

West of England Road Safety Partnership

Speed Management Strategy – Executive Summary

Traffic speed is a major issue in terms of accident frequency and severity, and levels of perceived risk. Even where accidents are infrequent, inappropriate vehicle speeds can have a significant negative impact on quality of life and neighbourhood “liveability”.

In order to address this issue, the West of England Road Safety Partnership (WoERSP) has developed this Speed Management Strategy, which will provide a focused approach to managing the speed of all classes of road users.

The strategy will involve the use of “the three E’s” of road safety, Education, Engineering and Enforcement, individually or in combination, to encourage drivers to adopt a more responsible attitude to speed.

The Speed Management Strategy contributes to the Joint Local Transport Plan in the following way

- Reduce the number of people killed or seriously injured in road accidents
- Reduce the number of children killed or seriously injured in road traffic accidents
- Improve safety for all road users, particularly the most vulnerable members of the community

West of England Road Safety Partnership

Speed Management Strategy

1. Introduction

The four Unitary Authorities of Bath & North East Somerset, Bristol City, North Somerset and South Gloucestershire have joined forces to plan and deliver transport improvements through a Joint Local Transport Plan (JLTP). This covers the period 2006/07 to 2010/11. The four councils are also partners in the West of England Road Safety Partnership (WoERSP), which was set up to enhance joint working by all of its Partners to identify and implement road safety strategies to reduce road accidents and casualties.

Over the last five years, an average of nearly 500 people per year were killed or seriously injured on roads in the area, and almost 4000 per year received minor injuries. The JLTP identifies that excessive speed was a contributory factor in around one-fifth of injury accidents, with “inappropriate” speed a factor in many more. Paragraphs 7.5.28 to 7.5.34 of the JLTP identify some of the key elements of speed management, which are developed and extended in this strategy.

WoERSP commissioned University College London and Social Research Associates (UCL/SRA) to undertake an evaluation of Safecam operations and other road safety work. This Study was completed and reported to the Road Safety Partnership in March 2008; it made a series of recommendations for review of safety camera policy and operations and for development of the Road Safety Partnership.

2. Speed Management

This speed management strategy aims to reduce the incidence and effects of excessive or inappropriate speed. The benefits of successfully managing speed include:-

- (i) reduction in the number of casualties on the road.
- (ii) reduction in the severity of those casualties.
- (iii) reduction in the demands on the emergency services.
- (iv) encouragement of more environmentally friendly travel.
- (v) improvements in the quality of life for local residents.
- (vi) reduction in community severance.
- (vii) reduction in disruption caused by accidents.

Speed management will be more effectively achieved if the Unitary Authorities, Avon and Somerset Police, Town and Parish Councils, other community groups, Fire and Rescue, and Highways Agency work together.

One of the key objectives is to alter the attitude of drivers about the speed at which they should drive, and to achieve a more responsible attitude to speed. This will be accomplished by a combination of “the three E’s” of road safety.

Education – to influence the way in which people drive by making them more aware of the consequences of excessive or inappropriate speed.

Engineering – to design new roads or improvements to existing roads in a way that encourages safer and more responsible driving.

Enforcement – to work with the Police to carry out enforcement of speed limits, targeted at locations where there are significant road casualties or where speeding is identified as a major concern by the community.

3. Problems Associated with Speed

There is a clear and close relationship between speed and accidents. Higher speed reduces the margin for driver error, increasing the risk that an accident will occur. TRL research in 2000 showed that, nationally, speed was a major contributory factor in around one-third of all injury accidents, and that a 1 mph reduction in average speed could be expected to reduce accident numbers by about 5%.

Higher speeds also increase the severity of injuries sustained by people involved in accidents, particularly pedestrians and other vulnerable road users. The Highway Code advises drivers that their vehicle will probably kill a pedestrian that they hit at 40 mph, whereas a pedestrian has a 95% chance of surviving being hit at 20 mph.

Attending road accidents occupies a significant proportion of the resources of the emergency services, diverting them from other “core” functions. Police resources are also tied up in the preparation of accident reports.

High speed traffic increases the perception of danger that vulnerable road users experience, deterring people from using more environmentally friendly modes of transport such as walking or cycling. For example, parents may decide to drive their children to school because they consider the roads to be too dangerous for them to walk.

High speed traffic also has an impact on people other than road users, i.e. residents of the communities through which speeding traffic passes. This takes the form of physical effects such as noise, vibration and air pollution, all of which increase with speed, and psychological effects such as community severance and fear.

Accidents result in temporary disruption to traffic movements whilst casualties are removed from vehicles and debris is removed from the carriageway. Serious accidents, which are more likely to be associated with high speeds, will result in greater disruption and delays, with fatalities likely to result in road closures of several hours' duration for Police investigation.

Locations or routes where speed is a problem will be identified using speed and accident data. In addition, the level of community concern will be taken into account where relevant information is available.

4. Driver Attitude and Behaviour

Drivers who are likely to be involved in speed related accidents generally fall into one of three categories. Firstly, there are those who are aware that they are speeding and what the possible effects of their actions are, but do not care. Secondly, there are those who are aware that they are speeding, but do not realise the problems that this causes for others. Finally, there are those who are not aware that they are speeding, or that their speed is inappropriate for the particular conditions.

Achieving a change of driver attitude and behaviour will require a different approach for drivers in each of these three groups, although all three are most likely to be affected by a combination of education, engineering and enforcement.

5. Education

The Joint Local Transport Plan (2006) sets out the Road Safety Education, Training and Publicity (ETP) element of the Speed Management Strategy:

There is a need for extensive education and training programmes, capturing hearts and minds of road users across all age groups; additionally there is a need to highlight links between inappropriate speed, accidents and quality of life.

Some of the work may be directed at particular user-groups (eg motorcyclists) or areas (eg disadvantaged communities).

Flexibility from changes in safety camera activity and funding could lead to speed awareness training and Speed Choice being made available to a greater number of drivers, including fleet drivers (workplace travel plans) and other non-offenders.

6. Engineering

Engineering measures which may be used, separately or in combination, to encourage safer or more responsible driving, include traffic calming schemes, improved warning signs and road markings, vehicle-activated signs, and changes to speed limits.

Traffic calming schemes generally evolve as part of the Local Transport Plan highway improvement programme, and are prioritised on the basis of a detailed examination of accident data. They may be targeted at a specific location (e.g. a particular junction or bend), or at a length of a particular route. Other schemes may arise from work on School Travel Plans or similar initiatives.

Vehicle-activated signs are a tool available for use in speed management and casualty reduction. The technology is still advancing, with the signs becoming more compact and reliable, and power sources other than mains power becoming more practicable. Detailed guidelines on the use of vehicle-activated signs are given in Appendix A.

7. Setting Local Speed Limits

Speed limits on a highway network tend to evolve over time, and this can result in inconsistencies which, in turn, can result in driver uncertainty and confusion. The Department for Transport has recently published new guidelines (DfT Circular 01/2006) on the setting of local speed limits. This circular requests that highway authorities review existing speed limits, and this review and any resultant changes be completed for A and B roads by 2011.

The four unitary authorities will work together towards reaching this target date. In addition, by 2015 it is also proposed to have considered other roads of a lesser status, including the introduction of 20 mph zones using Department for Transport guidelines.

The circular also states that “Consistent with their duty in respect of road safety, traffic authorities will wish to focus on the use of speed management measures, including more appropriate speed limits, or a combination of these measures, on those roads (not just on A and B roads) with the most pressing problems of collisions and injuries, or where there is a widespread disregard for current speed limits”. Detailed guidelines on the process for setting of local speed limits in the WoERSP area are given in Appendix B.

The objectives of the four unitary authorities (North Somerset Council, Bath and North East Somerset Council, Bristol City Council and South Gloucestershire Council) will be to work closely with neighbouring authorities, the police and parish/town council’s to implement speed limits that improve road safety and improve the quality of life for residents living in the area through which the route passes.

To achieve this overall objective the four unitary authorities support the initiative proposed by the Department for Transport in Circular 1/2006, and will adopt procedures that include

- The setting of more appropriate local speed limits for prevailing conditions
- The introduction of local speed limits which better reflect the needs of all road users and also take into account the need to maintain a satisfactory flow of traffic on principal roads
- Improving the quality of life for local communities taking into account road safety, accessibility and environmental objectives

- Improving publicity and education to promote a better understanding of the risks involved in excessive speeding and the reasons for setting speed limits
- Improving respect for speed limits
- Traffic management measures to promote a continued reduction in the number of road traffic collisions, injuries and deaths where speed is a contributory factor
- The introduction of a joint speed management approach for the area integrating safety camera activities with other JLTP casualty reduction measures
- Review of current speed limits on all A and B class roads within the area and in line with the Department for Transport Circular 1/2006 (Setting Local Speed Limits)
- Working closely with neighbouring authorities to achieve a common approach to speed management across the area.
- Adopting an education and awareness strategy to highlight the effect that excessive speed can have on accidents and the quality of life.
- Promoting the need for effective enforcement policies with the police
- Self-enforcement in scheme design
- Consideration of the need for 20 mph zones, particularly outside schools. Engineering measures will be used where necessary to help reduce speeds to levels appropriate for a lower speed limit.

8. Enforcement

Enforcement of speed limits is the responsibility of the Police (Avon and Somerset Constabulary), and is appropriate where other approaches to casualty reduction are not possible, or where they have been tried but significant levels of speeding and/or casualties continue to occur. Speed limit enforcement currently takes four forms, safety cameras, Community Speed Watch, Neighbourhood Policing, and the Road Policing Unit.

Safety cameras in the WoERSP area are operated by Safecam, which covers the whole of the Avon and Somerset Police area (i.e. including Somerset County). Cameras play an important role in speed and casualty reduction. Fixed and mobile speed cameras are deployed around the WoERSP region, where they have had a positive effect on speed reduction.

To date, camera sites (fixed and mobile) have been justified using DfT guidelines which require a certain level of speed limit contravention, and an existing casualty record. These guidelines also allow for up to 15% of mobile enforcement to be deployed at sites (known as “Community Concern” sites) where speed limit contravention exists but casualty levels are not high enough to justify a camera site using the normal criteria.

The UCL/SRA study suggests that it may be possible to make further gains in casualty reduction, by reviewing the speed/casualty data at camera sites and exploring alternative methods of camera operation. Recommendations from the study include:

- a) increased data-led targeting of specific driver groups (such as young drivers, who tend to drive fast at night),
- b) increased unpredictability of operation and number of hours at a more focussed group of cameras,
- c) an evidence based investigation of existing sites, to establish effectiveness and remove or redeploy cameras as necessary.

The study also suggests that the use of covert speed cameras at random sites can have a marked effect on overall vehicle speeds, with a consequent reduction in casualties. The WoERSP is keen to review the criteria relating to the siting of cameras, subject to compliance with the Safecam protocol. DfT guidelines allow route enforcement (where there are at least three camera locations), which will allow more random deployment of cameras. Otherwise, random deployment is contrary to DfT guidelines.

The Avon and Somerset Constabulary is fully committed to the enforcement of speed limits in support of Safecam and Community Speed Watch.

9. Review

It is essential that the measures proposed in this strategy are monitored to ensure that they are being effective. “Before and after” speed measurements, and analysis of casualty data, should be done after a “settling in” period, to determine the short term effectiveness, but should also be repeated after a longer period to check the long term performance.

Phase 2 of the SRA/UCL study will report on opportunities for further development of the Road Safety Partnership, and will be used to refine the Speed Management Strategy.

Appendix A - The Use of Vehicle Activated Signs in the West of England Road Safety Partnership

Background

Vehicle activated signs (VAS) have been in use in the West of England Road Safety Partnership (WOERSP) area since the late 1990's.

The signs used have been of two types:

1. Speed limit reminding; and
2. Warning of a hazard

There are currently 235 fixed VAS in use within the WOERSP, with distribution amongst the partners as follows:

BANES	46 (40 speed reminder, 6 warning of a hazard)
Bristol	73 (all speed reminder)
North Somerset	26 (20 speed reminder, 6 warning of a hazard)
South Gloucestershire	90 (78 speed reminder, 12 warning of a hazard)

The signs are typically placed at locations where high vehicle speeds have been recorded and personal injury accidents have occurred.

In addition to the 235 fixed VAS there are currently 11 mobile speed limit reminder signs in use in South Gloucestershire, 4 in North Somerset, 2 in BANES and 2 in Bristol. These are moved periodically from site to site around the road network to locations where speeding is a concern.

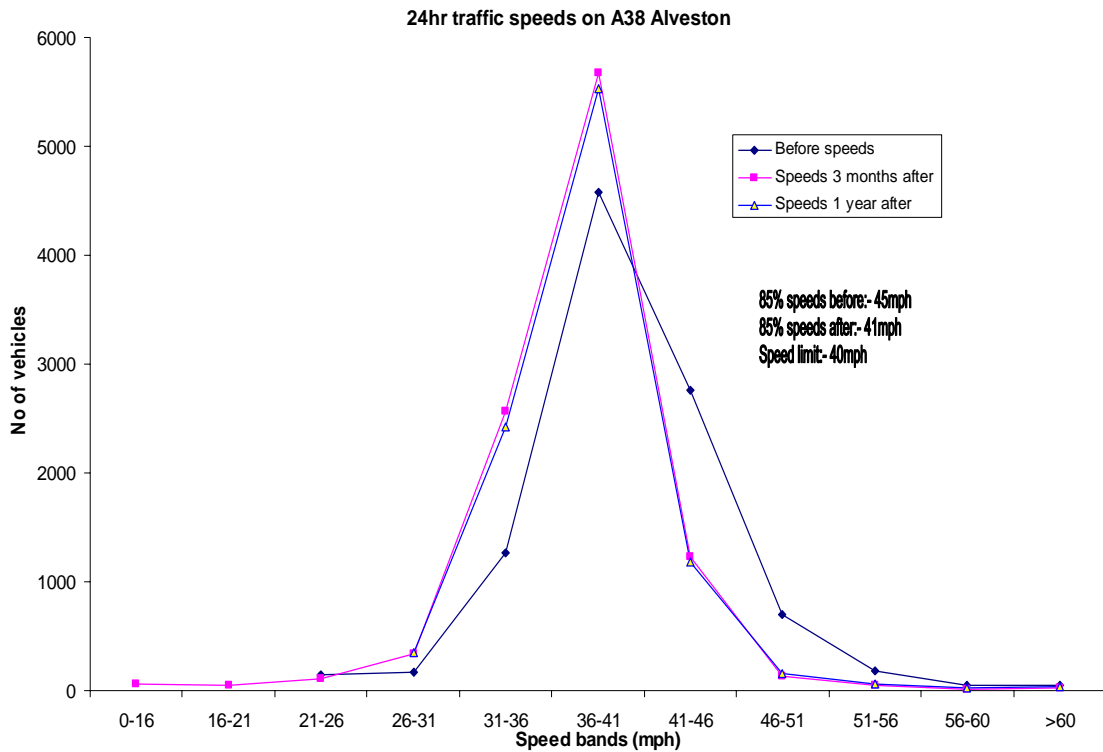
Accident reductions

Experience in the use of VAS has shown that they appear to be effective in reducing personal injury accidents. The introduction of eighteen signs in Bristol in 2005 resulted in a decrease in accidents locally from 1.57 per annum to 0.92 per annum in the first year after installation; a percentage reduction of 41%. A further 17 signs were introduced in 2007, which resulted in a decrease in accidents from 2.9 per annum to 2.5 per annum in the first year after installation; a percentage reduction of 14%.

Speed reductions

VAS appear to be very effective in reducing vehicle speeds, particularly those of the faster drivers who contribute disproportionately to accident risk.

The chart below shows typical before and after traffic speed profiles for one of the signs that has been installed in South Gloucestershire.



Application Guidelines for fixed VAS

The DfT Traffic Advisory Leaflet 1/03 gives recommendations about the circumstances under which vehicle activated signs should be used. It recommends that:

- VAS should be considered only when there is an accident problem associated with inappropriate speed that has not been satisfactorily remedied by standard signing,
- VAS should only be used when it is clear that the problem cannot be remedied by improving the fixed signing.

These guidelines have been adopted by the WOERSP when considering where to place fixed VAS.

Appendix B – Review of Local Speed Limits

The review of existing speed limits should be carried out in accordance with the detailed advice contained in DfT Circular 01/2006, “Setting Local Speed Limits”.

In urban areas, the speed limit will be determined by the characteristics of the road and the local area. Appendix C of the Circular (Table 1) details the relevant characteristics for urban 20 mph, 30 mph, 40 mph and 50 mph limits.

In rural areas, other factors may be taken into account in determining the appropriate limit. Appendix D (Table 2) and Appendix E (Speed Assessment Framework) of the Circular detail the relevant factors and the approach, which may be summarised as follows:

- Determine whether the “village” criteria (TAL 1/04) are met
- Determine whether the road is Upper Tier (roads with predominant traffic flow function) or Lower Tier (roads with important access and recreational function)
- Determine existing mean speed
- Determine existing accident rate (injury accidents per 100 million vehicle kilometres)
- Determine the appropriate speed limit indicated by Appendix D (Table 2)

If existing speeds are above the indicated limit, or the accident rate is above the threshold level for the indicated limit, then additional measures will be required to reduce them. If there are social objectives that require a lower speed limit (e.g. large numbers of vulnerable road users, or environmental factors), then again additional measures will be required to lower speeds.

Within a route, separate assessments should be made for sections of road (normally 600 m length or more) for which a separate speed limit might be considered appropriate. When the assessments are complete, the final choice of appropriate speed limit for individual sections might need to be adjusted to provide consistency over the route as a whole.

Appendix C – Flow Chart for actions to address concerns about speed issues

