ASSOCIATION FOR ROAD TRAFFIC SAFETY AND MANAGEMENT

GUIDANCE DOCUMENT

WG3

MARCH 2026

PROVIDING GUIDANCE TO MANUFACTURERS AND USER COMMUNITIES

GUIDANCE ON THE CORRECT USE, MAINTENANCE AND COMPLIANCE OF OVERHEIGHT DETECTION SYSTEMS IN THE UK

Introduction

This Guidance Note has been developed to provide clarity on Overheight Vehicle Detection (OHD) systems in the UK. It is intended to assist manufacturers, highway authorities, asset owners, designers, contractors and end users on the correct application of OHD systems. It outlines relevant UK legislation, standards and industry requirements, highlights maintenance obligations and best practice; and sets out to improve understanding of system limitations, responsibilities and operational considerations.

Overheight detection systems are widely used across the UK road network to protect vulnerable infrastructure such as bridges, tunnels, gantries, and other structures with restricted headroom and, of course, members of the public – drivers and passengers.

When correctly specified, installed, operated and maintained, OHD systems play a safety critical role in reducing bridge strikes, improving network safety, minimising disruption, and reducing asset repair costs.

This guidance applies to permanent and temporary overheight vehicle detection systems deployed on public roads and private roads to which the public has access, where systems are used to warn drivers of height restrictions or prevent access to restricted structures.

Common areas of misunderstanding

Issues commonly arise due to:

• Incorrect trigger height selection
• Insufficient detection distance
• Unlawful or unclear signage
• Lack of maintenance planning
• Assumptions that OHD systems are “fit and forget”

Early engagement between asset owners, designers, suppliers and maintainers is strongly recommended.

Legislative and regulatory framework in the UK

Overheight detection systems are not traffic signs in themselves, but they interface directly with traffic signs, warning devices and control systems that are regulated under UK legislation. As such, their application must be considered within the wider regulatory framework, including, but not limited to:

- Road Traffic Regulation Act 1984
- Traffic Signs Regulations and General Directions (TSRGD) 2016
- Health and Safety at Work etc. Act 1974
- Construction (Design and Management) Regulations 2015 (CDM)
- Electricity at Work Regulations 1989
- Construction Products Regulations (UK Exit) 2020

Where OHD systems activate warning signs that includes VMS (Variable message signs), those signs must comply fully with TSRGD 2016 and the relevant standard BS EN 12966 and TOPAS 2516 (as called up in TOPAS 2515).

Correct application of overheight detection systems

A risk-based assessment and clear understanding of the hazard being mitigated must be undertaken prior to deployment of Overheight detection systems. Typical applications include:

• Low bridges (rail, road or canal)
• Tunnels with restricted headroom
• Gantries and overhead structures
• Temporary works with reduced clearance

Where arched bridges or structures are being protected, dual height detection systems may be required, and details are provided in the references below.

System objectives

The primary objective of an OHD system is to provide timely, unambiguous warning to drivers of overheight vehicles before they reach the restriction, allowing sufficient distance and time to stop or divert safely. They are used to supplement the required signage within TSRGD and are included in the bridge audit process (see references below).

Key considerations include:

• Accurate determination of the true available headroom
• Appropriate trigger height, allowing for tolerances and vehicle dynamics
• Adequate detection distance based on approach speed and road classification
• Clear, lawful and legible warning signage
• Reliable system availability and monitoring

Detection technology and positioning

Detection technologies may include infrared beams, laser sensors or equivalent non-contact systems. Regardless of technology used, systems must be:

• Correctly aligned and calibrated
• Positioned to minimise false activations
• Installed to avoid obstruction, vandalism or environmental interference

The detection point must be sufficiently upstream of the hazard to allow:
• Driver perception and reaction time
• Safe braking distance
• Safe diversion to an alternative route

Signage and warnings

It is strongly recommended that OHD systems are registered to TOPAS 2515 (latest revision) and for the VMS TOPAS 2516 (latest revision).

All warning signs activated by OHD systems must comply with TSRGD 2016 which calls up BS EN 12966 (latest revision) UK National Annex

TSRGD provides under Schedule 16:

- Correct sign face, legend and symbol usage – either as stipulated under TSRGD or subject to site specific authorisation from the DfT
- Appropriate illumination where required

NOTE: No scrolling, paging or unlawful messaging are permitted on any variable signs (TAL 01/15)

Maintenance obligations and best practice

OHD systems are safety-critical assets and must be subject to planned inspection, testing and maintenance regimes.

Asset owners and operators should ensure:

• Clear ownership and responsibility for the system
• A documented maintenance strategy

• Defined inspection and test intervals
• Competent personnel carrying out maintenance

Typical maintenance activities include:

• Visual inspection of detection heads and mounting structures
• Functional testing of detection and warning activation
• Verification of trigger heights and calibration
• Inspection of power supplies, batteries and communications
• Cleaning of sensors and sign faces
• Recording and review of faults, activations and incidents

Failure to maintain systems appropriately may lead to:

• Increased bridge strike risk
• System unreliability or false activations
• Increased liability exposure
• Loss of stakeholder and public confidence

Data, monitoring and operational management

Where systems are connected to monitoring platforms or control centres, best practice includes:

- Continuous system health monitoring
- Automated fault alerts
- Logging of activations and incidents
- Periodic performance review
- Operational procedures should be in place covering:
- Response to activations
- Response to faults
- Temporary isolation procedures
- Escalation and reporting arrangements

It is important to ensure that the system is effectively active and under local control at all times.

Design, installation and CDM considerations

OHD systems fall within the scope of the Construction (Design and Management) Regulations 2015. Designers, installers and clients must ensure:

• Risks are eliminated or reduced through design
• Safe access for maintenance is provided
• Electrical safety is addressed
• As-built information and O&M manuals are provided

Conformity, certification and standards

Whilst there is no single harmonised EU product standard for OHD systems, components and associated equipment must comply with applicable UK legislation and requirements, including **TOPAS 2515C**, namely

- TSRGD
- UK EMC Regulations

- UK Electrical Safety Regulations (Low Voltage)
- UK Radio Equipment Regulations (where applicable)

Where OHD systems interface with VMS or illuminated signs, those signs must demonstrate compliance with BS EN 12966 and applicable TOPAS specifications.

Roles and responsibilities

Clear delineation of responsibility is essential. In general:

- Asset owners are responsible for system purpose, compliance and maintenance
- Designers are responsible for correct specification and risk mitigation
- Installers are responsible for compliant installation and commissioning
- Operators are responsible for lawful operation and monitoring
- Equipment suppliers are responsible for providing compliant equipment to UK legal requirements

Summary

Overheight detection systems are an effective and proven means of protecting infrastructure and improving road safety when correctly applied and maintained. Compliance with legislation, appropriate system design, lawful signage, and robust maintenance regimes are all essential to achieving the intended safety outcomes.

References:

Department for Transport (2012), Prevention of Bridge Strikes: a good practice guide for passenger transport https://www.gov.uk/government/publications/prevention-of-bridge-strikes-good-practice-guide

Department for Transport , (2012) Bridge Audit Check Sheet - https://assets.publishing.service.gov.uk/media/5a7dc294ed915d2ac884d632/Bridge_Audit_Check_Sheet.pdf

Network Rail Prevention of bridge strikes - Network Rail - https://www.networkrail.co.uk/our-work/looking-after-the-railway/bridges-tunnels-and-viaducts/the-risk-of-bridge-strikes/prevention-of-bridge-strikes/

Department for Transport (2012) Prevention of strikes on bridges over highways, Protocol for Highway Managers & Bridge owners Issue 2 - https://assets.publishing.service.gov.uk/media/5a7ef17ced915d74e33f366e/network-rail-bridge-strike-protocol.pdf

Department of Transport (2016) Traffic Signs Regulations and General Directions 2016 (and amendments)

Traffic Open Products & Specifications Ltd (2026) TOPAS 2515 – Standard for Equipment to Detect High and Over-height Vehicles at low structures - https://topasgroup.org.uk/specifications/

Traffic Open Products & Specifications Ltd (2026) TOPAS 2516 – Standard for Discontinuous Variable Message Signs - https://topasgroup.org.uk/specifications/

Disclaimer

This guidance document is produced for advisory purposes to clarify current legislation, standards and best practice. It is published in good faith but without liability and should not be taken as definitive legal advice. Requirements may change, and users should always refer to the latest official legislation, standards and guidance.