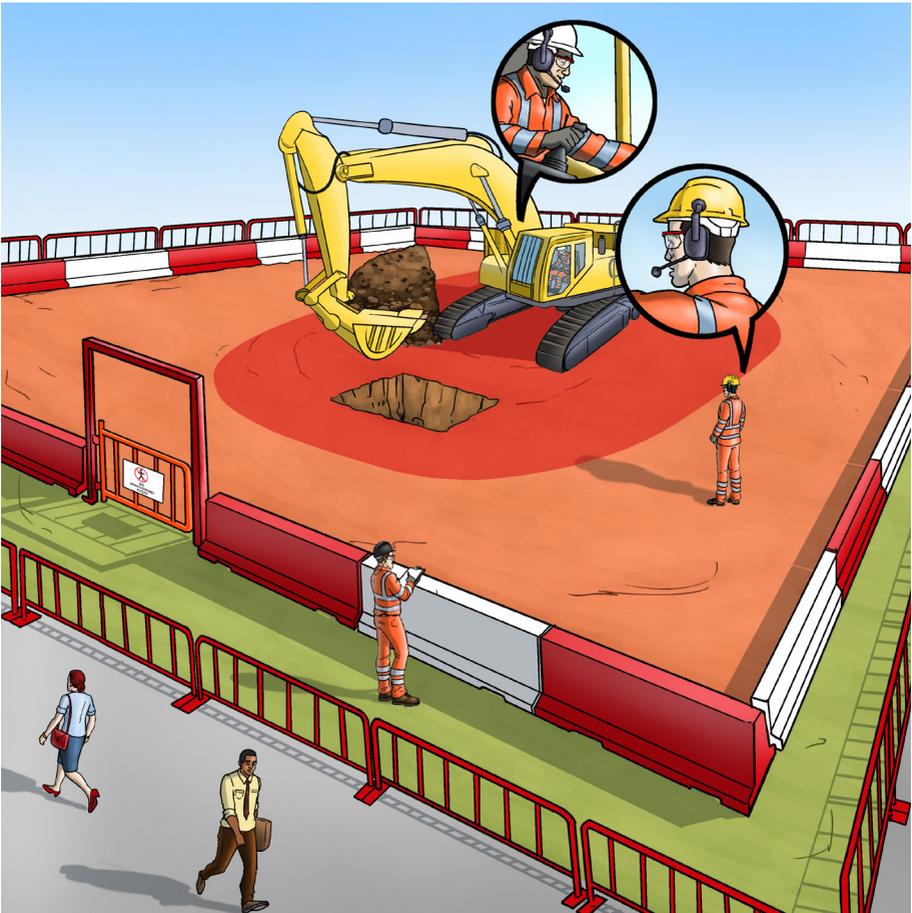


On site people vehicle interface

Leading the way



Introduction

The HS2 On Site People Vehicle Interface (PVI) Working Group consists of representatives from High Speed Two (HS2), our Enabling Works Contractors (EWC) and our Main Works Civils Contractors (MWCC). These teams recognise the inherent danger of having vehicles and plant in close proximity to people, and together we have agreed on the initiatives that will most effectively minimise harmful PVI events on site.

This document explains the core initiatives that will drive down risk associated with PVI to an absolute minimum. Our focus has been on how we separate people and plant from each other, how we define and standardise working areas, and how we improve equipment.

“High Speed Two will be the backbone of Britain’s transport network, helping to bridge the north-south divide, freeing up space on congested rail lines and improving reliability for millions of people using Britain’s Railways.

As Europe’s largest Infrastructure Project, the scale of the programme means we need to work collaboratively with Europe’s leading construction companies to develop and deploy best practice in regards to PVI. We will also work collaboratively with others in the construction industry to make sure we spread best practice and learn lessons from each other. We can, and will, make a difference in this area. This document sets out our starting point and we will continue to embrace innovation and continuous improvement. We will listen to and encourage others to come with us. We will lead by example, leaving a legacy that will transform our construction industry and lead to further developments when we have finished our work.”



Mike Hickson

HS2 Programme Director and Working Group Sponsor

HS2 Working Group Charter

We will:

- co-create detailed guidance for avoiding People Vehicle Interfaces as a collective of HS2, Enabling Works and Main Works contractors;
- make our guidance widely available, including publishing it on the HS2 intranet;
- within that guidance, develop new processes, equipment and competence requirements which will be followed by those working on HS2 including designers, managers, equipment suppliers and contractors;
- work with existing sources of good practice and recognise that change to the higher standards needs to be managed to be most effective;
- focus on six key areas for change and make a difference in these areas, leaving a legacy that transforms the construction industry;
- consult and communicate with those who will be affected by the proposals; and
- embrace technology and innovation, and continue to revisit the proposals to achieve a standard which is genuinely inspiring.

Safe at heart

HS2 has committed to create a railway designed, built and operated to the highest health, safety and security standards.

Safety, as a core value for HS2, means caring for our workforce, our passengers and the public by creating an environment where no one gets hurt.

Safe at heart brings together and represents everything we aim to achieve in health, safety and wellbeing at HS2 at every stage of the project. It sets out our:

- accountabilities as an industry leader and responsible client;
- expectations of all who work for and with HS2;
- caring approach to our workforce, neighbours and public; and
- commitment to giving health equal status to safety.

Our Safe at heart principles of practice establish the baseline for a common, consistent approach to health and safety during construction and for our future operational workforce, passengers and public.

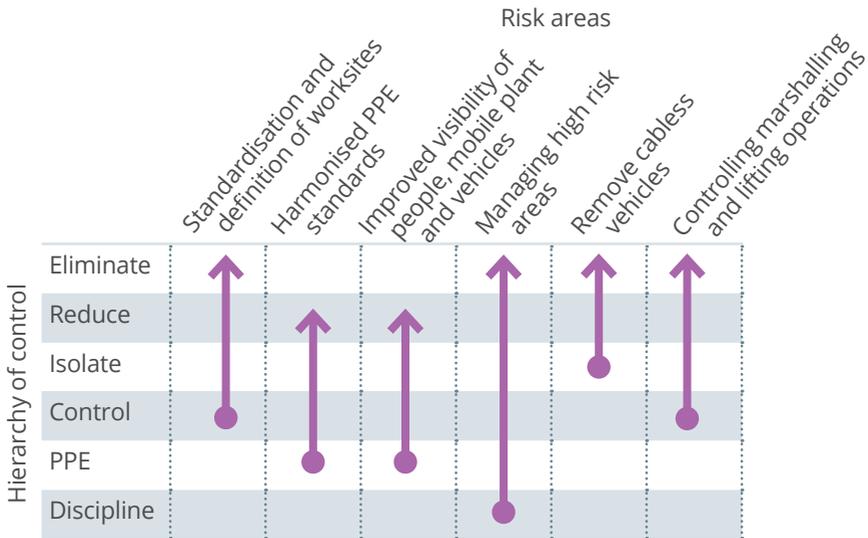
They also lay the foundations for a collaborative approach to identifying, sharing and embedding best and innovative health and safety practice.

To find out more about Safe at heart please visit www.hs2.org.uk and search 'Safe at heart'.

Key risks associated with PVI

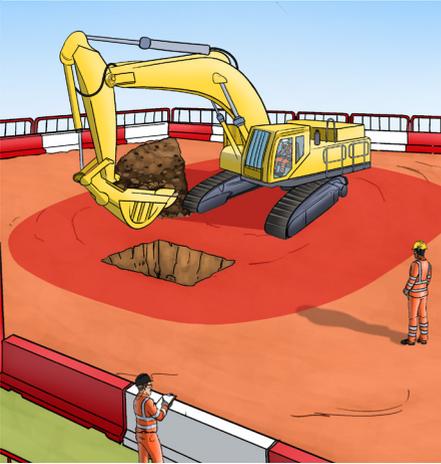
Every year around ten people die as a result of being struck by vehicles or plant on construction sites. There are also hundreds of near misses, preventable accidents and injuries. These occur during all sorts of activities and managers, workers, site visitors and members of the public can all be at risk. Inadequate planning and control has shown to be the root cause of many of these events. Those working for HS2 will address this by focusing on 6 key areas:

- standardisation and definition of working areas;
- harmonised PPE standards;
- improved visibility of people, mobile plant and vehicles;
- managing high risk areas;
- removing cables variants of vehicles; and
- controlling marshalling and lifting operations.



The dots on this chart illustrate the current risk maturity of PVI management, while the arrows indicate the level to which we will move the risk areas up the hierarchy of control.

Standardisation and definition of working areas



We are:

- designing sites to minimise interface between people and vehicles.

We will:

- apply a 4 colour-code zoning system to define activity on site for restricted, controlled, protected and non-construction zones. Use of technology will prevent unauthorised personnel entering zones;
- include zoning and situation layouts in onboarding sessions and explain changes in daily site briefings; and
- minimise reversing and, where essential, authorise it by senior managers and supervise it with a qualified vehicle marshal using hands free communication.

Harmonised PPE standards



We are:

- working with the supply chain to ensure that the quality and style of Personal Protective Equipment (PPE) is suitable for the user's activities, enhancing both the safety and the wellbeing of our work force.

We will:

- standardise PPE and, where appropriate, fit light emitting technology to improve visibility;
- ensure mobile plant operators' PPE is made from glare-free material and correctly sized and selected to prevent inadvertent snagging on controls; and
- have a standard of colour coding for safety helmets across HS2, to be followed without exception.

Improved visibility of people, mobile plant and vehicles



We are:

- using daylight running lights on all vehicles to alert pedestrians/site traffic and enhance the visibility of moving vehicles.

We will:

- replace beacon light systems on all public highway works mobile plant/vehicles with light emitting technology in 2019/2020 to enhance vehicle visibility for approaching traffic and eliminate 'light blindness' (mandatory from 2021 onwards); and
- work with equipment manufacturers to investigate ways of enhancing current systems and introduce 'day bright' technology by 2021.

Managing high risk areas



We are:

- challenging and eliminating working in high risk areas where alternatives allow.

We will:

- provide everyone working in high risk areas with specific training;
- allocate marshals to individuals and a responsible person to gangs working in high risk areas to control activity;
- use hands free, two-way communication systems between those working in these areas; and
- develop a system that warns of pedestrians' proximities and provides visual markings around mobile plant, and continue to innovate in this area.

Remove cabless variants of vehicles



We are:

- phasing out cabless plant on all HS2 sites by the end of 2020.

We will:

- introduce dual view or lower profiled forward tipping dumpers;
- replace mini excavators and rollers with cabbed variants;
- require authorisation by principal contractor site senior managers in cases when the need for cabless plant is unavoidable; and
- identify authorised plant via a distinct placard with the respective authorisation to do so.

Controlling marshalling & lifting operations



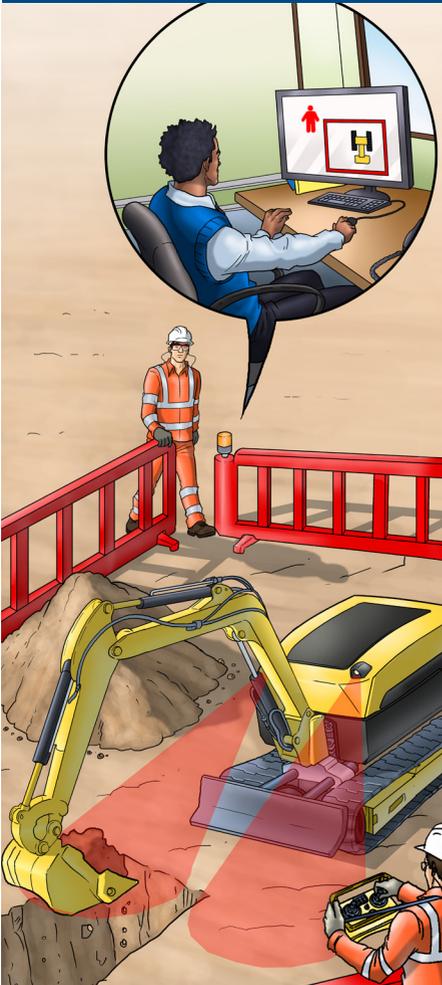
We are:

- introducing marshalling courses, for those at site entry points, with qualified marshals wearing yellow helmets.

We will:

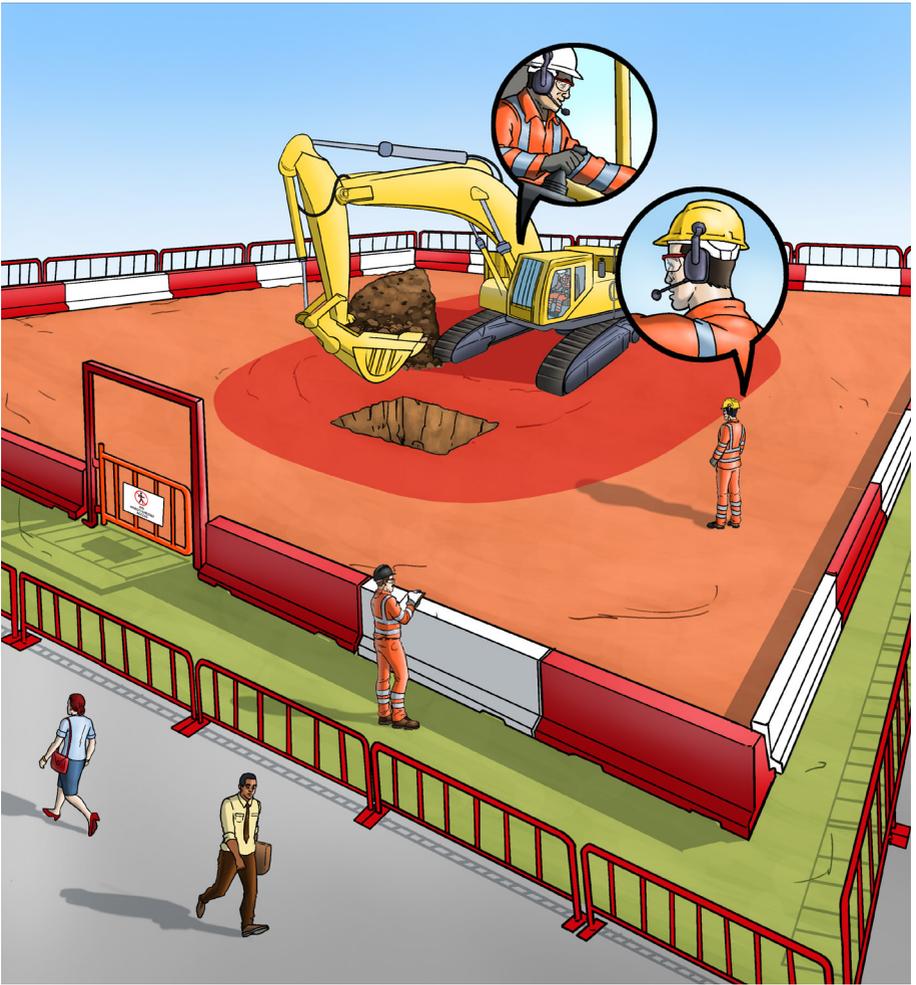
- ensure lifting conforms to BS7121, supervised by personnel wearing orange helmets to show they have the correct Construction Plan Competence Scheme (CPCS) training;
- adopt a universal six-monthly colour code for lifting accessories, complying with relevant regulations; and
- use hands free, two-way communications for all lifting and marshalling, with technology installed in permanent on-site plant machinery.

The future



We will:

- with regards to equipment fitted to mobile plant, test the new standard for suitability and if accepted, issue a standardised protocol in early 2021 including:
 - puddle/halo lighting defining high risk areas around plant;
 - intrusion alarms warning those in the high risk area as well as plant operators and others;
 - data recording and reporting on unauthorised intrusions into high risk areas; and
 - reactive PPE warning of intrusion;
- look to introduce the controls implemented for mobile plant around other high risk areas;
- work with equipment manufacturers so that plant, vehicles and PPE comes fitted with safety critical equipment as standard;
- work with industry to further standardise the terminology used that affects PVI; and
- produce further documentation and case studies to share our learning across the wider industry.



Glossary of terms

Abbreviations

BS7121 Code of practice for the safe use of cranes

A standard detailing recommendations for the safe use of cranes permanently or temporarily installed in a work environment in the UK.

CPCS Construction Plant Competence Scheme

A card scheme designed to prove the skills of plant operatives, run by the Construction Industry Training Board (CITB).

EWC Enabling Works Contractor

Contractors taking on enabling works, which are preparations to make a site ready for main works. Activities include demolition of existing buildings, archeology, utility diversions and site set up.

HS2 High Speed Two

The new high speed railway for Britain that will connect the city centres of London, Birmingham, Manchester and Leeds.

MWCC Main Works Civils Contractor

Contractors taking on main civils works, which includes large quantities of earthworks and the design and construction of viaducts, tunnels and roads.

PPE Personal protective equipment

Specially designed clothing worn by those on site to protect against any health or safety risks. Includes helmets, gloves, hi-vis clothing, safety boots and eye protection.

PVI People vehicle interface

The interaction between people and moving or stationary vehicles both off site and on site.

Technical terms

Cabless vehicles/plant

Plant or vehicles with no fully sealed enclosure around the driver.

Day bright technology

Lighting designed to be visible even during bright sunlight.

Principal contractor

As defined by the Construction Design and Management Regulations.

Puddle/halo lighting

Zones projected on a surface through the use of coloured lighting.

High Speed Two (HS2) Limited
Two Snowhill

Snowhill Queensway

Birmingham B4 6GA

Freephone: 08081 434 434

Email: HS2enquiries@hs2.org.uk

Reference number: 1MC06-CEK-CO-NOT-C002-000001

www.hs2.org.uk