Worker Safety Forum. This novel approach proved effective if not a little noisy!

The afternoon session, led by Nigel Heaton from Human Applications explored the health and safety vision. An imaginative ice breaker, risk buckaroo certainly prevented any post lunch lethargy.

A collaborative health and safety vision was identified followed by a session to identify opportunities and threats to meeting it.

The final session involved a principle known as nudge theory. This involved writing down a personal safety commitment in the form of if I do this...then this will be the result....

For more information on the Highways Agency, Major Projects Hub health and safety team follow the link <https://www.gov.uk/transport/motorways-major-roads>

For outputs from conference see [Delivery Hub health and safety briefings](#)

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Temporary over-height detection solution protects bridge workers

Road workers on BAM Morgan Sindall Joint Venture's M1 junction 39 to 42 smart motorway project have become the first to benefit from the safety credentials of a pioneering temporary over-height detection solution.

One element of the smart motorway project involves the suspension of scaffolding beneath a bridge. The road remains periodically open to road users, and therefore personnel operating from the scaffolding require protection from errant oncoming high-sided vehicles.

Signs in advance of the bridge direct high-sided vehicles away from the structure. An Intellicone sentry beam detects errant vehicles, activating a variable message sign which alerts drivers to their breach, enabling them to turn round and find an alternative route.

Simultaneously, an audible Intellicone portable site alarm on the scaffolding warns workers of the breach, allowing them sufficient time to reach a position of safety.

While the temporary overheight detection solution was originally designed to protect workers from errant vehicles in temporary ground based worksites, the contractor identified its potential to protect bridge personnel from high-sided road user vehicles during its smart motorway project.

BAM Morgan Sindall Stores Manager, Chris Hunter, who commissioned the solution, said, "The new solution has quickly proved its worth. Within the first week there were three breaches, all of which were quickly remedied as the drivers were instantly alerted and able to turn around and find an alternative route."

You can view the system in operation on this [YouTube link](#).

Highways Agency supplier recognition scheme

The 19 January saw the announcement of the winners and highly commended entrants for the Highways Agency's annual [supplier recognition scheme](#). The safety, health and wellbeing awards recognised suppliers that showed industry leading commitment to improving organisational, workforce and road user health and safety.

Winners:

A-One+ Integrated Highway Services (occupational health and wellbeing aspect) for embedding occupational health and wellbeing as a core value and proactively promoting benefits with its road workers.

Costain Ltd (road users aspect) for a series of site measures and safety initiatives including targeting driver behaviour through the use of personal messages from the children of road workers.

Skanska Construction UK Ltd (road workers aspect) for its efforts to improve road worker safety collaboratively including the construction of a simulated motorway for emergency services and workers as part of incident management exercises.

Highly commended:

Carnell Group (road workers aspect) for road worker safety.

Hanson Asphalt and Contracting (road workers aspect) for the iPave tablet.

Colas Ltd (road workers aspect) for making road worker safety personal.

Atkins(road user aspect) for their approach to various smart motorway schemes

EM Highway Services Ltd (road user aspect) for their Hindhead Tunnel red X campaign

Training initiative developed with the freight transport industry receives international acclaim

A-one+/Colas has been awarded a [Prince Michael International Road Safety Award](#).

The award recognises recent work with the freight transport industry on the no strikes impact protection vehicles (IPV) education initiative. The judges described the initiative as world class.

Following an increasing trend of collisions between HGVs and IPVs, the 'no strikes initiative' has seen training developed in collaboration with Norbert Dentressangle and the Freight Transport Association (FTA) to raise awareness of IPVs among this key customer group. The training has been accredited by the Joint Approvals Unit for Periodic Training (JAUPT) as part of mandatory Driver Certificate of Professional Competence (CPC) training and has now been adopted by a



dozen national freight transport companies. Over the past 12 months four A-one+/Colas staff have visited freight transport operators around

the country and trained their trainers. Thousands of professional drivers have already received the training with over 30,000 drivers due to receive it within the next year as part of their mandatory Driver CPC.

As part of the training sessions, feedback has been sought from freight drivers using the network every day. So far, A-one+ have reviewed over 1,000 feedback forms. This feedback will be reported back to the RoWSaF Trials Team in early 2015 to consider with industry peers how it can help shape future IPV design and working practices.

The initiative has also been recognised in the UK Customer Satisfaction Awards 2015 run by the Institute of Customer Services, short-listed for the Best Customer Service Co-Creation/ Collaboration award.



Inspiring transport projects rewarded at National Transport Awards ceremony

BAM Morgan Sindall JV and key suppliers Chevron TM, Asset International and Morelock Signs became category winners in excellence in road safety, traffic management and enforcement at the National Transport Awards.

The prestigious [National Transport Awards](#) were held on 2 October 2014 at the Westminster Park Plaza in London. Hosted by radio and television presenter Jeremy Vine, the awards attracted over 600 senior transport professionals including Transport Minister Claire Perry MP, who gave the keynote address.

The award recognises the proactive approach the partnership delivered to road worker safety and excellence in traffic management environment using the evolving ten steps towards zero exposure, which featured in issue 10 of RoWSaFnews.



Myth buster – coning barrier strikes

Continuing the series exploring road worker safety myths, Dr Iain Rillie of TRL looks for the truth about coning off barrier strikes.

Safety barriers play an important part in keeping drivers safe by keeping vehicles on the carriageway and preventing run-off or crossover accidents. When a safety barrier does its job, it usually gets damaged and needs repair, replacement or at the very least inspection.

It's often said that we need to cone off the barrier strike for safety, particularly when a barrier is damaged and needs replacement – but is that true?

Red traffic cones are used to mark the edge of a route past a temporary obstruction. If the barrier is protruding into a live lane to the extent that drivers need to be guided past it, there is probably a strong case for closing the lane on safety grounds. If it

isn't protruding and road users don't need to be guided past it, placing cones by the barrier isn't necessary.

So why would it be a good idea to cone off the barrier strike? Well, it will flag up to anyone seeing the damaged barrier (such as maintenance teams, Traffic Officers or the police) that the damage has been reported. It also makes it easier to find the damage later. However, there's no reason why the cones that do this need to be put next to the barrier for a central barrier strike. They can just as easily be put on the verge side so that road workers don't need to cross the carriageway to put them out.

So, the myth that barrier strikes need to be coned off for safety? Busted – if the barrier hit is a safety risk for road users, the lane ought to be closed and the barrier repaired quickly. Marking the strike is operationally a good idea, but this can be done with cones placed on the verge so that road workers don't have to cross a live carriageway.

Highways Agency targets project sponsors in new campaign

A Highways Agency campaign has encouraged Highways Agency Project Sponsors to enhance their focus on the safety of road workers on their schemes. The campaign within Highways Agency offices is being followed up with road worker safety training workshops for project sponsors in January, February and March to ensure project sponsors are able to meet the challenging road worker safety targets on all of their schemes.

Highways Agency road worker safety targets:

- Eliminate road maintenance worker live carriageway crossings on foot by December 2014.
- Aim to eliminate the need for road workers to be on foot on a live carriageway by December 2016.
- Substantially reduce the risk to those working on the rear of, or around works vehicles on live carriageways, by December 2016.

Roadworkers 2015

Stepping up to the health and safety challenge

The purpose of the summit is to improve the protection of road workers (including construction workers) and road users over the entire UK highway network. It will enable the community to connect in this common purpose, sharing knowledge in an open forum with other stakeholders.

The summit will take place on 21 October 2015. It will bring together representatives from national and local government together with contractors from the maintenance and major project communities, as well as other stakeholders. The health and safety challenge faced by delegates will be illustrated through a series of addresses by keynote speakers which will include some of the recent best practices developed to reduce injury to road workers.

[Six key objectives](#) will be addressed through separate breakout sessions. These objectives aim to introduce consistency and improved health and safety performance across the UK highways industry and will become part of a highways industry health and safety action plan towards 2025.

Highways Agency safety alerts

The Highways Agency issues safety alerts so that best practice and learning can be shared across the wider business. The safety alerts system is managed by Wayne Mullin. If you wish to receive safety alerts or contribute your own alerts for wider circulation across the Highways Agency supply chain, contact:

Wayne.mullin@highways.gsi.gov.uk

Backdated copies of safety alerts are available at [Highways Agency safety alerts](#).

About us

The Road Workers' Safety Forum (RoWSaF) is an industry group established in 2001, promoting the health, safety and welfare of road workers. Members are drawn from UK roads administrations, enforcement agencies, contractors, designers and their associations.

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