

## **PROJECT REPORT MIS16**

Implementing the highest safe speed  
within road works - Guidance

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## Contents amendment record

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# 1 Introduction

## 1.1 Foreword

This document has been prepared by TRL on behalf of Highways England, to provide guidance on how a speed restriction of 60mph can be incorporated into the selection of the highest safe speed within road works.

## 1.2 Primary definitions

In this document the word “must” is used to indicate a legal requirement which must be complied with. The word “shall” indicates an essential (or mandatory) requirement of compliance with this document, and “should” indicates a course of action that is strongly recommended. The word “may” is used to indicate an option, which requires consideration depending on the circumstances.

## 1.3 Background

With greater government investment in the Strategic Road Network (SRN) and an increase in improvement schemes, ensuring the safety of all road users and road workers remains our top priority. Satisfaction is also a key component of our vision for the future and we are committed to improving the experience of road users when they are travelling within our road works.

Studies have shown that journey time savings, as a result of the change in speed restrictions, can be achieved in a way that maintains the safety of road workers and road users. Evidence has been compiled and summarised within a separate case studies and supporting evidence report (Glaze & Palmer, 2020) published by Highways England.

## 1.4 Strategic intent

All reasonable steps should be taken to ensure that the effects of the works on the normal running of the carriageway are reduced to a minimum. As such Temporary Traffic Management (TTM) should be designed, wherever possible, to reduce risks to all affected parties as low as reasonably practicable without a restriction of the permanent speed limit. When this cannot be achieved, or where costs are prohibitive, consideration should be given to the highest safe speed limit and incorporation of appropriate restrictions within the road works.

This document provides guidance on how a speed restriction of 60mph can be incorporated into the design of road works on dual carriageway roads with a permanent speed limit of 70mph.

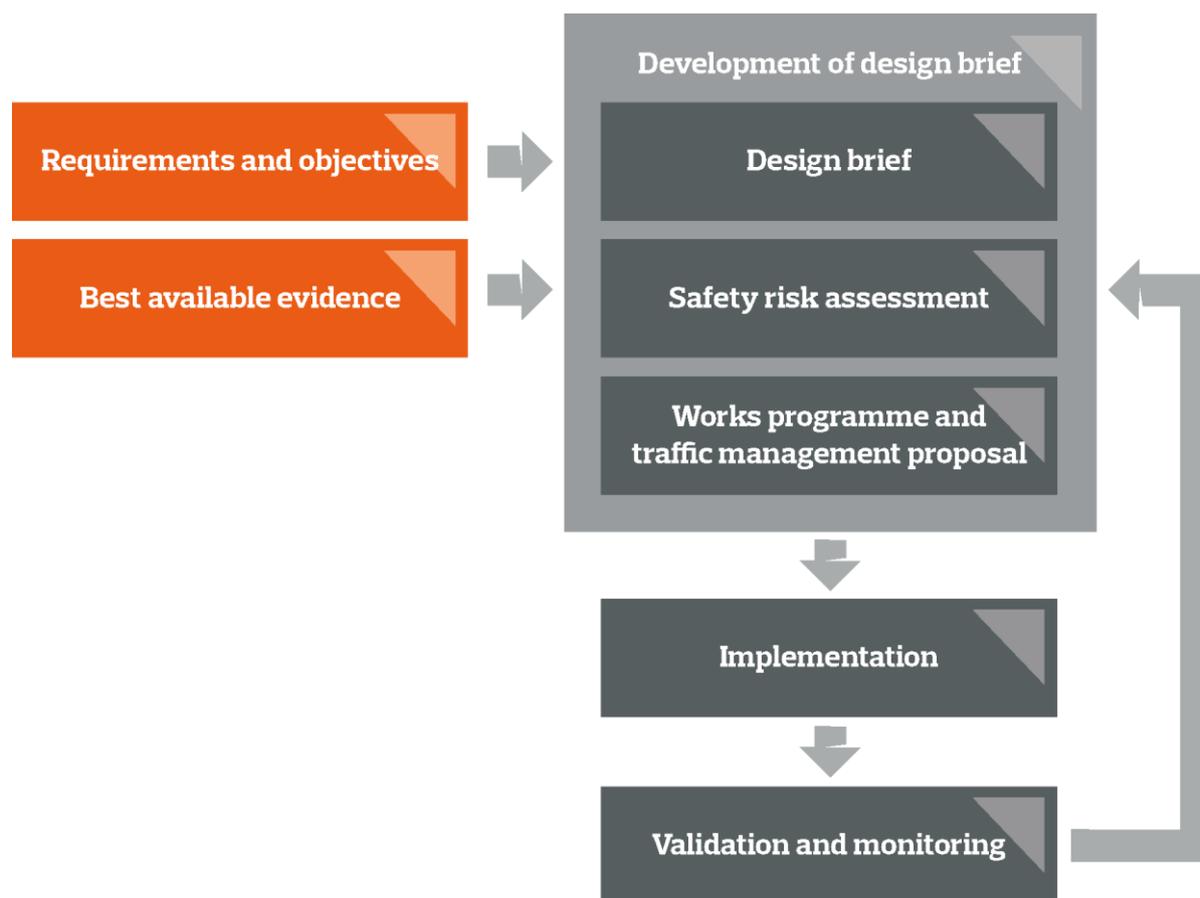
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## 2 Process for safely implementing a 60mph speed restriction

On our high-speed roads (with a permanent speed limit of 50mph or more) temporary mandatory speed restrictions can be put in place to reduce the level of risk posed. In order to keep traffic flowing as freely as possible, TTM should be designed to allow the highest speed that can be safely implemented. A 60mph speed restriction can be considered as an appropriate speed within road works, alongside other speed restrictions such as 50mph, but it is essential that the road works are designed to manage the level of risk posed to road workers and road users. Higher performing TTM equipment and design features can be used to minimise the level of risk posed from higher traffic speeds.

Decisions regarding what speed restriction is to be used within road works should be made on a case-by-case basis and should be documented, alongside the risk mitigations within a site-specific risk assessment (in line with General Principles and Scheme Governance General Information, GG 104). All risks within a scheme's TTM must be reduced as low as reasonably practicable (ALARP). Available guidance on the design of TTM is intended to support the designer through the design process to produce safe and effective TTM arrangements. It is recognised that such guidance, as outlined within Traffic Signs Manual Chapter 8, cannot cover all situations and it is for the designer to adopt, adapt or develop the required traffic management to suit the actual conditions.

Figure 1 outlines the tasks which need to be undertaken in the course of the planning, design and implementation of TTM arrangements and as such should be considered at the earliest appropriate opportunity. This guidance details the risk management process and the TTM design considerations to enable 60mph speed restrictions to be considered and implemented safely. These steps are explained in more detail in the following sections.



**Figure 1: Process for safely implementing appropriate speed restrictions within road works**

A checklist for implementing appropriate speed restrictions through road works has been included in Section 4.

## 2.1 Requirements and objectives for the design brief

In line with current good practice and guidance, project designers shall continue to consider primary and secondary objectives (in line with guidance outlined in the Traffic Signs Manual Chapter 8) as well as Highway Authority requirements when designing and planning TTM.

The key requirement is to achieve a level of safety and road user comprehension that is the same or better than when there are no road works on the carriageway. However, designers shall consider how TTM can be designed (using existing standards and guidance) to safely implement a speed restriction of 60mph. This speed restriction can be implemented across the entire scheme or on identified sections or phases where higher performing traffic management and safe design requirements can be incorporated.

## 2.2 Safety risk assessment

Safety is our primary imperative and key value. The Design Manual for Roads and Bridges (DMRB) requires designers to conduct safety risk assessments in line with GG 104. GG 104 sets out the approach to be taken and must be applied when undertaking any activity that

does or can impact on safety on the SRN, either directly or indirectly. GG 104 provides a framework for identifying hazards, assessing, evaluating and managing safety risks and assuring safety risk governance.

A safety risk assessment must be carried out prior to the commencement of road works, in which the highest speed that can be safely implemented shall be determined. Sections 2.2.1 to 2.2.4 provide additional guidance for specific parts of the GG 104 framework. Early consultation with key stakeholders should be undertaken, such as the workforce and emergency services, to support the development of the safety risk assessment.

### **2.2.1**     *Safety baseline and objectives*

A safety baseline and safety objective relevant to the design and implementation of TTM shall be defined. The safety baseline should be the level of safety currently achieved on the carriageway without road works and should be established from the best available sources of information. Current or historic safety performance data can be used. The safety baseline presents the starting level of safety for the carriageway.

Where the road works have been designed to incorporate any speed restriction, a safety objective shall be set to demonstrate that the level of risk posed to road workers and road users is reduced to ALARP. There are a variety of information sources or metrics that can be used to determine if the safety objective is being met, for example changes in driver behaviour or frequency of incidents.

### **2.2.2**     *Hazard identification*

Scheme-specific risk assessments shall identify, evaluate and document all reasonably foreseeable hazards associated with the implementation of traffic management including any mandatory speed restrictions. Schemes should involve a wider group of stakeholders in the identification of hazards including representatives from identified affected parties, establishing information from a range of expert opinions.

Previous investigations, including a programme level risk assessment, have identified hazardous events that could be realised when a 60mph temporary mandatory speed restriction is implemented within road works. Information on these hazards has been compiled within a hazard assessment (Wilford, Rajasooriya, Glaze, & Fordham, 2020) and should be considered during the hazard identification process.

### **2.2.3**     *Hazard and safety risk analysis*

Risk decisions shall be informed by available evidence including:

- Quantitative data (where available), and/ or
- Qualitative data, including:
  - Documented previous experience from schemes
  - Expert opinion informed by good practice
  - Research findings and relevant literature

We have undertaken research to investigate and trial the use of 60mph speed restrictions within road works at a variety of different schemes. This research provides information and

evidence that can be used to inform scheme-specific risk assessments and ensure appropriate mitigations are identified to minimise the risks posed. Full copies of the research reports are available online.

#### **2.2.4 Evaluation of safety risk and mitigations**

The evaluation of the safety risk shall detail the comparisons between the safety baseline and safety objectives set for the activity. As the normal operation of the road is suspended during periods of road works, risks posed to all affected parties must be ALARP.

The design of the TTM shall be suitable for road users travelling at the posted speed restriction. Mitigations shall be identified and implemented to ensure all risks are reduced ALARP and in line with the safety objective. Existing guidance and previous investigations have shown that design features and control measures can be employed on some schemes to enable a 60mph speed restriction to be implemented within TTM whilst reducing risks posed to all affected parties ALARP.

Possible mitigations that can be incorporated into the design of the TTM have been detailed in *Implementing appropriate speed restrictions through road works – Hazard assessment* (Wilford, Rajasooriya, Glaze, & Fordham, 2020).

As outlined within GG 104, outputs and decisions for Type B and C classifications require consultation before acceptance and approval can take place. In accordance with the governance procedures a safety control review group should be formed for the purpose of consultation on and reviewing and endorsing of the activity categorisation. Further guidance on safety risk governance can be found in GG 104 Appendix C.

### **2.3 Works programme and traffic management proposals**

The implementation of the highest safe speed within TTM is reliant on suitable road works design and management of risk through a single scheme-specific risk assessment. The complexity of road works design will vary from scheme to scheme. As such, each section and each phase of TTM shall be considered individually.

The risk assessment may conclude that it is not possible to implement a 60mph speed restriction across the entire length of the scheme or during particular phases of work whilst maintaining the safety baseline. However, different speed restrictions shall be considered for individual sections or work phases where the scheme design may vary, for example, when works switch phases.

Where appropriate, the risks associated with varying speed restrictions within a scheme and the required risk mitigations shall be included in the safety risk assessment.

### **2.4 Implementation**

As several of the key design features of the TTM may differ from those implemented in conjunction with 50mph temporary speed restrictions, the design programme should ensure there is enough time to obtain the required equipment from suppliers.

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The finalised TTM design shall ensure the mitigations identified in the risk assessment are translated into a safety management system for both road workers and road users. The three stages of safety audit should be considered (as outlined in GG 119 “Road Safety Audit”) to evaluate the safety management system.

#### **2.4.1**      *Enforcement of temporary speed restrictions*

If enforcement systems are outlined as a required mitigation within the safety risk assessment, the design programme shall allow enough time to:

- Engage with enforcement agencies regarding visible speed enforcement and agree on appropriate enforcement methods especially when different speed restrictions are used across a scheme.
- Obtain the appropriate temporary traffic regulation orders (TTROs) which are required to establish temporary mandatory speed restrictions at each scheme.

### **2.5**      **Validation and monitoring**

As part of an appropriate risk management approach, the safety risk assessment shall be reviewed and updated throughout the life of an activity. Where data, particularly qualitative data, or expert opinion is used to inform the analysis of safety risk, key assumptions made in the safety risk assessment shall be monitored and validated during on-road use. This includes assumptions that are based on evidence from research, for example the validation of likely driver behaviours.

Data gathered shall be compared against the defined safety baseline. If behaviours do not meet the safety objective or do not support the assumptions made, additional mitigations shall be identified and implemented to reduce the risks posed to all affected parties. Mitigations may include a change in TTM design or changing the maximum speed restriction where applicable.

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### 3 References

Glaze, S., & Palmer, M. (2020). *Implementing the highest safe speed within road works - case studies and document evidence*. Crowthorne, UK: TRL.

Wilford, R., Rajasooriya, A., Glaze, S., & Fordham, C. (2020). *Implementing the highest safe speed within road works - Hazard assessment*. Crowthorne, UK: TRL.

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## 4 Checklist

### Development of design brief

- Incorporate associated DMRB road works requirements

### Safety risk assessment

- Where 60mph speed restrictions are to be used, set a safety objective to ensure the safety baseline can be maintained at the earliest suitable point
- Review appropriate evidence to inform the analysis of risk
- Ensure the scheme specific risk assessment captures all reasonably foreseeable hazards
- Ensure stakeholders (including the workforce) have been engaged to support the development of the safety risk assessment

### Work programme and traffic management proposal

- Ensure design of temporary traffic management is suitable for road users travelling at the proposed speed restriction
- Ensure design of temporary traffic management is suitable for road and construction workers at the proposed speed restriction
- Where the same speed restriction cannot be used across the entirety of the scheme, consider use of varying restrictions, where suitable

### Implementation

- Consider undertaking additional safety audits to ensure that the required mitigations outlined within the safety risk assessment are implemented correctly during use.
- Where enforcement is required as part of a safety risk assessment, engage with enforcement agencies early
- Obtain the appropriate Temporary Traffic Restriction Orders required for the proposal

### Validation

- Where assumptions in a safety risk assessment were informed by expert opinion or other sources of data, monitor suitable metrics to provide information on the performance of implemented mitigations
- Update the safety risk assessment and introduce new or make changes to existing mitigations to maintain safety baseline if required
- Capture lessons learned

# Implementing the highest safe speed within road works - Guidance



On our high-speed roads (with a permanent speed limit of 50mph or more) temporary mandatory speed restrictions can be put in place to reduce the level of risk posed. In order to keep traffic flowing as freely as possible, Temporary Traffic Management should be designed to allow the highest speed that can be safely implemented.

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## Other titles from this subject area

- MIS17** Implementing the highest safe speed within road works – Case studies and supporting evidence. S Glaze and M Palmer. 2020
- MIS19** Implementing the highest safe speed within road works – Hazard assessment guidance. R Wilford, A Rajasooriya and S Glaze. 2020

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