RESPONSES TO SOME ISSUES RAISED ABOUT THE EFFECTIVENESS OF SPEED CAMERAS FOLLOWING THE PUBLICATION OF A REPORT ON THE MATTER FOR THE RAC FOUNDATION IN NOVEMBER 2010.

1 Wouldn't the observed reductions in collisions and casualties at camera sites have happened anyway without the cameras being deployed?

Because cameras are rightly often sited where there have been worrying numbers of collisions and casualties in recent years, there would most likely have been some reduction without cameras being deployed (because of the statistical phenomenon of *regression to the mean*), and downward national trends would also have led to some reduction. There has been much debate about regression to the mean, but there is now a convergence of estimates of its typical effect at camera sites, including the result of a very extensive analysis by a strong opponent of the use of cameras. It emerges that the observed reductions in collisions and casualties at camera sites are, on average, substantially greater than could be accounted for by regression to the mean and national trends, so an average camera site is preventing of the order of one injury collision every 2 years and one person being killed or seriously injured every 5 years.

2 Don't speed cameras tackle only speed in excess of the limit and neglect speed that is inappropriate for the conditions?

Cameras do only penalise drivers who exceed the speed limit by more than a certain margin, such as 10% plus 2 mph, but the reductions observed at camera sites in average speeds as well as in the highest speeds indicate a moderating effect on speeds that goes well beyond just those who would have been driving fast enough to be penalised. It is this general moderating effect on speeds that is likely to have reduced collisions and casualties.

3 Don't only a few per cent of collisions involve excessive or inappropriate speed?

It is true that of the injury collisions attended by the police in 2009, for only 13 per cent did the police officer record *exceeding the speed limit* or *travelling too fast for the conditions* as a contributory factor. But this percentage was 15 for collisions involving serious injury and 26 for fatal collisions. And these factors are recorded only when the officer can be sufficiently sure about them to be able to justify them if they are subsequently disclosed in court, often some time after the event. Other factors that are recorded in similar or higher percentages of collisions, like failure of judgement, loss of control or being careless, reckless or in a hurry, can also stem in part from choice of speed. So the percentages 13, 15 and 26 just quoted are cautious minimum indications of the involvement of excessive or inappropriate speed in injury collisions, serious injury collisions and fatal collisions respectively.

4 Don't speed cameras mean that road safety efforts are concentrated too heavily on speed?

Changes in policing over the years during which the use of speed cameras became widespread did result in fewer traffic police being visibly deployed on the roads, so it can be argued that the emphasis of police enforcement of traffic law has shifted heavily towards enforcement of speed limits. But police enforcement is only one part of efforts nationally and locally to reduce collisions and casualties.

Efforts like those by the motor industry to improve occupant protection, design in pedestrian protection, and provide active safety devices in cars, road safety engineering by highway authorities, and widespread efforts in road safety education, training and publicity among road users of different kinds and in the workplace have all continued undiminished. The modest but appreciable contribution of speed cameras should be seen in the context of this whole range of activity, most of which receives much less attention in the media than do speed cameras, but which has more than halved deaths on the road since the first speed cameras were deployed in the UK.

5 Aren't a lot of extra collisions happening all over the place because drivers are worried about being caught by speed cameras?

In common with many other safety interventions, speed cameras can have unintended consequences and have given rise to some collisions and casualties that would not have occurred if the cameras had not been deployed. But the definition of camera sites is such that additional collisions and casualties of this kind in the vicinity of cameras have been taken into account in estimating the changes in numbers occurring at the camera sites and have therefore been outnumbered substantially by collisions and casualties prevented.

The effect of speed cameras on numbers of collisions and casualties on roads other than at camera sites has been analysed only in one study, which covered the deployment of cameras on trunk roads throughout West London, using the rest of London as a control area. In this study small increases in collisions and casualties on the non-trunk roads, increases which were small enough to have arisen easily by chance, were substantially outweighed by decreases on the trunk roads as a whole, taking camera sites and the rest of the trunk roads together. This study apart, the numbers of collisions and casualties away from camera sites prevented by or arising from the deployment of cameras remain, for advocates and opponents of cameras alike, a matter of speculation.

6 Haven't road deaths decreased more slowly because of cameras than they were doing before?

Between 1980 and 1990 deaths on the roads of Great Britain decreased by an average of 73 per year. Between 1990 and 1994 the rate of decrease was unusually high, at 392 per year. Between 1994 and 2006 it was 40 per year, and between 2006 and 2009 it was again unusually high at 327 per year. It is true that appreciable numbers of speed cameras began to be deployed in the mid 1990s, and at the same time the rate of decrease in deaths fell suddenly from around 400 per year to around 40 per year, and some have associated this fall with the deployment of cameras. However, the rate of deployment of cameras was at its highest between 2000 and 2005, and the number of cameras has not changed much since about 2005. So if the change in the rate of decrease in deaths was associated substantially with the deployment of cameras, the rate of decrease should have fallen most sharply between about 2000 and 2005, and should have remained low since then. The facts that the rate of decrease in deaths remained more or less steady between 1994 and 2006, and then rose suddenly to an unusually high level that has since been maintained, argues strongly against substantial association between the rate of decrease in deaths and the deployment of cameras.

7 Aren't vehicle-activated signs many times more cost-effective in reducing collisions than speed cameras?

It is true that a typical vehicle-activated sign (VAS) installation costs a lot less than a typical speed camera site and that speed-warning VAS bring about some reduction in speed. But this does not mean that they can serve as substitutes for speed cameras.

In one thorough study published by TRL Ltd in 2002 of experience around the turn of the century at 62 VAS sites (of which 45 were speed-warning sites), speed reductions and casualty reductions at VAS sites were found to be comparable with those at speed camera sites. But that was at a time when more than one-third of drivers in the areas concerned thought they would receive a penalty for triggering a VAS just as one does for activating a camera.

By now, drivers know that VAS are only advisory, and triggering one brings no risk of a penalty. So the speed reductions achieved by VAS nowadays are the result of helping drivers who are motivated to keep to the limit to do so, but there is no reason for the wilful speeder to see a VAS as a deterrent.

Indeed, two other appreciable studies of effects of VAS show very little effect on collisions and casualties at speeed-warning sites. South Gloucestershire reported in 2004 on experience between 1998 and 2004 at 29 sites. They found a reduction of 1 per cent in personal injury collisions (PIC) at speed warning sites, at a time when at least this reduction would have been expected from national trends (The overall reduction at all the VAS studied was 7 per cent, but the other 6 per cent came wholly from junction warning sites).

A recently reported study by Surrey CC covered experience over 6 years to 2009 with 218 VAS at 128 sites, of which 68 were speed-warning sites. At these, injury collisions were reduced by 20 per cent, but about half of this would be expected from the national trend, so that even if regression to the mean had no effect, only about 10 per cent can be attributed to the VAS. And within this figure, the more important category of killed or seriously injured (KSI) were reduced by only 3 per cent, when a reduction of about 10 per cent would be expected from the national trend.

These studies suggest that while VAS do deliver reductions in collisions at other kinds of site, it is misleading to think that speed-warning VAS can nowadays deliver the useful reductions in PIC and KSI at sites with a record of speed-related collisions that cameras have persisted in delivering since their introduction.

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