



Mineral Products Association

Contract Surfacing

Operational Guidance

Contract Surfacing Operational Guidance

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Introduction

Health and Safety of MPA Members’ staff remains their number one operational priority, and that of the clients for which they work, particularly in the highways construction and maintenance sector.

This guidance document has been developed to give Members, their clients and specifiers, a focused approach to considering the requirements of operating in this sector. It has been developed from guidance first produced by MPA Scotland in relation to nightworking, but on a more generic basis. The document however relates not only to the SRN, or its equivalent in the Devolved Nations, but all roads.

The document addresses the factors identified within the Highways England 5 year Health and Safety Plan: Leadership & Culture, Competent People, Managing Risks, Measuring Performance, Engaging Stakeholders – factors that influence safety at all roadworks. It proposes further works to produce best practice guidance based on what is currently available and being used by MPA members. The opportunity will be taken to work with others to plan, grow capabilities and build relationships. This will assist in delivering the three imperatives: safety, customer service and ultimately help towards delivering the Road Investment Strategy.

This guidance does not supersede any Regulatory and/or contractual requirements, but can be considered as complementary. The document should be seen as “live” and will be subject to ongoing development, revision and amendment as necessary.

Contract Surfacing Guide 2

2. Leadership, Culture & Competence

2.1 Leadership and Culture

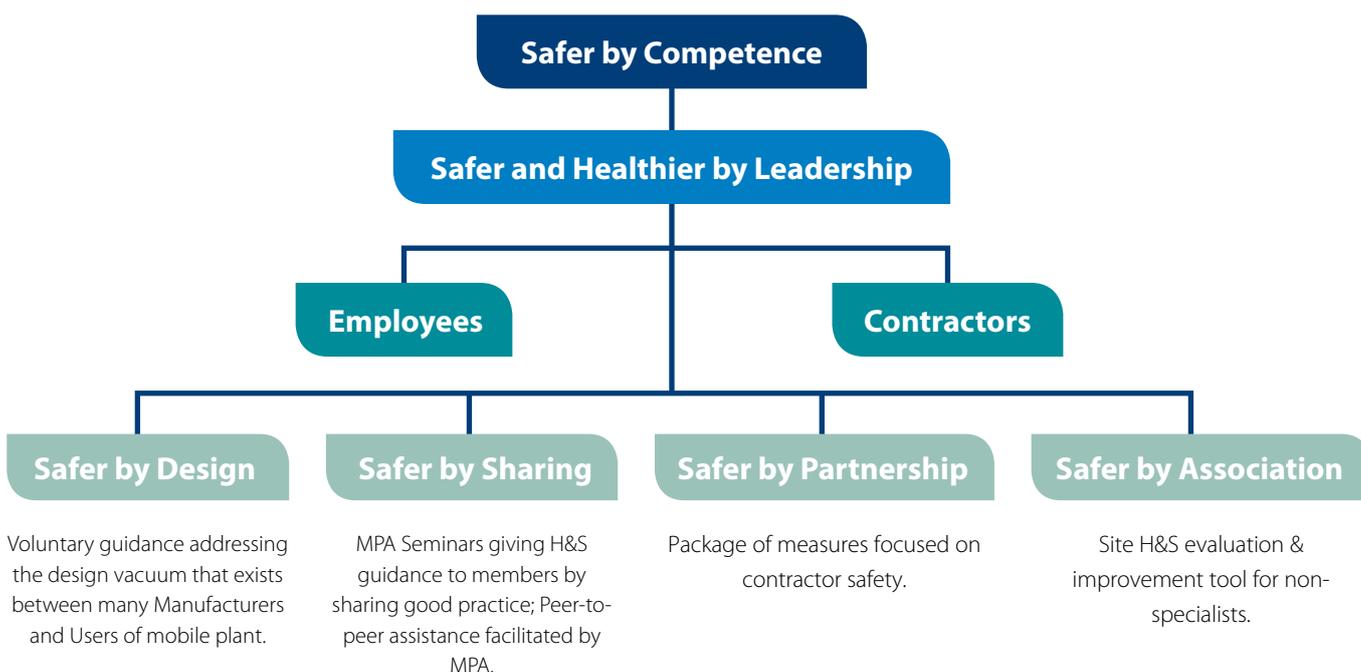
MPA continues to develop the Safer by Leadership initiative to support member companies in the development of health and safety leadership and behavioural safety programmes, the key facets of a positive safety culture. There is an expectation that senior industry leaders will participate in the MPA 'Safer by leadership course'. Highways England has defined the safety behaviours expected at all levels in its H&S Plan (2015 and subsequent updates) including a range of initiatives such as: providing training on effective health and safety leadership tours; visible promotion of a safety culture; safe behavioural discussions; Take 5 initiatives; "Just Culture" (balancing learning with accountability); and are undertaking benchmarking to understand performance. The aim is to ensure that "...no one should be harmed when travelling or working on the strategic road network." To a large extent, these initiatives have already been introduced by MPA companies, although ideas on revitalising Behavioural Safety programmes should be shared.

Recommendations: To assist senior managers in gauging progress, the following recommendations are made;

- Improve the sharing of quality information to ensure that the lessons are learned from all incidents and progress against the MPA Health and safety targets are better monitored (Members).
- Improve the quality of incident investigation and root cause analysis by the identification and adoption of best practice (MPA/Members).
- Improve communication so that examples of good practice are disseminated widely across the industry (Members).
- Develop a suite of leading and lagging indicators to measure progress based on industry best practice; and present this as a readily understandable dashboard of statistics (MPA/Members).
- Share ideas on the fresh initiatives companies are launching to keep Behavioural Safety Programmes going (MPA/Members).
- Develop bespoke behavioural training seminars / identify media communication tools (MPA/Members).

2.2 Competence

The mineral products industry as represented by the MPA is committed to developing a fully competent workforce, as articulated by the MPA 'Safer by Competence' Council -approved policy. 'Safer by Competence' is supported by the range of initiatives below;



The Mineral Products Qualifications Council works closely with the MPA to ensure that the range and quality of courses and the trainers are fit for purpose. The Health and Safety Executive recognises that MPA's work in developing and demonstrating competence is exemplary and a leader in UK industry. In the highways construction and maintenance sector, much of the work on qualifications and competence also falls under the remit of the Construction Industry Training Board and Construction Skills Council.

To be able to demonstrate personal competence, MPA has introduced a reporting procedure for members that identifies vocational skills development in terms of occupational safety, health and environment NVQ levels 3, 4 and 5 and 'QCF' equivalents; and is also collecting information on NVQ level 2 and 'QCF'/'SCQF' equivalent qualifications. The 2017 edition of National Highways Sector Scheme 16 ([NHSS16](#)) for Quality Management of the Laying of Asphalt Mixes includes requirements in Appendix C for training and competency qualifications. NHSS16 is a requirement for Highways England works and for any clients specifying its use through the Specification for Highways Works (SHW). The Appendix highlights typical job roles, the

supervisor level expectation (role profile) from Highways England, the NVQ/QCF (or equivalent) levels and National Occupational Standards (NOS) likely to deliver the required competencies, including provisions for Apprenticeships. NHSS16 applies to organisational competence which is in effect by the collective competence of individuals.

Site supervision: (Client, Contractors and sub-contractors) – Behavioural Safety training is considered essential and a bespoke training package should be built. Guidance on supervision levels and competency can be found in Highways England Guide 'Raising the Bar 29'. Role profiles for supervisors (from Senior to Trainee) have also been identified by Highways England, as below

HIGHWAYS ENGLAND ROLE PROFILE	
Role Name	Senior Construction Supervisor
Role Purpose	The role of the senior construction supervisor predominantly includes the management of labour, plant, materials and subcontractors to ensure that construction activities are carried out in a safe manner and in accordance with programme, budget and quality requirements. A Senior Construction Supervisor is permitted to supervise High level activities identified by the ratio decision tool.
Qualifications, training and technical knowledge	Level 6 NVQ Diploma in Construction Site Supervision or equivalent Have sufficient knowledge of health and safety gained at a construction specific course of at least five days duration Have attended training which includes an understanding of behavioural issues, leadership and effective intervention skills. This training must include delivering effective presentations (e.g. tool box talks) Attended a minimum Level 2 Qualification Risk Assessment course which includes a practical element CSCS Site Supervisor / Manager Emergency Preparedness / Fire Safety First Aid (desirable) Temporary Works Awareness Scaffold Awareness Groundwork support e.g. trench boxes, sheets and frames Awareness
Attributes and skills	Ability to manage a given list of tasks Ability to work well either alone or as part of a team Advanced knowledge of construction practices and standards within their subject Good writing, analytical and problem solving skills Good IT Skills with a good understanding of word processor and spreadsheet programmes Ability to follow oral and written instructions Ability to take control of situations with one's sphere of influence Assume responsibility - organising and guiding where necessary Ability to handle situations and problems Knows when to ask for help and guidance
Relevant experience	They should have a minimum of 5 years supervisory experience working in a construction environment Previous experience in groundwork and deep drainage Previous experience at a supervisory level in groundwork's and deep drainage Experience in the installation of shafts and caissons would be an advantage

HIGHWAYS ENGLAND ROLE PROFILE	
Role Name	Construction Supervisor
Role Purpose	The role of the construction supervisor predominantly includes the management of labour, plant, materials and subcontractors to ensure that construction activities are carried out in a safe manner and in accordance with programme, budget and quality requirements. A Construction Supervisor is permitted to supervise low to medium activities
Qualifications, training and technical knowledge	Level 3/4 NVQ Diploma in Construction Site Supervision or equivalent Have sufficient knowledge of health and safety gained at a construction specific course of at least two days duration Have attended training which includes an understanding of behavioural issues, leadership and effective intervention skills. This training must include delivering effective presentations (e.g. tool box talks) Attended a minimum Level 2 Qualification Risk Assessment course which includes a practical element CSCS Site Supervisor / Manager Emergency Preparedness / Fire Safety First Aid (desirable)
Attributes and skills	Ability to manage a given list of tasks Ability to work well either alone or as part of a team Advanced knowledge of construction practices and standards within their subject Good writing, analytical and problem solving skills Good IT Skills with a good understanding of word processor and spreadsheet programmes Ability to follow oral and written instructions Ability to take control of situations with one's sphere of influence Assume responsibility - organising and guiding where necessary Ability to handle situations and problems Knows when to ask for help and guidance
Relevant experience	They should have sufficient supervisory experience working in a construction environment with a minimum of 2 years working in a highways related occupation

HIGHWAYS ENGLAND ROLE PROFILE	
Role Name	Trainee Construction Supervisor
Role Purpose	The role of the trainee construction supervisor predominantly includes the management of labour, plant, materials and subcontractors to ensure that construction activities are carried out in a safe manner and in accordance with programme, budget and quality requirements. A Construction Supervisor is permitted to supervise low to medium activities
Qualifications, training and technical knowledge	Have sufficient knowledge of health and safety gained at a construction specific course of at least two days duration Have attended training which includes an understanding of behavioural issues, leadership and effective intervention skills. This training must include delivering effective presentations (e.g. tool box talks) CSCS min level 2 occupation specific but working towards site supervisor
Attributes and skills	Ability to manage a given list of tasks Ability to work well either alone or as part of a team Advanced knowledge of construction practices and standards within their subject Good writing, analytical and problem solving skills Good IT Skills with a good understanding of word processor and spreadsheet programmes Ability to follow oral and written instructions Ability to take control of situations within one's sphere of influence Assume responsibility - organising and guiding where necessary Ability to handle situations and problems Knows when to ask for help and guidance
Relevant experience	They should have sufficient experience working in a construction environment. Previous experience as a lead operative/working supervisor in a highways related occupation is preferred.

Drivers: Competence standards for drivers are set out in the [MPA Drivers Handbook](#). A bespoke Tipper Driver CPC module delivered by MPQC (3.5 hours) will be proposed for accreditation.

Recommendations

- Meet the MPA Safer by Competence expectations (Members).
- Continue to work with highways clients and others on supervisor and workforce competence (MPA/Members).
- Share best practice on how health and safety responsibilities are being developed in job roles (Members).
- Ensure all job roles are covered by appropriate competence standards and to share information on banksman/traffic marshal training (MPA/Members).
- Develop MPA 'Safer by' suite of tools (MPA/Members).
 - Safer by Leadership (participation in leadership course and initiatives);
 - Safer by Design (from plant standards; guarding, lighting, dust suppression/prevention, mirrors, cctv, sensors, filling points etc);
 - Safer by Sharing (hold workshops/ peer reviews, share/seek expertise from outside of the industry on issues of interest/concern);
 - Safer by Partnership (work with the industry's suppliers/subcontractors to improve working practice, for example on inductions);
 - Safer/Healthier by Association (design audits and online materials for company use based on best practice).
- Training needs to include behavioural aspects and risk perception (Members).
- Propose bespoke Tipper Driver CPC module for accreditation (MPA/Members).



Operatives Courses: Relevant to Surfacing

Job Level	Category	JOB TITLE	NOS	Qualification (MPQC)	Alternative Qualifications
Operative	Highways	Concreting Operative	Highways Maintenance (Construction)	Level 2 Highways Maintenance (Construction)	SVQ Highways Maintenance
Operative	Highways	Drainage Installation Construction Operative	Highways Maintenance (Construction)	Level 2 Highways Maintenance (Construction)	SVQ Highways Maintenance
Operative	Highways	Excavations Operative	Highways Maintenance (Construction)	Level 2 Highways Maintenance (Construction)	SVQ Highways Maintenance
Operative	Highways	Incident Support Operative	Highways Maintenance (Construction)	Level 2 Highways Maintenance (Construction)	SVQ Highways Maintenance
Operative	Highways	Kerb & Channel Layer	Highways Maintenance (Construction)	Level 2 Highways Maintenance (Construction)	SVQ Highways Maintenance
Operative	Highways	Modular/Flexible Pavement Construction Operative	Highways Maintenance (Construction)	Level 2 Highways Maintenance (Construction)	SVQ Highways Maintenance
Supervision	Highways	Team leader/ Supervisor	Occupational Works Supervision	Level 3 Occupational Work Supervision	SVQ Occupational Work Supervision
Operative	Highways	Vehicle Fencing Operative	Highways Maintenance (Construction)	Level 2 Highways Maintenance (Construction)	SVQ Highways Maintenance
Operative	Mobile Plant	Agricultural Tractor Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Bowser Operator - Fuel or Water	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Concrete Pump Truck Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Crane Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Dragline Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Dump Truck Operator - Rigid or Articulated	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Excavator Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Excavator Operator - 180° Backactor	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Face Shovel Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Fork Lift Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5

Operatives Courses: Relevant to Surfacing

Job Level	Category	JOB TITLE	NOS	Qualification (MPQC)	Alternative Qualifications
Operative	Mobile Plant	Forward Tipping Dumper	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Grader Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Loading Shovel Operator - Wheeled or Tracked	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Lorry Loader Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	MEWP Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Motorised Scrapers	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Ride-on Roller Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Skid Steer Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Skip Handler	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Slurry Tanker Driver	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Soil Compactor Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Soil Stabiliser Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Telescopic Handler	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Tractor/Dozer Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Operative	Mobile Plant	Trencher Operator	Plant Operations (Extractives)	Level 2 Plant Operations Extractives	SVQ Plant Operations Extractives at SCQF Level 5
Technical	Quality Assurance	Field Technician	Laboratory & Associated Technical Activities	Level 2 Laboratory & Associated Technical Activities	
Technical	Quality Assurance	Lab Technician	Laboratory & Associated Technical Activities	Level 2 or 3 Laboratory & Associated Technical Activities	

Operatives Courses: Relevant to Surfacing

Job Level	Category	JOB TITLE	NOS	Qualification (MPQC)	Alternative Qualifications
Technical	Quality Assurance	Lab Technician/ Supervisor	Laboratory & Associated Technical Activities	Level 4 Laboratory & Associated Technical Activities	
Operative	Roads	Pavement Marker	Roadbuilding (Construction)	Level 2 Roadbuilding Operations (Construction)	SVQ Roadbuilding (Construction)
Operative	Roads	Road Stud Operative	Roadbuilding (Construction)	Level 2 Roadbuilding Operations (Construction)	SVQ Roadbuilding (Construction)
Operative	Roads	Roadbuilding Machine Operator	Roadbuilding (Construction)	Level 2 Roadbuilding Operations (Construction)	SVQ Roadbuilding (Construction)
Operative	Roads	Surface Finisher	Roadbuilding (Construction)	Level 2 Roadbuilding Operations (Construction)	SVQ Roadbuilding (Construction)

The above courses to be supported by an appropriate vocation approved card scheme. (further relevant courses will be identified).

Contract Surfacing Guide 3

3. Managing Risk

Risk management is a well understood philosophy, and its application is invaluable to driving down incidents.

3.1 Site

Contractors, Supervisors and Inductions

Pre-construction phase:

Contracts should be awarded in good time to allow contractors and their supply chain to plan properly and be involved in 'pre-site' risk assessment and management (RAMS) decision-making processes. Construction (Design and Management) Regulations obligations must be followed.

Supervisory roles and responsibilities should be made known to all. Supervisory appointments should be made well in advance of projects commencing and in order to fulfill such roles, there must be a competence assessment process that covers such issues as training and experience.

Only competent (and approved e.g. through Avetta) contractors should be used.

During construction:

Contractors must be informed of any changes to the job schedule and planned activities. This applies to changes that occur before the job commences and to any revised "on the job" requirements.

Constructive and courteous feedback should be provided to contractors. Additionally, feedback should be sought from the sub/contractors to clients and main contractors. The safety of one operation must not compromise that of others.

Site safety inductions (or briefings) and dynamic risk assessments must be carried out before work commences (including pre-shift updates) and when circumstances change. These should be consistent with the level of work being carried out and be based on risk assessment outcomes. Safety inductions and instructions need to be relevant and appropriate to the activities being carried out and to the site specific conditions and constraints. The inductions should be available in the necessary language and/or a competent translator provided.

Internal Traffic:

Design and Construction Phase: Construction site vehicle incidents can and should be prevented by the effective management of transport operations throughout the construction process. Key issues in dealing with traffic management on site are:

- Keeping pedestrians (site and public) and vehicles apart - e.g. by setting up exclusion zones, where possible and safe zones (for mobile phone use or parking etc)
- Minimising vehicle movements
- People on site (supervisors, operatives, hauliers, visitors etc.)
- Turning/Reversing vehicles
- Visibility
- Signs and instructions

The majority of construction transport accidents result from the inadequate separation of pedestrians and vehicles. This can usually be avoided by careful planning, particularly at the design stage, and by controlling vehicle operations during construction work through a traffic management plan. [HSE Guidance on Traffic Management on site](#) should be followed.



Automated joint sealing: reduces need for isolated working & potential for pedestrian/plant interaction

Vehicle and pedestrian segregation must be effective and should include; one-way systems; barriers; vehicle movement management plans; segregation of light and heavy vehicles and pedestrians; safe pedestrian crossings; and the need to reverse should be eliminated or reduced as far as is reasonably practicable.

On larger schemes, it is recommended to define works areas and provide a layout for the plant, materials, vehicles and welfare facilities required for each particular location. Each work area is then allocated to particular work gangs on a daily basis, whereby if you are not part of that gang, you are not able to enter that location.

In conjunction with the use of defined works areas, where space allows the use of a dedicated site traffic lane will further help to increase site safety. The site traffic lane totally bypasses all of the work locations reducing the risk associated with working on-site. It also reduces the risk of vehicles pulling out into live lanes to get past vehicles and equipment parked within the site.

Safe Storage/Parking Places:

It is common for vehicles to block the site traffic lane resulting in other vehicles being unable to pass, or worse still pulling out into a live lane to get around congested areas. For these reasons, it is important that safe pre-defined locations and layouts outside of the site traffic lane are provided for the storage of plant, materials, vehicles and welfare facilities at the design stage.

During the construction phase, a permit system can be used to ensure that only those vehicles which need to be parked within each safe parking location are actually allowed to park there.

Traffic Marshals:

Every site where there is an opportunity for interfaces between people and plant must develop a logistics and traffic management plan (LTMP). The decision whether or not to use plant and vehicle marshals as part of the plan must always be through the higher hierarchy of control method (see table to right).

Once a decision has been reached to use a marshal then strict controls must be in place, primarily for the safety of the marshal as they are now in the high-risk category.

Marshals must be trained, competent and specifically appointed for the task; and wear identifiable clothing that clearly shows their role on site.

Banksman:

The role of a banksman is different to that of a traffic marshal, although in some cases the role has been combined. A banksman has specific responsibility for the safe control of vehicles and plant in relation to directing their operations e.g. tipping, lifting, excavation, as opposed to their transit on site. For example, the traffic marshal would identify the safe site access route for a tipping lorry, but a banksman would be responsible for the safety of the tipping operation itself.

Banksman must be trained, competent and specifically appointed for the task; and wear identifiable clothing that clearly shows their role.

Example of a Hierarchy of Control for Reversing.

1	Eliminate	Eliminate the need to reverse by implementing one way systems and providing designated turning areas
2	Reduce	Find other ways of working, minimise the need to reverse and instruct drivers only to reverse when strictly necessary
3	Isolate	Exclude pedestrians from areas where vehicles reverse
4	Control	<p>Provide safe systems of work</p> <p>Design areas to facilitate safe reversing: e.g. by providing adequate space free from obstacles/blind spots and fit buffers/physical stops (where appropriate); if tipping is to take place, ensure the area is free from overhead obstacles and that ground conditions are safe and level. Floor markings e.g. the use of white lines, may help drivers to line up where appropriate.</p> <p>Improve visibility: ensure lighting is adequate and provide visibility aids for reversing vehicles (see section 3.3)</p> <p>Provide reversing lights and alarms: (see section 3.3)</p> <p>Consider the use of proximity sensors: (see section 3.3)</p> <p>Traffic Marshals: must be trained, competent and specifically appointed; stand in a safe position; be in constant communication with the reversing vehicle; use standard signals</p>
5	Provide Information, Instruction, Supervision and Training	<p>Provide Information, Instruction, Supervision and Training</p> <p>Instructions: workers should be instructed to keep away from areas where reversing takes place. Provide warning signs</p> <p>Supervision: adequate supervision should be provided to ensure that rules and procedures are followed.</p> <p>Information & Training: provide information and training on your safe systems of work</p>

The Banksman should stand in a safe position and be in communication with the reversing vehicle at all times, the use of portable radios or similar should be considered if it would be helpful; the driver should know to stop immediately if the banksman disappears from view; the banksman and driver should use standard signals (Health and Safety (Signs and Signals) Regulations 1996 L64).

The former Highways Agency identified a number of issues relating to the competency, training, role and appointment of traffic marshals ([guidance](#)) as follows:

Plant and vehicle marshal competency:

- Must have good communication skills
- Ability to use hand signals
- Must have the capability to direct plant and vehicle movements safely
- Must understand and recognise where to be safely positioned
- Ability to understand and recognise the hazards of working around plant and vehicles
- Know the work area they have designated responsibility for
- Have undergone suitable and assessed training
- Must have at least three years experience in a construction environment

Plant and vehicle marshal training aims:

- To provide plant and vehicle marshal with the competencies required to safely control the direction / maneuvering of plant and vehicles
- To provide information on the hazards and risks associated with plant and vehicle marshaling
- To demonstrate the code of signals to be used to marshal plant and vehicles and demonstrate effective communication

Role of plant and vehicle marshal:

- Assist plant and vehicle drivers to safely manoeuvre and reverse their plant or vehicles
- Prevent pedestrians from putting themselves at risk whilst a vehicle is being maneuvered
- Direct plant or vehicles to prevent injury to people, damage to property or materials, and stop work if deemed unsafe.
- Always position themselves in a place of safety
- Maintain eye contact with the plant or vehicle and give clear concise signals/instructions

Plant and vehicle marshal appointments:

- Every site must identify and appoint a plant and vehicle coordinator
- Plant and vehicle marshal's should be formally appointed after suitable training, normally by the site project manager
- They are responsible for the development and implementation of the logistics and traffic management plan

Plant Delivery Vehicles: Access and egress communication to drivers is important, as space is often tight with restricted areas: Full closures allow for easier movement and control. Plant should always be dropped off during the day for night time operations where practicable.

Logistics & Traffic Management Plan: Visits to the proposed work area must be carried out to enable effective planning and to eliminate, if possible the need for vehicle marshals. This visit will also enable the planning of traffic routes and controls.

A logistics and traffic management plan will:

- Eliminate the need for plant and vehicle marshals. Where this is not possible, minimise the use of vehicle marshals and identify their position of safety
- Clearly show pedestrian routes and crossing points
- Provide substantial means of separating people and plant such as physical barriers
- Eliminate the need for people to be within the immediate proximity of plant through the design, planning and sequencing of the works and transport routes such as separated areas servicing a pre-defined area of the site(including safe storage of plant and materials, holding areas, welfare facilities and parking areas)
- Be clear and descriptive, and include accurate drawings/sketches
- Be communicated to all stakeholders with copies given to all trained vehicle marshals
- Be updated regularly to identify temporary arrangements
- Display designated traffic routes, access and egress points, one way circuits and turning areas and the signage they require, including speed limits
- Display emergency access routes and the positions of emergency facilities such as fire hydrants drainage and all overhead and underground services
- Be displayed in prominent positions such as the main entrance, site access points, induction rooms and canteen and at the point of work
- Include a permit system to ensure only authorised vehicles park in each safe stopping area

Briefings:

- Briefings should include risk assessments/method statements, adjacent activities, designated routes for both vehicle and pedestrians
- Particular attention must be made to address adverse environmental conditions (such as hours of darkness, inclement weather)
- Ensure the plan is briefed to all involved in the activity
- Provide safe place for vehicle marshal
- Ensure above all that the vehicle marshal is clear on his role for that work area

Control and monitor:

- Nothing stays the same during any work activity. Regular monitoring and control must be carried out during the activity involving vehicle marshals
- Monitor the implementation of the plan and review if necessary, ensuring everyone is re-briefed
- Any change to the methodology of the work must be communicated to the original planners before changes are made to ensure the vehicle and pedestrian interface is not compromised
- Should there be a change to the agreed controls then these must be communicated to the vehicle marshal. Re-briefings must be given on the new controls and RAMS

Pedestrians:

- Ensure that pedestrians not associated with the task and vehicles are segregated. Those pedestrians associated with the task must have a clear method of communication with the machine operator and remain within his sight at all times.
- Set up one-way systems and drive through loading/unloading bays.
- Ensure that any reversing vehicles (other than cars or car derived vans) are either in a pedestrian exclusion zone or if this is not possible, directed by a competent banksman who is positioned in a place of safety.
- Never allow anyone to be positioned within a metre of the body of an operational vehicle and a static object (another piece of plant/a wall/ etc)
- If pedestrian use of mobile phones is allowed at all, it should only be allowed in a designated safe area.
- Ensure that everyone on site, including visitors are aware of the pedestrian and vehicle routes.

Proximity Sensors:

Following a review and trial of a variety of proximity sensors in 2012, the then Highways Agency, concluded that there was no single solution. Therefore, all sites should risk assess the need for proximity sensors as part of their hierarchy of control.

Lighting:

Extreme care must be exercised when ordering artificial lighting for night working as too much artificial lighting can be just as hazardous as insufficient lighting in certain circumstances.

Prior to ordering artificial lighting attempts must be made to establish the amount of lighting which will already be present on site. This will differ enormously from site to site and will be affected by several key elements such as;

- Is the road serviced by functioning street lights?
- Is the road adjacent to illuminated areas such as all-night garages, shopping areas, etc?
- How much lighting will be provided by the headlights, flashing beacons, task lighting and reversing lights of plant, equipment and vehicles?

When compiling Risk Assessments for night working, all of the above items must be considered but the main considerations must be related to the prevention of 'dark' spots and shadows, the ability for plant, machinery and vehicle operatives to see and be seen and the ability for pedestrian operatives to see and be seen.

Ensure lighting is positioned to prevent glare to operatives, plant and vehicle operators, adjacent road users and the general public. Ensure contingency plans are established if artificial lighting fails. Task lighting should be provided for remote operations in the form of Halo LEDs/ LED lights on cones e.g. joint preparation, site testing etc. Helmet lights should not be the default; area lighting/lighting of plant should be addressed.

Recommendation:

Sufficient guidance already exists on the management of sites, what is required is the implementation of that guidance. The following recommendations are made;

- Guidance to be assembled and stored in a single place (MPA).
- Improve communication, so that examples of how the guidance is being implemented are disseminated widely across the industry (MPA/Members).
- Improve communication on good practice/new ideas (MPA/Members).
- Share guidance on the training of Traffic Marshals and ensure the NVQs match requirements (MPA/Members).
- Surfacing Gangs - Identify suitable two-way radio system to create exclusion zones (Members).

3.2 Highway Traffic

Setting up and removing Traffic temporary management from any class of carriageway is a hazardous activity. Consequently, the less number of times this has to be done during a contract, the lower the risk. Example: 4 Night Shifts = 8 Traffic management moves = max 24 hours work. Weekend closure (4 shifts) = 2 Traffic management moves = min 32 hours work.

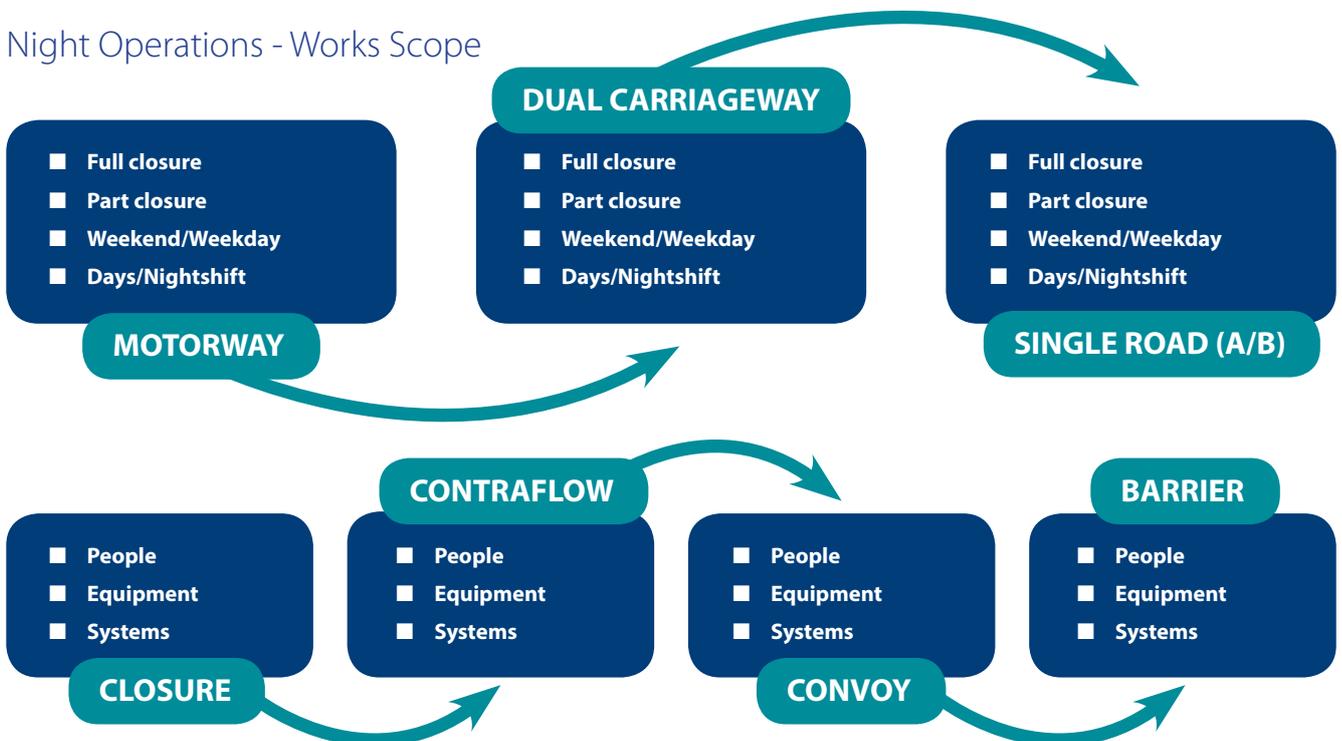
The Traffic Signs Manual ([Chapter 8 and Parts](#)) outline the requirements for road works and temporary situations in relation to signage, barriers, markings etc.

Highways England has a target to reduce to zero all crossings of live highways by the workforce (in particular in relation to Temporary Traffic Management).

Organisations carrying out Temporary Traffic Management operations must be competent to do so. The suite of National Highways Sector Schemes [12 A&B](#), [C](#) and [D](#) includes requirements for organisations and for the competency of personnel involved in the activity. Contract surfacing organisations may take on responsibility for providing temporary traffic management but must also be certificated to do so, and/or have personnel with the appropriate qualifications, as appropriate to the road classification.

Separate requirements exist relating to works carried out in relation to utility infrastructure works in the highway, as opposed to works on the highway itself.

Night Operations - Works Scope



Motorways/Major A roads:

Some Motorways are often restricted having fewer lanes which makes lane closures more difficult. Additionally, many trunk roads are dual and single carriageway.

Ideally live traffic should not run next to works, thus the industry needs to understand the obstacles to closing carriageways. In most cases the client looks to the Surfacing contractor to justify closing a road, however the assumption should be that the road should close, unless the Contractor provides good reasons why it cannot. This would lead to a better industry understanding of traffic flows and potential disruption, and allow the client to understand the industry's safety concerns and the potential for cost savings.

When a Dual-Carriageway or Motorway contra flow is in operation there is a natural barrier between the travelling public and operatives (i.e. the central reservation) and the industry believes this option should be used more often. Carrying out effective convoy working requires more resources (front and rear vehicles) and involves greater risk during night working.

Traffic management operatives are at greatest risk whilst physically installing motorway and dual carriageway set ups. The risk of being struck by moving vehicles occurs each time they cross the carriageway to place a sign. This can occur for several nights on short duration occupations and the risk of injury is considerably increased from

one continuous road closure (e.g. over one to two, 24 hour shifts) to complete the works.

The road closure permission process appears overly complicated and slow. This should be challenged in order to establish road closure as the first choice for road works.

Works on or near the centre of the carriageway: All duty holders should work together to ensure that safe systems of work are applied to centreline operations to ensure individual responsibilities for centreline working are fulfilled. The good practice contained within the [HTMA Guidance "Works on or Near to the Centre of the Carriageway"](#), should be observed.

Recommendations (All Parties):

- Road closure should be the preferred option
- Work more closely with clients and other stakeholders.
- Mobile crossovers should be provided every 3-4 km as part of long term strategy

New Technology (Incursions):

Available features include:

- Incursion alarms either triggered by operatives at checkpoints etc or automatically by sensors fitted to cones/barriers/checkpoints.
- System logs that can be remotely interrogated to identify incursion hotspots, thus allowing informed remedial action to be taken
- Proximity sensors
- In cab 'site' navigation devices (and associated proximity alarms e.g. 'in-cab' to overhead services and external to operatives)
- Tracking and management of vehicle on-site access and egress, movements and speed
- Site entry/exit log (and improvement of work exits by interacting with Variable Message Signs).

Recommendation:

- Continue to share best practice and improve the dissemination of case studies (MPA/Members).
- Consider funding/promoting research into improved systems of protection (Members).

Service Avoidance

The [Highways Term Maintenance Association Service Avoidance Good Practice Guide](#) should be followed. This is particularly relevant to Local Authority networks where typically more services are buried within the highway.



Body Camera

Traffic Management Gate

The issue of violence against road workers by members of the public is an escalating problem.

Recommendations:

- Where possible, reduce the use of gatemen by the use of automatic barriers (Members).
- Where gatemen are still necessary, for example to manage traffic movements, sites should consider controlling access through 'airlock' type systems
- The use of cameras/ body cameras (that meet the standard required for being considered as evidence), in conjunction with deterrent signs should be considered (Members).
- Employees who are likely to deal with the public should receive training in conflict avoidance (Members).
- Log all incidents and encourage the reporting of incidents (Members).
- The industry should work with stakeholder campaigns and initiatives to develop more detailed policies (MPA).
- Lobby public bodies, including the Department of Transport, to ensure local Police support for initiatives to reduce violence against road workers and consistent standards across the UK (MPA).

PPE

Whenever possible exposure to hazards should be eliminated or otherwise minimised at source by careful selection of the method of working, plant and material being used, rather than by the issue of personal protective clothing and equipment (PPE) e.g. by minimising noise at source rather than providing hearing protection. The use of PPE must not be considered as an alternative to efforts to eliminate or reduce risk.

If hazards cannot be eliminated, items of PPE may assist in controlling the residual risk.



Spot the Difference?

Recommendation: The following minimum requirements have been proposed (Members);

- Hi Viz: Orange colour (BS EN471 Class 3) and long Sleeves to be worn. The retro-reflective material shall be to Class 2, as defined in Table 5 of the Standard.
- Safety Boots: Lace Up Safety Boots
- Gloves: appropriate to the task(s) being carried out
- Safety Glasses: Mandatory (rain or not!) with UV protection
- Safety Helmet: Follow the **BUILDUK standard**. Additionally, the supervisor's helmet should have a reflective strip fitted to remove any residual risk created by a black helmet worn at night.

Companies may have their own policy on PPE colours; however, in these cases prior agreement with the client will be required.

Risk assessments/work conditions may require different, additional and/or an increased level of protection from that listed above. For example, goggles, dust masks or hearing protection, (or possibly shorter sleeves depending on the equipment being used to avoid the risk of entanglement). Weatherproof clothing must not obscure high visibility clothing and extra care should be taken when hoods are worn because they can restrict the field of vision. High visibility warning clothing should be kept clean and in a serviceable condition. Damaged or degraded PPE shall be replaced.

There should be signage for specific hazards which takes account of noise and dust surveys. PPE should be provided and signed for, and employees should receive training in its use. The use of PPE should be enforced (and documented), provision should be made for its storage and ensuring that it is in good condition, for example by regular inspection. PPE must meet the appropriate standard and face fit tests must be undertaken (where relevant). Employees should be involved in the choice and selection of PPE. PPE should be readily available.

Housekeeping

High proportions of workzone incidents relate to slips, trips and falls. In many cases these can be attributed not only to the actions of individuals but also to poor housekeeping. Operatives should be encouraged to "tidy as they go" and identify, remove or arrange for removal of potential hazards, including providing barriers and covers.

3.3 Plant and Equipment

Plant and equipment must be suitable and safe for the required operations, even before it comes on site, maintained to remain safe and competently operated.

Risk Assessed:

Following risk assessment of the associated works, companies shall ensure that mobile plant purchased, hired, loaned or leased complies with required standards. The minimum standards should ensure the safety of the operator and other people who may be affected by their activities through compliance with legislative requirements. Plant failing to meet the minimum specification must not be specified or used. In general, UK requirements and guidance e.g. [MPA Driver's Handbook](#) will enhance the minimum requirements for most vehicles, plant and equipment.

Provision & Use:

Prior to any operation a 'nil defect' safety check must be undertaken and recorded using the approved report form. Defects identified must be reported immediately to the supervisor/foreman, and those that affect the safe operation must be reported to the maintenance department /hire firm immediately, and the plant taken out of service, until the defect is repaired.

Authorisation Training & Competence:

Employees and sub contractors shall only operate items of plant which they are trained, competent and authorised for. Persons selected to operate plant must have received health surveillance within the last 36 months and declared fit by the company health care provider.

Mobile plant operators must hold a valid industry recognised (CPCS, MPQC, NPORS (EORS in maintenance)) operator card and, where necessary, hold a full (DVLA) driving license, with the appropriate categories.

A copy of the competence card must be available on the site of operation at all times, to enable authorisation (in writing) to be completed for that item of plant.

Operators nominated to undergo training in preparation for assessment by the awarding body, must undergo familiarisation training with an experienced operator / plant assessor to assess their suitability. They must be authorised in writing by a Senior Manager to operate whilst undergoing training on site. When an operative is being trained on mobile plant "L" plates or signs indicating that the operator is under instruction must be displayed on the item of plant.

General Rules:

The [MPA Drivers Handbook](#) contains standards relating to tippers; cab safety; driver behaviour; drugs/alcohol/smoking; and mobile phone use, which are equally applicable to site vehicles, plant and equipment.

Other Rules:

All mobile plant drivers must maintain a 5m safety zone in the path of travel, between the item of plant that they are operating and any person on foot on site or a member of the public.

Mechanical road sweepers must have a minimum 20m sterile zone in the path of travel, where this cannot be guaranteed, a spotter must be deployed who must be in radio contact with the operator.

All incidents involving items of mobile plant shall be notified by the operator immediately to the relevant manager. In the event of a collision with any other item of plant, vehicle and person on foot, the operation must be immediately suspended until authorisation to continue work has been given by a Senior Manager.

Consideration in the planning stage must be given to the many plant operator aids available on the market such as;

- Plant with 360 all round visibility mirrors
- CCTV
- Infrared cameras for night working
- Vehicle collision avoidance systems, VCAS effective at all times
- Personal proximity warning devices
- Exclusion and controlled access zones around operating plant
- Speed Limitation devices set at the site speed limit, including GPS controlled limiters.
- Laser Lighting: To highlight exclusion zone around critical plant e.g. 5 + 2 initiative.
- LED lights fitted as standard
- Additional on-board / task and access lighting

Prohibited Plant:

1 tonne forward tipping dumpers (skip loaders) must not be employed, due to the potential of them becoming unstable on relatively minor gradients/uneven terrain.

Restricted Plant:

The use of a BoMag 80 roller must be sanctioned by the relevant manager before it is used.



Additional Lighting

Vehicle Rules:

Companies should enforce vehicle rules, which include daily checks, inspections and defect reporting systems. Vehicles must be suitable for their allotted task and suitable safety devices fitted (e.g. FOPS, ROPS, visibility aids for reversing, seat belts, cyclist warning/detection systems etc). Vehicles must be well maintained.

Companies must have safe systems for sheeting and tipping, on which drivers have received training. The systems must be enforced through supervision, inspection and other appropriate measures.

Restrictions:

Restrictions, for example due to height, width, gradient or overhead power lines, speed limits must be clearly marked and enforced.

Plant Standards:

Different bodies have produced plant standards, for example, Highways England and MPA both have standards relating to sweepers. MPA member companies have 'in-house' standards and other interested parties have also produced guidance e.g.

- Federation of Planing Contractors Code of Practice "Safety at Road Planing Operations"
- Road Surface Treatments Association "[Guidance note for spray tanker operators](#)".

New ideas for safer working are developed on a regular basis. However, it is difficult to determine how widespread their adoption is. Consequently, more needs to be done to drive the uptake of safer ways of working for example by working with the industry's partners to develop Safer by Design standards.

Recommendation:

MPA CSAC H&S Committee should work with interested parties to develop common plant and equipment standards through Safer by Design for the following;

- Pavers
- Rollers
- "Streetmaster"
- 'Tractairs/Airmaster'
- Chipper Spreaders
- Site Towable Bowsers
- 180 Excavators
- 360 Excavators
- Skid Steer Shovels
- Dumpers
- Articulated Dumpers
- Planers
- Tele Handlers
- Loading Shovels
- Sweepers
- One Coat Sprayers
- Low Loaders
- Floor Saws
- Coring Rigs

Highways England requires that anyone within the scope of either of the following two statements demonstrate that they have had a safety critical medical before starting work:

- Any person required to work within 5 metres of live traffic without a fixed barrier and an adequate barrier deflection zone.
- Any person working within temporary traffic management (even if fixed barrier) in a high speed environment (50mph or more, prior to any temporary traffic restrictions being implemented.)

Further advice on occupational health programs and safety critical medicals can be found in the Highways England guidance: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/641043/B12_Occupational_Health_Feb_2017_b.pdf

Drugs & Alcohol Policies: Companies should have a written Drug and Alcohol Policy whose contents have been communicated to staff and contractors. The policy should be supported by random testing programmes. Drug and Alcohol policies will be zero tolerance.

Mental Health/Stress: Companies should have a written stress policy and adopt the stress management standards designed by HSE. Employees should be informed about the procedures for reporting stress. Managers should be made aware of their responsibilities and the means of controlling stress.

The Management Standards approach



3.4 Occupational Health and Wellbeing

Risk Assessments, Controls and Occupational Health Programme:

Companies should undertake risk assessments that cover all relevant issues such as noise, dust, silica, substances with WELs, dermatitis inducing materials, carcinogens, work related upper limb disorders, vibration, radiation, ergonomics and effective control measures should be put in place. An effective Occupational health programme should cover these issues and systems of work/control measures should be reviewed in light of its results.

Under the REACH regulations, the onus falls upon the manufacturer/importer to both assess the risk of using their substance and to identify appropriate control measures etc. When downstream users receive a safety datasheet for a substance they must apply appropriate measures to control the risks, that arise during its use. On receipt of an extended safety datasheet, downstream users should also check whether the exposure scenarios cover their particular use of that substance or take alternative action. Under the COSHH regulations, employers must undertake risk assessments for substances hazardous to health.

It is important that safety-critical workers are not suffering from medical conditions or undergoing any medical treatment which is likely to cause sudden loss of consciousness or incapacity, impairment of awareness, concentration, balance or coordination or significant limitation of mobility. Consequently, there should be a workplace fitness for task health check for those carrying out safety critical tasks.

One in four people in the UK will be affected by a mental health problem in any given year. Companies should consider;

- Improving and increasing mental health awareness amongst the workforce
- Providing the skills necessary to hold non-judgmental conversations and encourage the seeking of support

A number of courses are available including addressing Mental Health First Aid. Specific initiatives and resources for mental health in the construction industry are coming forward, notably Mates in Mind - which MPA will be championing.

Noise:

Noise must be considered as a factor when equipment, tools and machinery are specified and purchased. Employees and contractors should be trained (where they are exposed above the lower exposure action values) on: health effects and the need for health surveillance, the likely noise exposure and the risk to hearing this creates; control measures ; where and how hearing protection can be obtained, how to report defects in hearing protection and noise-control equipment; their duties; what they should do to minimise risk (e.g. proper way to use hearing protection, how to look after it and store it). Appropriate signage and PPE should be provided, where necessary.

Hand Arm Vibration Syndrome:

Vibration must be considered as a factor when equipment, tools and machinery are specified and purchased. Employees and contractors should be trained on: health effects and the need for health

surveillance, sources of HAVs and whether they are at risk, risk factors and ways of minimising risk, how to recognise and report symptoms.

Dust (& RCS):

Companies should complete the MPA Healthier by Association audit tool. Where, employees are exposed to Respirable Crystalline Silica above given levels, companies should follow the MPA Respirable Crystalline Silica Exposure Health Surveillance Protocol.

Skin:

Workers should be informed about work related skin problems and the avoid, protect and check approach should be adopted. "Avoid direct contact between unprotected hands and substances. Protect the skin. Check hands regularly for the first signs of itchy, dry or red skin".

Companies should provide suitable protections to their workforce such as sunscreen or water for hydration etc.

Manual Handling:

Companies should avoid the need for hazardous manual handling; and assess the risk of injury from any hazardous manual handling that can't be avoided; and reduce the risk of injury from hazardous manual handling, so far as is reasonably practicable.

Suitable and sufficient (CE marked, within SWL marking, satisfactory for terrain and area of use and in good condition) lifting and handling aids should be provided and there is evidence of their use. Employees should be trained in manual handling techniques; and in the use of lifting equipment, where appropriate. Lifting equipment should only be used by competent employees and comply with the LOLER Regulations

Coal Tar:

The risks associated with coal tar should be designed out or procedures should be put into place to make sure that it does not enter the 'hot recycling material stream'.

The owner of the highway is responsible for identifying the presence of tar materials. They must drill and test in compliance with the EA Technical Guidance on Hazardous Wastes (WM1, 2 & 3) in order to inform the downstream risk assessments in relation to processes for removal, hazardous waste transfer and disposal or use by permitted recycling facilities.

Fatigue:

Companies should state acceptable working hour levels to contractors at tender stage. Employees should have a defined rota for the duration of the project before it starts. Previous hours worked should be checked on entry to site. Refer the contractor to the Working Time Directive. Spot checks should be carried out on the job, as appropriate and full use made of checkable passports. The industry should support HTMA and TMCA in developing guidance to advise on shift work and fatigue management. Where applicable, the [Highways England guidance note IAN 190/16](#) should be followed, as part of a Fatigue Risk Management System.

Bitumen Safety:

Bitumen is not classified as hazardous under the REACH regulation and there is currently no legal requirement to provide Safety Data Sheets for bitumen: never the less, advice on the safe handling of bitumen should be sought from suppliers, particularly given the temperature of the product.

Other:

Workers should be informed about the risks/preventative measures/procedures concerning Weils disease, Bird Droppings and Used Needles.

Welfare:

Suitable & sufficient facilities should be provided for all persons at work.

- Sanitary conveniences
- Washing facilities including the provision of soap & towels.
- Drinking water
- Accommodation for clothing/drying clothing

- Facilities for changing clothing
- Facilities for rest and to eat meals
- Effective arrangements should be in place to ensure all such facilities are kept clean & properly maintained
- Inspection of these facilities should be included in site workplace inspections.

The [Workplace \(Health, Safety and Welfare\) Regulations](#) set out the specific requirements with which an employer must comply. It is the sites decision who does this but this should be agreed and documented at the tender stage.

Recommendation:

- Testing Technicians – Use technology where appropriate to eliminate manual tasks.
- A Healthier by Association module to be written for contract surfacing activities to cover Dust (& RCS), as a minimum (MPA).
- MPA Working Group 7 will be asked to provide advice on the safe handling of bitumen.

Contract Surfacing Guide 4

4. Communication, Engagement and Measuring Performance

4.1 Communication and Engagement

Improved communication with the public relating to notification and progress of works should be promoted by all highway authorities. Whilst communication has improved over the years, it needs to continue as the industry seeks to close more sections of road with potentially greater disruption.

Traffic modelling undertaken by network operators can be inaccurate, depending on how well communicated works programmes have been. For example, an accident on a Bridge would lead to severe traffic delays and the traffic flow model would accurately predict that. However, if the closure of the bridge was well communicated in advance, the public would be resourceful in finding alternative routes and the traffic flow model would prove inaccurate. "In summary, Shutting Roads is never as bad as we think it's going to be and the benefits in safe working practice can be great".

The operational guidance and its recommendations should be promoted at various highways-focused conferences and exhibitions and with all major contractors and clients. Opportunities should be sought to speak at various events and promote interaction at regional meetings.

Recommendations

- Encourage Highway Authorities to campaign on 'educating' the road user.
- Collect best practice from members on the identified issues.
- Strip out into generic principles and put together in MPA formats.
- Identify and maintain key Industry meetings / forums and ensure representation to promote guidance (MPA).
- Communicate and engage with Operating companies/Highways Authorities (MPA/Members).
- Identify method and promote 360° Feedback (Members)
- Identify Media Method Paper, Digital, Social Media streams and central point where best practice can be easily accessed (MPA).

4.2 Measuring Performance

Better statistics and near miss reporting are required to help guide improvement programmes. Examples might include;

Reactive measures: Lost Time Injuries, Medical Treatment Injuries, Restricted Work Cases, Near Hits; Number of Violent Confrontations/ Interactions.

Leading Indicators: inspections, audits, number of VFLs, Tours, 360 feedback meetings or actions completed.

The Dashboard of Statistics is currently being used by a number of member companies. The key point to note is the titles; Leadership, Communications, Behaviour and Learning. All are enablers that instigate the measurement of leading indicators, the way ahead in guiding industry actions.

Recommendation:

- Key statistics to be collected and displayed on a dashboard (MPA/ Members).





essential materials
sustainable solutions

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