Speed Cameras: The Case in Favour

Speed cameras have become a topic of considerable controversy in recent months. This contribution to the debate takes as axiomatic the following premises. First, there is a strong link between speed and accident frequency and severity. Second, speed cameras are a successful (and empirically verifiable) method of reducing accidents and incidents on our roads. Third, cameras and their usage need to be seen in the wider context of speed management within which they will play a key part.

In any discussion about action taken to reduce speed-related crashes and injuries, it is important from the outset to have a clear definition of terms. In this paper, I will use two distinct definitions of speeding. The first, *excess speeding*, is speeding above the posted speed limit. The second, *inappropriate speeding*, is driving too fast for the conditions. To give an example of the latter, while it may be perfectly legal to drive at 30mph in an urban area, that choice of speed may be wholly inappropriate when children are arriving or leaving a school. Similarly, 70mph on a motorway may be legal but in thick fog is also likely to be suicidal. It is my contention that the use of speed cameras is an effective intervention in dealing with excess speeding – and, more specifically with *excessive speeding* (defined as driving 15mph or more above the posted speed limit). However, I also recognise that cameras, designed to be activated at speeds above the posted speed limit in order to satisfy police enforcement guidelines, will not catch drivers driving at inappropriate speeds for the conditions in which they find themselves.

Why should we take action on speeding? One reason is the clear link between speed and accident severity, especially involving vulnerable road users. Research undertaken by Ashton and Mackay (1979) showed very clearly the link between speed and injury severity:

> The impact speed distributions are dependent on the severities of injuries considered. The 50%ile impact speed for all severities of injury is between 20-25kmh. If, however, only non-minor injuries are counted, the 50%ile impact speed rises to approximately 35kmh, and if only fatalities are considered, to 50kmh. The corresponding 90%ile impact speeds are, for all injuries 40kmh, for non-minor injuries 50kmh and for fatalities 65kmh.

Taking action to reduce speeding is therefore essential to improve vulnerable road user safety, most notably in urban areas where the majority of crashes involving this road user group occur. In terms of severity of injury, the change from predominantly survivable injuries to predominantly fatal injuries takes place between 50 and 60kmh.

In addition, the risk and severity of injury to car occupants as impact speed rises should not be overlooked. The work of Hobbs and Mills (1984), summarised in DETR (2000), showed the probability of injury related to impact severity for belted front seat occupants in frontal impacts. At 30mph the risk of serious injury (MAIS 3 and above) to a belted car occupant in a front seat is three times greater than at 20mph and at 40mph five times greater. Reducing speeds therefore will improve the chances of survival for both those outside and inside the vehicle.

There is also a considerable body of research into the link between speed choice and accident involvement. Webster and Wells (2000) concluded that

a) more speeders are younger males, in non-manual occupations

crash involvement, and that those more likely to speed are more likely to be involved in a crash. The question, therefore, becomes: what are the most effective ways of reducing speed related crashes?

According to Winnett (1994), the first enforcement camera used in the United Kingdom was in 1987 in Nottingham to identify drivers committi

Speeds of Traffic on European Roads, European Commission, 1999) is central to this discussion. The final report includes an analysis of all the means available to reduce speed on a variety of road types. On automated speed enforcement, it concludes that cameras reduce speeding but that the impact is limited in time and space and that the effect can be improved by installing a number of camera boxes along the road. The effectiveness of the digital SPECS system in Nottingham city, using digital cameras to enforce a speed limit across a section of road, bears out the truth of this conclusion.

In conclusion, cameras have a place to play in a policy of speed management. Their effectiveness is likely to be site or area specific. They will need to be accompanied by educational and advertising campaigns to ensure that the benefits of cameras are made clear to all road users. The evidence from the first two years of the pilot projects is that they are successful in reducing deaths and injuries where they are installed. To suggest otherwise would appear to fly in the face of both research and reality.

References

Ashton S J and Mackay G M (1979), *Some characteristics of the population who suffer traumas pedestrians*, Goteborg 1979

Corbett C (1997), *Unlawful driving behaviour from a criminological perspective*, Behavioural research in road safety V11, Crowthorne 1997

County Surveyors' Society (1993), *The use of cameras for the enforcement of speed limits*, Dorchester 1993

DETR (2000), *New directions in speed management*, London 2000

DfT (2001), *Cost recovery system for traffic safety cameras – first year report*, London 2001

DfT (2003), *A cost recovery system for speed and red-light cameras – two year pilot evaluation*, London 2003

European Commission (1999), *MASTER (MAnaging Speeds of Traffic on European Roads)*, Luxembourg 1999

Finch D J, Kompfner P, Lockwood C R & Maycock G (1994), *Speed, speed limits and accidents*, TRL Project Report 58, Crowthorne 1994

Highways Agency (1997), *West London speed camera demonstration project*, London 1997

Hobbs C A & Mills PJ (1984), *Injury probability for car occupants in frontal and side impacts*, TRRL Report 1124, Crowthorne 1984

Hooke A, Knox J & Portas D (1996), *Cost Benefit Analysis of Traffic Light and Speed Cameras*, Home Office Police Research Group Briefing Note, London 1996

Meadows M (2003), *Evaluation of Lancashire County Council's Speed Awareness Course*, RoSPA congress proceedings, Birmingham 2003

OECD (2003), *Road Safety: Impact of New Technologies*, Paris 2003

Stradling S G (2003), *The speeding driver: Who, how and why?*, Scottish Executive Research Findings 170/2003, Edinburgh 2003

Taylor M C, Lynam D A & Baruya A (2000), *The effects of drivers' speed on the frequency of road accidents*, TRL Report 421, Crowthorne 2000

Webster D C & Wells P A (2000), *The characteristics of speeders*, TRL Report 440, Crowthorne 2000

Winnett M (1994), *A review of speed camera operations in the UK*, PTRC, London 1994

Winnett M (1995), *Management of speeds through camera enforcement*, TRAFFEX, London 1995

Winnett M & Wheeler A (2002), *Vehicle-activated signs – a large scale evaluation*, TRL Report 548, Crowthorne 2002