

Interim Advice Note 137/10

**The use of Stepped Speed
Limits at Roadworks**

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Summary

This document provides an introduction to Stepped Speed Limits (SSL) on the approach to and/or exit from roadworks and is intended to promote awareness and interest amongst scheme sponsors and designers. This document sets out the benefits that SSL afford, giving outline detail for its implementation; and providing details as to where to find additional support and advice.

Instructions for Use

Following endorsement by NOG (a senior HA group), that SSL can offer both safety and congestion benefits, it was agreed that SSL should be widely used on all highway schemes.

It is mandatory that all scheme sponsors and designers must consider the suitability of SSL for all highway schemes. This document is a brief summary of a considerable amount of research and is designed to act as a catalyst for the consideration of SSL on Highways Agency Schemes.

The SSL project team are available to answer queries and facilitate traffic management design. They are contactable in the first instance via:

Standards_Feedback&Enquiries@highways.gsi.gov.uk

1. Introduction

The Highways Agency published aims are to cut congestion and reduce delays for road users. SSL is an element of the Variable Speed Limits through Roadworks (VSLtR) research project which aims to minimise disruption caused by roadworks.

1.1 Stepped Speed Limits

SSL is a means of managing the speed of traffic on the approach to or exit from roadworks.

The objective of SSL is to increase safety and reduce delays by minimising the conflict between different road user groups. It also ensures that the traffic flow entering the roadworks is smooth and enables running speeds within the roadworks which are closer to the posted limits.

Micro simulation modelling indicates that the ¾ mile, 50 mph warning sign (which is often used, although it is not specified by Traffic Signs Manual (TSM) Chapter 8) causes confusion amongst some drivers, who subsequently slow down to 50 mph early. This introduces increased variance of vehicle speeds in a short stretch of road, which is thought to cause an increase in lane changing and subsequent queue build-up.

Instead, it is recommended that an intermediate speed limit (a 'step') is used on the approach to the roadworks. The speed limit within this step should be 10mph greater than the limit through the roadworks, (i.e. a 60 mph SSL on the approach to a 50 mph limit through the roadworks). This additional restriction has been shown to bring the traffic speeds down in stages, and yield other valuable benefits as below.

It is also considered that SSL is beneficial on the exit from roadworks where 40 mph limits are used due to a restriction such as a bridge or tunnel and the end section of the roadworks could be lifted to a higher limit such as 50 or 60 mph.

2. Benefits

The benefits of SSL on the approach to roadworks were initially identified through modelling work using micro simulation software. This modelling indicated that SSL would reduce delays by increasing the average speeds through the roadworks to closer to the set limits. To test these results further, an on-road trial was conducted. This supported the findings of the modelling and also identified other benefits.

Successful implementation of SSL on a Highways Agency scheme is expected to yield the following benefits:

- Increased safety for road users through management of traffic speeds on approach to roadworks;
- Greater assurance of appropriate enforced speed limits through roadworks;
- Improved traffic flow where speed limits are determined by current traffic levels and the needs of the scheme (amongst other considerations);
- Improved public perception of expedient transit through roadworks schemes, due to reduced queuing;
- Increased safety for road workers through improved speed compliance and spacing of vehicles through the roadworks;

These benefits are considered achievable on any roadworks where a speed limit, of 50 mph or less, is being introduced. The main cost of implementing SSL is primarily the cost of actual or perceived enforcement and signage.

3. Implementation on Schemes

SSL requires the erection of additional speed limit signs on the approach to and/or exit from the roadworks and the extension (or the appearance of extension) of the speed enforcement.

Therefore, the minimum technology requirements for SSL include:

- Additional signs – standard fixed plate signs in line with Chapter 8 requirements are sufficient where SSL is being implemented 24 hours a day (this approach would be used when the roadworks are taking place in a hazardous location, this could be due to the accident history or the road layout).
- Appearance of enforcement technology within the SSL zone – to help ensure that any speed restrictions are obeyed.

It should be noted that as each roadwork scenario is different, the optimal SSL solution will vary for each scheme. Some of the factors which will affect the implementation of SSL include:

- Integration – SSL should be considered as an integral part of a schemes traffic management and included in designs from the very beginning. This will enable the scheme's overall length to be minimised, whilst maximising the benefits accrued.
- Hours of operation – in some locations SSL will only be required (or deliver most benefits) during peak hours. In these cases it is recommended that remotely operable signs are used within the SSL section to switch between speed limits. It is not recommended that the restricted signs are just covered up when not in operation, as this may lead to confusion amongst drivers when they see the additional speed cameras but no additional limit. The current or derestricted speed limit for the road should therefore be displayed on remotely operable signs when SSL is not in force.

- Enforcement – it is recommended that, so long as the roadworks section is enforced, zone average speed cameras are currently sufficient for SSL. However, some consideration should be given to live enforcement if compliance levels are believed to be particularly low within the SSL section.
- Length of SSL – the optimum length, as identified by the modelling and subsequent trial is 1.1km. However, consideration should be given to local topography, traffic flows, enforcement methodology and safety issues to set a SSL length which is appropriate for the scheme.

4. Scheme Suitability

Project Sponsors and scheme designers who believe that their schemes might benefit from SSL should contact the VSLtR project team who will be able to provide assistance with cost benefit analysis and advice regarding SSL implementation. The following details will assist in the initial assessment of scheme:

- Location of works;
- Objectives of works;
- Preparation and works schedule;
- Details of planned TM for this works;
- Traffic volume rates;
- History of incidents at location.

It is recommended that contact is made with the VSLtR project team at least 16 weeks prior to the start of the works. This is to allow for a proper assessment to be carried out (including Project Sponsor engagement with relevant authorities i.e. Safety Camera Partnership, Police etc.) and enable the timely submission of a TTRO for the SSL element. It should be noted that a TTRO enabling SSL should be applied for which allows each of the speed limits throughout the entire works.

5. Risk Considerations

It should be noted that SSL does not increase risk in any way for either road users or workers; indeed trials have indicated that higher speed compliance levels leading to a safer environment for all stakeholders.

6. Supporting documents

There are detailed reports on SSL, regarding the modelling and the trials, which are available upon request to the VSLtR project team.

7. Development

The application of this guidance will be continuously reviewed by the VSLtR project team. It is intended that this IAN will remain valid until March 2012 or until such time as it is superseded.

It is expected that in due course an Interim Advice Note addressing VSLtR will be released. This guidance will look to harmonise VSLtR and SSL to enable the maximum benefits to be obtained.

8. Contact

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Annex A: IAN 137/10. The use of Stepped Speed Limits at Roadworks in English DBFO schemes.

When used on English DBFO Schemes, this IAN is to be amended as follows:

Para No.	Description
Instructions for Use	Delete "scheme sponsors" and insert "DBFO Cos, scheme sponsors" Delete "Highways Agency" and insert "highway"
2	In the second paragraph delete "Highway Agency"