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Making roads safer for road workers
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Roadworkers safety leadership summit 2015

Roadworkers 2015
Stepping up to the health and safety challenge

Currently planned for the 21 October 2015, the overarching intent for this summit is for the community to connect in the common purpose and share knowledge in an open forum with other stakeholders. Only by collaborating in this way can the highways industry promote the required leadership, changes in behaviours and innovations.

Discussions on the legacy from this summit are developing as the desire grows to ensureroadworker safety is on everyone's agenda. The breakout sessions being planned will focus on the leadership that is required from senior management to make a real difference and help to change behaviours and cultures, as well as sharing existing good practice within the key areas of:

1. Data collection – using information to identify and manage risk
2. Industry culture – ensuring that a just culture exists across all highways work
3. Educating road users – influencing people who have a big impact on road worker safety
4. Temporary traffic management – raising standards to mitigate risk to road users
5. Management of health and safety – ensuring consistent understanding of responsibilities
6. Workforce health – maintaining the health of road workers

Outputs from each group will help to create the vision and challenge for a highways industry health and safety action plan towards 2025.

Taking a new approach: improving safety and the experience of roadworks

With unprecedented levels of work planned across the strategic road network, with the delivery of the *Roads Investment Strategy*, it's more important than ever that roadworkers and customers feel safe in roadworks.

Highways England has been working on developing a new approach to roadworks which aims to reduce the number of incursions into works, improve driver behaviours and therefore have a positive impact on safety for everyone.

Martin Edwards, Highways England's project lead explains more, "This project is fundamentally fairly simple – if we improve drivers' behaviours by giving them the right information at the right time and make roadworks a supportive and intuitive environment, they are less likely to speed, tailgate, drive erratically and incur into the working area, putting roadworkers at risk."

"Our customers tell us that sometimes they don't have a great experience travelling through our roadworks. This isn't just because they associate roadworks with delays, but because they can be confusing. We don't give them the right information when they need it, they sometimes don't feel they are in a safe environment and they don't always understand what we're actually doing.

"This all contributes to it being a stressful environment, and we know from human factors research that when under stress humans are far more likely to make mistakes – in fact the risk can increase from a 1 in 10,000 chance of making a mistake to a 1 in 2 chance. By working with psychologists we have been able to map out the needs and capabilities of our customers and develop a set of enhancements that marry traditional engineering approaches, with new communication layers that support those needs and capabilities. Of course, they also want to know why they see cones but no road workers."

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"This project is a collaborative effort, involving people from right across Highways England, from safety and technology experts to communications, and especially Network Services, who have been providing essential advice and guidance. Our supply chain have also been part of it, working together to really deliver something that will be visibly different – and better – for our customers."

This approach will lead to safer behaviours and higher levels of customer satisfaction as we create a more pleasant, more informed and more reliable journey.

So what will be different?

- Creating a clear corridor for our customers to drive through. Using countdown strips at the start of roadworks, a distinctive orange colour scheme – including for our road workers' personal protective equipment – and our new branding, to make it clear to customers that they are in our roadworks. Making signage aimed at customers easy to distinguish from signage aimed at road workers.
- Splitting the corridor into five zones, with different kinds of information and messages displayed in each to make clear to road users what is expected of them.
- Making our signage clear by using research into how our customers read, process and act on information, as well as how we can mix different kinds of messages to make the environment richer and more effective. This includes using language and lettering that is easy to read and process, more use of pictograms/images, designing optimal signage layout which can be properly processed and acted upon and using electronic vehicle-activated signs to provide real-time information.
- Improving safety by providing emergency refuge areas, using gated and supervised access to work areas, using motorbikes for fast recovery (when appropriate) and improving white-lining to make automatic lane detection systems in cars more effective.

The pilots will be rolling out in June at the following sites:

- M1 between junctions 15 and 42 - spanning over 100 miles, 6 projects and 3 different contractors
- A21 Tonbridge to Pembury - a 2.5 mile stretch of single-carriageway trunk road being upgraded to dual carriageway
- M3 between junctions 2a and 8 – 1 major project and 1 NDD scheme
- A40 NDD area 2 bridge improvement

A collaborative approach to safety during surveys

Concerns over high numbers of cone strikes were alleviated through strong leadership, team working and worker engagement

Last year Costain undertook surveys to progress the design for the M6 Junction 16-19 smart motorway scheme. A busy stretch of road with a high proportion of HGV traffic. Concerns for road worker safety were raised prior to works commencing and full risk assessments undertaken.

The surveys, which included topographical, drainage and ecology, were carried out in the verge with daytime hard shoulder closures, and overnight lane closures to access the central reservation and hard shoulder.

Cone strikes, whereby a travelling vehicle hits or dislodges the cones demarcating the working area, were prevalent in the first week. After 6 weeks a total of 329 incidents had been recorded, of which 140 were within the working window and presented risks to road workers. A number of measures were identified, through worker engagement and management support, to improve safety.

Spotters were introduced, a role borrowed from the rail industry, to alert colleagues to potential incursions and instruct evasive action. Intellicones or screaming cones were also trialled. Variable message signs were used to call drivers' attention to the works.

Costain has a behavioural safety commitment to develop a positive safety culture through workforce engagement – as well as reporting a decrease in the number of strikes, workers said they felt safer and supported.

Yorkshire media event highlights roadworker safety

Roadworker safety was the focus of a recent media event at the Area 12 Tingley depot in West Yorkshire. Seven different media partners including regional BBC news teams joined Highways England and roadworkers from A-one+ to highlight how dangerous working on the strategic road network is.

The event focused on the verbal and physical abuse that our operatives can face, what we are doing to tackle these issues and what part the public can play to support this important safety message.

Staff showcased three innovations that have been developed to improve roadworker safety:

- The intellicone wireless sensor network that turns ordinary traffic cones into an electronic perimeter which detects breaches and activate an audio-visual alarm to warn roadworkers that a vehicle has entered a closure.
- The simplified traffic management layout that has significantly reduced the number of signs set out in advance of roadworks, and has now been used over 25,000 times by A-one+ saving nearly a million road crossings by roadworkers.
- Impact protection vehicles (IPV) with 360 degree camera systems which are making use of emerging technology to trigger alarms if a road-user is approaching a stationary IPV in a live lane.

The event used recorded CCTV footage from on-board an IPV showing the impact when an Heavy goods vehicle collided with the back of the IPV placing roadworkers and road-users lives in danger. Widespread use of this footage on regional news and local media websites has helped increase driver awareness of the dangerous job roadworkers have.

Also on hand at the event were two A-one+ roadworkers who have experienced risks first hand:

- Steve Barron, a traffic management operative in an IPV on the M180 when it was struck from behind by a van. Steve received multiple injuries that kept him off work for 5 weeks.
- Kevin Raeper who was supervising a closure on the A1033 when he was verbally abused and threatened.

Andrew Sharp, A-one+ Area 12 Delivery Manager commented "This behaviour is completely unacceptable. We want everybody to be treated with respect. Everybody has the right to have a safe working environment, and at the end of a shift to go home safely. Our roadworkers are no different."

A1 Leeming to Barton improving large goods vehicles (LGV) driver behaviour through roadworks

The A1 Leeming to Barton project is paving the way for better roadworks safety by pioneering the first Highways roadwork's project in the country to deliver lane weight restriction enforcement.

A new LGV driver behavior safety Strategy pioneered by joint venture contractors Carillion and Morgan Sindall and developed by supply chain partners Redspeed International, seeks to improve LGV driver behaviors making roadworks safer for road users and workers. Following initial discussion, Redspeed were engaged to design and produce a method using existing speed cameras to identify LGV breaches of lane 2. This involved development of existing average speed cameras to become dual purpose to also enforcing lane restriction through roadworks.

Discussions took place from November 2013 to March 2015 between Carillion Morgan Sindall JV, North Yorkshire Police, Highways England, Redspeed and Road Safety Support bringing to the table highly experienced enforcement technology specialists. This working group ensured the technology and methods became robust and the technological change was introduced in March 2015.

The mitigation strategy followed a structured hierarchy in a five point change process:

1. Portable message signs warning of new enforcement methods in roadworks
2. Warning leaflets to key truck stops and services
3. Collaborating with Road Haulage Association
4. Educational warning letters to haulage organisations with option of actions / learning feedback.
5. A non-endurable fine FPN and further North Yorkshire police intervention.

This is delivering the cultural change in LGV driver behaviour, and is proving to be successful with an 83 % reduction in lane 2 violations due to this technological change which will improve safety through roadworks for both roadusers and workers.

Introducing the new RoWSaF strategy

Now that its new Strategy has been published, the pressure is on to get work underway to take RoWSaF's latest ambitions forward with pace and secure further safety improvements for road workers. The new strategy introduces a number of new priority topic areas.

These are:

- **to reduce the growing problem of incursions into works areas;**
- **to raise standards of occupational health and behavioural safety;**
- **improving driver awareness of roadwoks, through better education;**
- **to more effectively communicate knowledge of RoWSaF innovations to local authorities.**

The new strategy also acknowledges RoWSaF's achievements since the launch of the original Highways Agency's road worker safety strategy in 2009, not least of which is the work to eliminate live carriageway crossings on foot. It also refers to the two existing road worker safety targets due to be delivered by end 2016; eliminating live lane working on foot and significantly reducing risk to workers on, or near to, traffic management vehicles.

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Green cones at roadworks

Use of green cones and other non-prescribed devices at road works

In May 2014 the Highways Agency published guidance on the use of green cones for identifying work accesses within road works. The aim of this was to support industry-led good practice and address inconsistency in the use of coloured cones at road works. The legality of using green cones was challenged by DfT on the

The legality of using green cones was challenged by DfT on the basis that the Traffic Signs Regulations (TSRGD) states that cones must be red.

basis that the (TSRGD) states that cones must be red. Discussions with DfT lawyers considered whether TSRGD applied within works sites. This confirmed that a works site is a construction site (as defined in CDM regulations) and so safety signs used inside that site are not traffic signs. This means that if there is an appropriate TSRGD sign that can be used as a safety sign to warn workers of a risk from moving traffic, then this should be used. If however no suitable TSRGD sign exists, then non-prescribed devices, such as green, blue or yellow cones, may be used. Either way, all safety signs must be placed completely inside the road works site.

In February 2015 the Highways Agency published an updated toolkit article No 0371 and a safety alert to clarify this position, assist compliance and improve consistency of approach at road works sites.

Road worker loses arm and construction firm sentenced

Three construction firms have been ordered to pay over £400,000 in fines and costs for serious safety failings, after a worker lost his arm when it became trapped in poorly-guarded machinery during a road surfacing operation in Hertfordshire.

The road worker was preparing a chip spreader for resurfacing works on the A1001 in Hatfield when his left arm became caught in the machine's rotating auger, causing serious injuries. The highly experienced worker had to have his arm amputated shortly after the incident on 8 March 2015 and has been unable to return to work since.

The incident was investigated by the Health and Safety Executive (HSE) which prosecuted Amey Lafarge, a joint venture in charge of the operation, and Ashmac Construction Ltd who provided workers to the joint venture, for multiple safety breaches at Watford Magistrates' Court.

HSE's investigation revealed a series of safety failings on the part of all three companies.

The worker and his colleagues, who were not formally trained in the use of the spreader, were only given one evening to familiarise themselves with the machine by Amey Lafarge when they started work on site 6 months before the incident.

Amey Lafarge did not give the workers any instruction or training in how to operate the machine safely, including how to secure guards, nor were they given a copy of the operator's manual for the machine. In addition, there was no safe system of work in place to ensure that the machine was set up and operated properly and that its use was restricted to those who were trained.

Amey Lafarge did have a risk assessment and a site-specific method statement but these did not reflect the reality of the controls in place for the use of the chip spreader.

Ashmac Construction Ltd did not take reasonably practicable steps to ensure workers they placed on site had received appropriate information, instruction and training in the safe use of the chipper they were operating.

Amey LG Ltd, of the Sherard Building, Edmund Halley Road, Oxford, was fined £150,015 and ordered to pay costs of £18,000 after pleading guilty to one breach of Section 3(1) of the Health and Safety at Work etc. Act 1974.

Lafarge Aggregates Ltd, of Portland House, Bickenhill Lane, Solihull, Birmingham, was fined £175,015 and ordered to pay costs of £18,000 after pleading guilty to one breach of Section 3(1) of the Health and Safety at Work etc. Act 1974.

Ashmac Construction Ltd of Pavillion Court, Pavilion Drive, Northampton, was fined £30,015 and ordered to pay costs of £18,000 after pleading guilty to a breach of section 3(1) the Health and Safety at Work etc. Act 1974.

Following the case, HSE inspector Gavin Bull, said:

"This incident highlights the need for workers to receive the information, instruction and training they need to operate plant safely and for companies to put in place measures to ensure the plant is operated safely on site."

How the use of IPVs has been changing

Research investigating the changes in the use of impact protection vehicles (IPVs) in temporary traffic management (TTM) operations

In 2014, three documents affecting the use of IPVs were published: Interim Advice Note 181/14, the HTMA guidance, and an Health and Safety Executive (HSE) letter to service providers. The guidance documents outline how risks to road workers and road users should be controlled by appropriate choice of dual or single vehicle working, based on site specific risk assessment. The letter clarified the HSE's expectations on the subject.

Transport Research Lab (TRL), on behalf of Highways England, has been interviewing service providers about how working practices have changed due to publication of these IPV documents. Highways England is committed to reducing road worker risk and this feedback will help achieve this. Findings from the study will be reported later this year; the feedback received to date suggests that the guidance documents have been well-communicated but implementation has resulted in mixed views from road workers.

Service providers who have not yet taken part but who would like to contribute are encouraged to contact rowsaf@trl.co.uk.

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Man jailed for driving through closed section of the M1

A motorist has been jailed after he ignored warnings and drove along a closed section of the M1 when it was closed for road maintenance, putting workers in danger.

The motorist was heading southbound from Dewsbury when he was diverted off the road at Junction 40 around 21 hours on December 16 last year. At the junction, instead of following the route indicated, after seeing some construction vehicles using the slip road to the motorway he decided to go the same way.

When efforts were made by a road marshall to stop the motorist, he visually acknowledged the marshall by producing an obscene gesture. He then continued onto the M1, clipping a road sign and the kerb in the process.

On entering the southbound carriageway, where approximately 30 people thought they were working in a safe environment, the motorist reached 60 to 70 miles per hours for roughly two miles until his path ahead was blocked by the works taking place. He then proceeded to ignore a foreman asking him to pull over.

The motorist admitted dangerous driving and failing to provide a specimen. He was jailed for 15 months and disqualified for 3 years.

Hub announces launch of top risk campaigns

The hub team has decided to refresh its approach to preventing harm from injury or ill health.

There are currently around 9000 people working on our network daily who are exposed to fatal risks while carrying out their jobs in construction and maintenance. Health and safety performance must be improved if we are to avoid seeing a significant increase in workers killed or seriously harmed.

The top risks have been identified and to help address them the hub have appointed 'champions' who will focus on how best to address them. The champions will feature both delivery partners and Highways England business partners working together. A number of campaigns to focus on these risks are currently being planned and will cover services, occupational health and wellbeing, plant and road vehicles, overhead hazards. A microsite has been set up **http://highwayssafetyhub.weebly.com/** and will host guidance, posters, presentations, videos and other resources which can be used at sites and offices. In addition to this, a number of events will be run at strategic locations.

The first campaign was launched in May 2015 and focused on the avoidance of underground services.

A-one+ celebrates 5 million hours of safe working

Highways service specialists, A-one+, are celebrating after reaching an impressive 5 million working hours without one reportable accident.

A-one+, a CH2M, Colas and Costain joint venture, maintains and improves 945 miles of motorways and trunk roads spanning the country from the north east through Yorkshire, Humberside and the east midlands to Bedfordshire.

Andy Jamieson, Managing Director for A-one+, said: "This is a great achievement as we operate within a high risk environment. Very few construction projects achieve 1 million hours without a reportable accident let alone 5 million. This can only be achieved through engagement and having the right behaviour culture by all involved on each project, including the supply chain and with full commitment of our client Highways England."

In recognising the importance of celebrating success, they also marked the occasion when they reached 3 million hours.

A-one+, which has a supply chain of more than 100 companies, is to mark the safety achievement on 4 June 2015 with an event at its Tingley Depot in Leeds.

A-one+ has a comprehensive safety programme to protect its workers, who work around the clock on hundreds of schemes each year in addition to thousands of maintenance programmes.

Safety initiatives include:

- Development of award winning safety systems
- Installing CCTV on traffic management vehicles
- Zero live lane crossings for traffic management installation
- Managing director delegated authority to each member of staff to stop activities if they feel they are unsafe
- Taking an industry lead to support Highways England and to work on trials, such as innovative taper, simplified traffic management and removal of road lamps
- Video analysis of traffic management layouts to improve designs
- Full review of dual and single vehicle working for the installation and removal of temporary traffic management

The landmark achievement follows success in several national industry recognised awards including a second Prince Michael International Road Safety Award for outstanding contribution to road safety in December 2014. It was also an unprecedented third year running outright winner of a national CIHT Safety Award in June 2014 for the 'no strike' IPV awareness work with the freight transport industry.

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9th GeneSYS Safety, Quality, Environment and Security (SQES) day

The 9th GeneSYS SQES day was held at Bristol Zoo gardens and hosted by Alcatel-Lucent this year. The theme of the day was how behaviour can affect safety and security in the workplace as well as at home.

Simon Morris (Fluor Project Director) opened the day and thanked Alcatel-Lucent for hosting the event and explained the background to the SQES day events.

Tahir Ahmed (ALU COO and Company director) explained Alcatel-Lucent's commitment to the GeneSYS consortium and how those in attendance work together to make the NRTS project a success.

Phil Baker (ALU (NRTS) SQES Manager) explained the background to the day was based around safety and security and how people's behaviour could affect both.

The floor was handed over to David Neal (Project Director BB), who presented on behalf of the Road Workers Safety Forum (RoWSaF) what has been done to improve Road-Workers Safety in the past and future plans. This was a joint venture between Balfour Beatty and Carillion (Mark Neville).

The final presentation for the morning session was based around information security where Jason Peake (ALU Information Security Architect) explained what GeneSYS are doing to keep information safe, as well as highlighting the "insider threat".

Attendees then took to the skies, for the zoo-ropia experience wearing both hi-viz and harnesses, in order to confirm how peoples behaviour is changed depending on instructions given.

Dave Macafee presented the concept of behavioural safety based around the zoo-ropia experience and mobile phone usage. The concept of behavioural safety was ABC (Activator, behaviour, consequences). It was also shown that the Transport Research Laboratory (TRL) had carried out studies to show that talking on a mobile phone made reaction times slower than having an alcoholic drink.

Simon Morris thanked Alcatel-Lucent for the event and then requested the Fluor SQES team to come up with the theme for the 10th GeneSYS SQES day to be held later this year.

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AIRS accident and incident reporting system

This is the system which is used by Highways England's supply chain to report accidents, incidents and near misses to their national health and safety team.

AIRS is a live system with historical data currently being migrated from the original. The new version allows project managers/area teams to view and report on incidents occurring on their projects and monitor performance against the target accident frequency.

The National Health & Safety Team are investigating various options to improve AIRSweb. Some examples of the types of upgrades we're exploring are listed below:

1. Business reporting. A user-specific, self-service dashboard tool which will reduce reporting timescales and allow users to create their own dynamic reporting area. It will contain graphs, analytical outputs, performance trends analysis and quick links to data.
2. Risk assessment module. Built-in, user-definable prompts to facilitate assessment of the hazards and the determination of appropriate controls. Automatic review date reminder, and version control, provide all the key legal requirements for effective quantitative and qualitative risk management.
3. Audit management. A configurable audit management tool with best practice templates, automated scheduling, and non-conformance action tracking built-in.
4. Systems integration. To allow AIRSweb to interact with our supply chain databases and extract the essential information from source. This will save time through double keying of incidents and provide more arcuate and update information.
5. Pro-active safety system (PASS). Designed to heighten safety awareness throughout the organisation. The module promotes an inclusive, sustainable, positive safety culture by means of an easy to use, transparent safety management system.

At this stage we cannot guarantee all of the above will be adopted, but hopefully some will be taken forward to enhance functionally of the current system. A further update will be provided once agreement on upgrades has been approved.

Mythbusters: Carriageway crossings

In this edition, Dr Iain Rillie answers the age-old question: when is crossing the carriageway not a carriageway crossing?

Carriageway crossings and working in live lanes are two of the most hazardous things a road worker has to do on a high speed road. RoWSaF has been working successfully to eliminate the need for carriageway crossings for traffic management operations and numbers of crossings are now heading downwards. But this seems to have had some unusual effects:

Any time we cross a live lane it's a carriageway crossing is something that's said by road workers. But is that right? To help clear this up, RoWSaF has defined both carriageway crossings and live lane working so that everyone can be clear which is which and count the same things.

Firstly, both carriageway crossings and live lane working need to be carried out on a carriageway that's live – so working on a closed carriageway or crossing where traffic is stopped by a rolling road block shouldn't be counted.

Secondly, a carriageway crossing is defined as a journey from one place of safety to another place of safety in order to do some work. So if you are crossing all or part of a live carriageway to work somewhere that's not a place of safety, it's not a carriageway crossing – it's live lane working.

Finally, live lane working and carriageway crossings are two very different things that can't be done at the same time. Any activity involving entering a live lane is either live lane working or a carriageway crossing – it shouldn't be counted as both.

So the myth that any time anyone goes across a live lane it's a carriageway crossing? Completely busted – a carriageway crossing is a very specific activity, defined in terms of a journey to get to a place of safety where some work will be done. Live lane working is not the same as a carriageway crossing and the two activities need to be counted separately.

Highways England safety alerts

The Highways England 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 England supply chain, contact: **Wayne.mullin@highwaysengland.co.uk**
Backdated copies are available at Highways England 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.

Contact us

RoWSaFnews welcomes contributions from all parts of the highways maintenance community. If you have any contributions please contact:

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Visit RoWSaF.org.uk

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