

# Speed Cameras – The Case Against

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“

*three per cent involve cars that are exceeding the speed limit*

*The cause to wose*

*those other factors,* ” - Chief Constable of Durham, Paul Garvin, reported in The Daily Telegraph, 7<sup>th</sup> December 2003.



## Introduction

The way that speed cameras have been introduced to British roads has been shoddy in the extreme. There have been no proper trials of their effectiveness as a blackspot treatment, no investigation of their possible side effects and precious little thought about their overall effects on our worthy but fragile road safety systems.

Yet politicians, campaigners, so-called scientists and others have been keen to jump on the speed camera bandwagon and tell us that it is all for our own good – based on little more than blind faith and an oversimplified assessment of reality.

And now the country is infested with cameras. The number of speed camera fines is doubling every 3 years, yet roads fatalities are not falling at all. We have every right to expect roads fatalities to fall without assistance from government policy because both vehicle engineering and medical care are improving at a considerable pace and making similar crashes more survivable every year. These improvements in medical care and vehicle engineering are much larger than the growth in traffic.

In this document we will show how and why we believe that bad road safety policy, based on speed cameras, is actually making drivers less effective at avoiding accidents - to the dangerous extent of entirely negating the engineering and medical care improvements that we are receiving.

### **Sections are:**

- 1) Getting to the bottom of “Speed”**
- 2) False and misleading data**
- 3) The truth about speed and accidents**
- 4) Speed camera effects**
- 5) Road safety results**
- 6) Conclusions**
- 7) Author details**

## 1) Getting to the bottom of speed.

Cars can be driven perfectly safely without reference to a speedometer. In fact no speedometer and no speed limit can advise a driver that a speed is safe or appropriate in the immediate circumstances. <sup>[1]</sup>

Choosing a safe and appropriate speed for the immediate circumstances is an absolutely fundamental component of our road safety system.

“Speeding” (exceeding a posted speed limit) is extremely commonplace <sup>[2]</sup>, yet we have earned ourselves in the UK the safest roads in the World.

by a 30mph speed limit, yet 30mph is a deadly speed. If a driver chose to set his speed at 30mph regardless of hazards ahead he would not last a day before he had an accident.

Our modern road safety system, with a high degree of emphasis on numerical speed, is sending some very dangerous messages indeed to road users everywhere. It says:

***“If you are not exceeding the speed limit, your speed is safe.”***

***“Your primary duty to road safety***

## 2) False and misleading data

Most, if not all, of the data used to support the introduction and expansion of speed cameras onto British roads is false, misleading, inadequate or just plain wrong. <sup>[1]</sup>

It is beyond the scope of this document to detail every instance of false or misleading data, so instead we will explain some common errors and refer to some of the big headline claims.

### **The “one third lie”. <sup>[1]</sup>**

For almost a decade the Government has been claiming that “one third of accidents are caused by speed”. This absurd claim has no foundation in scientific fact, although the TRL have disgraced themselves by attempting to justify it in print. <sup>[2]</sup> The truth is that a very small percentage of accidents are caused or contributed to by speed in excess of a speed limit. <sup>[3]</sup>

### **The “one mph lie”. <sup>[1]</sup>**

Utterly absurd and blatantly false “scientific research” claims to observe that for every one mph reduction in average traffic speed we should expect to see a 5% reduction in accidents. These conclusions are contained within TRL421 <sup>[4]</sup> and its stable mate TRL511. <sup>[5]</sup>

The most basic flaw in these two studies is to make claims based on the idea that the (supposedly) observed relationship between speed and accidents is a causal one without establishing causality. <sup>[6]</sup> We find this leap of faith to be extremely revealing about the motivations of the authors, and had cause to write to the Chief Executive of the TRL to complain. <sup>[7]</sup>

But the errors and leaps of faith do not stop there. In addition we have some bizarre and meaningless subsidiary claims and a methodological flaw so fundamental that no “relationship” could possibly have been observed using the methods selected.

1) The report claims to have classified roads and by comparing accident rates with proportions of speeding on similar roads a relationship is revealed. Well, no. If the roads were genuinely similar then traffic speeds would have to be similar given that we only have one population of drivers. So there can be no valid comparison data available to put into the model. Any road that is driven at a different speed must appear different to the drivers.

2) The report makes a subsidiary claim that (for a given road type) the greater the proportion of speeders the higher the accident rate. So that leads us immediately to an easy and effective road safety ion1t9[ael11eedTw (set all )Tj-0.0004 Tc 0.00

3) There is also a massive problem with "average speed". Suppose we have 99 drivers at 35mph and one highly dangerous nutter at 90mph. We might measure the accident risk of the nutter, but altering the speed of the 99 drivers may not be relevant at all.

So we reject TRL421 and TRL511 utterly. They should never have been published.

### **The 35% lie.** <sup>[1]</sup>

In the official report of the "two year pilot" <sup>[8]</sup> the claim is made that accidents have been reduced by 35% at speed camera site relative to long term trend.

The document is also a travesty of science. We wrote to the author. <sup>[9]</sup> The headline claim is completely worthless. No conclusion about camera effectiveness can be drawn from the report because insufficient data is available to eliminate massive error sources. The only useful conclusion that can be drawn is that the authors of the report should not be trusted.

The headline conclusions are entirely misleading. It is very likely true that 35% fewer accidents occurred at speed camera sites. The question is: Why? <sup>[12]</sup> 0 0 1EMC/P AMCID 7

## References

- [1] <http://www.safespeed.org.uk/lie.html>
- [2] <http://www.safespeed.org.uk/trlfudge.html>
- [3] <http://www.safespeed.org.uk/pr110.html> and  
<http://www.safespeed.org.uk/pr112.html>
- [4] TRL report TRL421, Taylor et al, 2000
- [5] TRL report TRL511, Taylor et al, 2001
- [6] <http://www.safespeed.org.uk/trl421.html>
- [7] <http://www.safespeed.org.uk/trl.html>
- [8] Department for Transport: "A cost recovery system for speed and red-light cameras ~ two year pilot evaluation"
- [9] <http://www.safespeed.org.uk/heydecker.html>
- [10] <http://www.safespeed.org.uk/moreorless.html>
- [11] <http://www.safespeed.org.uk/moreorless.mp3>





3) If we compare ratios of accident severity we find a surprising “log” scale of severity. This scale is well known to health and safety people who sometimes describe it as the “risk triangle”. In our judgement it is impossible to recreate the log ratios observed with a physics model of accident causation or severity. Instead, one needs a psychological model of accident causation where degree of road user error maps to severity of outcome.<sup>[6]</sup>

4) If we compare ratios of accident severity by speed limit zone we cannot find the predicted 4<sup>th</sup> power relationship of speed and probability of death. Instead we find an under-linear relationship. Although accident severities in higher speed limit zones do tend to increase, they do not show the degree of increase that would be predicted by a physics model.<sup>[7]</sup>

5) Since we know that near misses outnumber accidents by a ratio of between 5:1 and 30:1, it follows that the average impact speed of an incident is a small fraction of free travelling speed. For example, if nine out of ten incidents are mitigated to near misses, and the tenth takes place at free travelling speed, we know that the average impact speed is just one tenth of free travelling speed.

These five views of the real world data all point to one absolutely inescapable conclusion. Potential accidents on our roads are mitigated in severity by road user response to danger. We slow down in the presence of hazards, and we brake before impact. These behaviours are absolutely fundamental to the way our road safety systems work. We entirely depend on them to save hundreds of thousands of lives each year on the roads.

The speed limit and the speed of vehicles in miles per hour is a far smaller factor to the point that it approaches complete insignificance.

None of the above examples have removed “reckless behaviours” from consideration. But “reckless behaviours” play an important part in some real world excessive speed crashes. It should be no surprise that a joyrider in a stolen car pursued by Police at 80mph through town is quite likely to kill or to be killed. Such behaviours are comparatively commonplace and distort the averages.

#### References:

- [1] <http://www.safespeed.org.uk/speedlimits.html>
- [2] <http://www.safespeed.org.uk/pr110.html>
- [3] <http://www.safespeed.org.uk/pr120.html>
- [4] <http://www.safespeed.org.uk/12mph.html>
- [5] <http://www.safespeed.org.uk/proof.html>
- [6] <http://www.safespeed.org.uk/ten.html>
- [7] <http://www.safespeed.org.uk/percentages.html>



## 5) Road safety results.

From the earliest available data the British roads fatality rate has fallen steadily and reliably. At about the same time that speed cameras were introduced to British roads the fatality rate reductions began to tail off.

Anyone standing in 1993 would have looked at the former trend in the roads fatality rate and predicted that by 2003 road deaths would have reduced to between 2,000 and 2,500 per annum. <sup>[1], [2]</sup> Instead we have a serious loss of trend and roads fatalities have been “stuck” at about 3,400. Partial and provisional figures for 2003 appear to indicate a substantial rise in roads fatalities.

The difference between the expected trend and the actual trend through the speed camera decade has been termed “the fatality gap” <sup>[2]</sup> and has yet to receive an official explanation. The fatality gap represents approximately 6,000 lives lost on UK roads over ten years, with a thousand or more lives now lost annually.

The size of the fatality gap is extraordinarily well correlated to the number of fines issued by speed cameras. <sup>[2]</sup>

But simple correlation does not imply causation. In order to work towards establishing that modern speed camera policy may have caused the loss of trend in the fatality rate, we need to consider and perhaps eliminate other potential causes. We have done a lot of work in this area and most of the potential causes can be quickly eliminated with a high degree of confidence. <sup>[1], [3]</sup>

Then we need to investigate possible mechanisms whereby speed cameras policy could affect road safety for the worse. There are many. We maintain an 18 point list. <sup>[4]</sup>

It is presently a matter of judgement rather than fact but I am now very certain that the loss of trend has been caused by speed cameras and the policies that

country (for which figures are available), according to the government's own preferred indicator. <sup>[5]</sup>

The recorded data for serious casualties on our roads is behaving very strangely. The interim conclusion must be that the serious accident series is not reliable or suitable for comparison purposes at least until there is a proper explanation of the behaviour. Yet government targets and road safety conclus



