

Cambs collision data sparks fresh debate over speed cams



Injury collisions at speed camera sites in Cambridgeshire have risen since cameras were installed but fatal and serious collisions have fallen, a report presented to councillors this week reveals. The findings have re-opened the debate about the effects of cameras, with another researcher saying the use of a different method shows that fatal and serious collisions have risen at camera sites too (see panel below).

Cambridgeshire currently has 33 fixed site wet film speed cameras. To inform a decision about whether to upgrade the sites to digital equipment, collision data for each site has been analysed using a statistical method developed by Professor Richard Allsop and explained in a 2013 report by the RAC Foundation, Guidance on the use of speed camera transparency data.

Councillors were last week presented with a report including a table showing personal injury collisions (i.e. all injury collisions) and fatal and serious collisions for each camera site (within about 500 metres either side of a camera) in the before and after camera installation periods. Allsop's method excludes casualty data in a number of years before camera installation, known as the site selection period, because the data may have been unusually high in this period, influencing the decision to install a camera there.

For each camera site the table presents values for the model estimate of the ratio of the number of collisions per year with the camera in place to the number in earlier years, relative to the corresponding change over the whole area. Upper and lower bounds for 95 per cent confidence levels are also reported.

For personal injury collisions (PICs), the table shows a value above one for 24 sites and below one for just eight. Values above one suggest a rise in collisions after camera installation, values below one suggest a fall. For fatal and serious collisions (FSCs), the table shows 19 sites had values below one and 11 had values above one. Three remaining sites had no values because FSCs in the after period were zero.

Commenting on the results, Allsop told LTT this week: “The confidence intervals are quite big for PICs and very big for FSCs. This is the nature of the beast, which is why my report urged caution in interpreting estimates of ratios for individual cameras even for PIC, and did not discuss the FSC ratios for individual cameras at all.”

The table reports results for sites in Peterborough as well, taking the total sites to 43. Commenting on the 43 sites, Allsop said: “It is worth noting that although most of the PIC ratios are above one, and indeed their average, estimated by equation A3.3 on page 45 of my report, is 1.16 [for the 43 sites], only nine out of 43 have a lower 95 per cent confidence limit above one.

“For FSC the average is 0.72 [for the 43 sites] and only two have lower 95 per cent confidence limits as high as 0.8, and most are far lower. In terms of these ratios, the upshot is that over this set of cameras an average reduction in FSCs of just over a quarter has been obtained in return for an increase of about one-sixth in PICs.

“With the average value of prevention of an FSC being an order of magnitude greater than that of a PIC and the number of PICs only five times the number of FSCs, this trade-off provides clear support for the policy of continued camera enforcement.”

Allsop added: “We do have to be concerned about the PIC increase, because it is statistically significant at the conventional 5 per cent level.”

In the report to councillors, Graham Hughes, Cambridgeshire’s executive director for place and economy said: “It is recognised that this [Allsop’s] method gives a conservative estimate of effect as a peak in collisions (the site selection period) is removed from the data set.”

The council’s report recommends that 21 of the cameras should be replaced with digital equipment, two cameras should be removed, and 12 sites need further investigation due to planned changes to the environment or where a wider route issue has been identified.

But Hughes added: “Due to advances in technology, it may be that newer average speed camera systems could provide greater value for money for sites in group one [the sites for which digital cameras are recommended], even if the enforcement area is relatively small, therefore the procurement process will focus on the issue to be addressed, rather than specify a fixed or average speed camera solution.”

The cost of the upgrade programme is between £500,000 and £600,000. Discussions are ongoing with the police about funding arrangements.

Cameras ‘increased fatal and serious crashes’

Cambridgeshire’s research findings on camera effects were this week challenged by retired engineer and speed camera critic Idris Francis. He has written to Cambridgeshire councillors with his own analysis of the cameras’ performance, which shows that fatal and serious collisions at camera sites rose after camera installation.

“The reality is that far from reducing accident rates, your speed cameras significantly increase them,” he has told councillors. “I make those unequivocal statements on the basis of my many thousands of hours spent obtaining and analysing such data and reading innumerable statistical analyses – all of which are also wrong.”

Francis makes no use of statistical methods for his research. He told LTT: “There is no need whatever for others’ estimates, assumptions or wide confidence intervals – these [my] graphs simply record what actually happens.

“Richard [Allsop] is a statistician so he has his methods for dealing with low volumes of suspect data to generate results that are bound to have wide margins of error. I am a design engineer, so suspect data and unreliable results are no use to me whatever. So, as I didn’t know much about statistical theories, I tackled it from basic principles, the first being ‘find a lot more data that is reliable’. Easy peasy – Stats19 [the DfT’s road accident database]! No shortage whatever. It then became very simple and very accurate.”

Allsop told LTT: “Idris has been skilful in using vastly more data that he has extracted from Stats19 to provide essentially descriptive summaries of the data without the need for statistical technique. But he can do nothing to add to the number of camera sites or the periods over which before and after data extend, so his use of additional data does not do much to improve the signal/noise ratio (where the signal is changes in numbers of collisions in the vicinity of cameras and the noise is random variation).

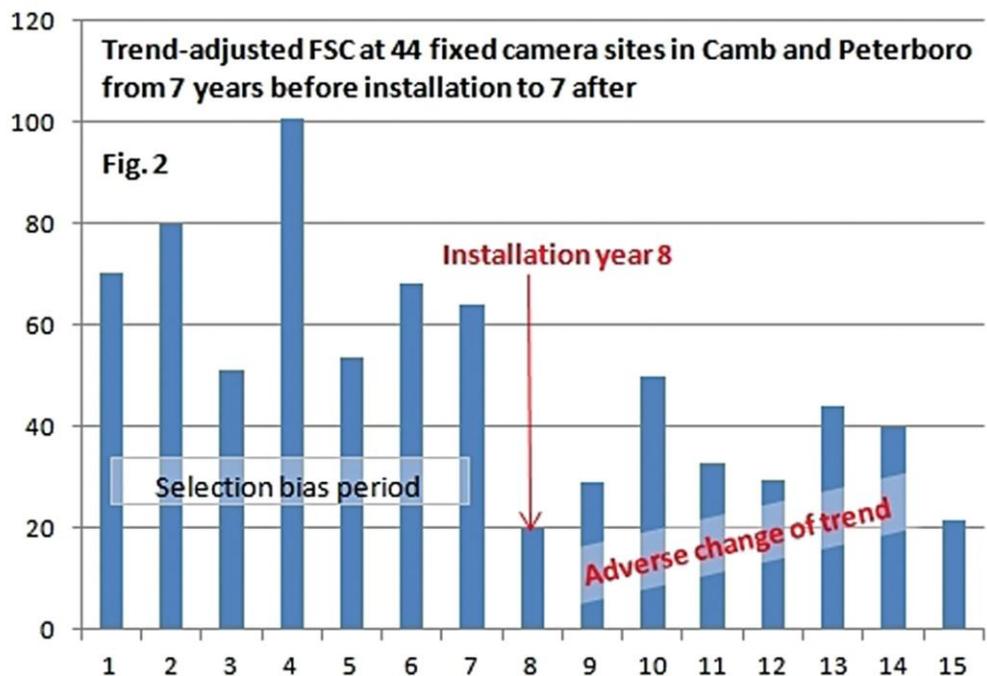
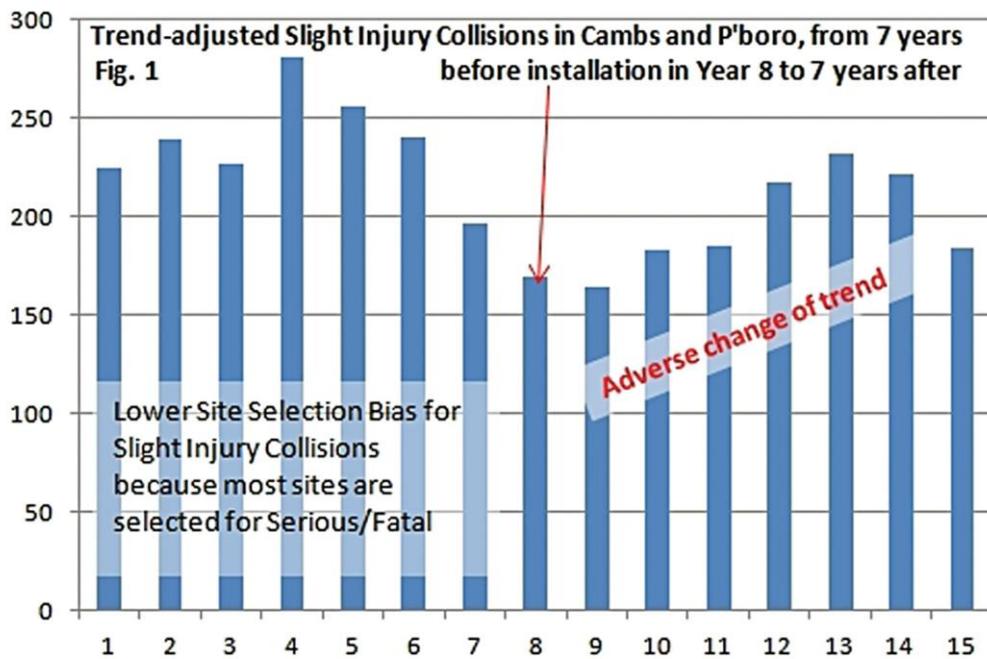
“It does do a bit, because it considers all collisions reportedly within certain distances of cameras (though subject to errors in reported location), whereas the data I have used relates only to sections of road either side of the camera, as defined by the partnership. The rest of his data relate only to what has happened elsewhere. By renouncing statistical analysis, he takes no explicit account of random variation.”

Cambridgeshire’s speed cameras increase collisions

Cambridgeshire County Council’s agenda for replacing existing wet film speed cameras with digital ones at a cost of £500,000-£600,000 unwittingly reveals that they no more understand their data or how to analyse it than do Transport for London, Hampshire Police (LTT passim and in detail at www.fightbackwithfacts.com/false_claims). Accordingly I emailed the council to point out several self-serving errors about camera effectiveness and to provide a copy my results (see figures 1 and 2 below). I urged that they delay any decision pending review of this utterly damning evidence.

My assessment led an emeritus professor of statistics, long experienced in camera analysis, to reply that: “...from the data provided [in the Cambridgeshire committee report], it is not possible to reproduce the calculations supposedly carried out by Cambs to determine the effect of the cameras. Even if we had the date of installation we cannot know the before totals, excluding the site selection period, on the basis used by Cambs.

Fortunately, however, I have on file detailed data for Cambridgeshire from 1990 to 2012 that yield the accompanying graphs, showing that, far from cutting collision rates, their cameras significantly increase them.



The charts produced by Idris Francis show a rise in collisions at sites in Cambridgeshire and Peterborough after speed cameras were installed. The chart at the bottom depicts fatal and serious collisions (FSCs)

I should perhaps mention that as an engineer not a statistician I do not use statisticians' probability theories, wide confidence intervals, adjustments for regression to mean, assumptions or estimates – I apply basic arithmetic to as much data as possible, to draw

graphs of what actually happened after installation. There is a complete audit trail from the raw data to the results.

In these circumstances, the council's refusal even to review the evidence appears to be a breach of the Statutory Duty of Care to the public they serve and also of health and safety regulations about putting others at risk. Sooner rather than later, this abject nonsense has to stop.

Incidentally, in commenting on my letter of 17 August, Terry Hudson says that if, as I pointed out, the DfT estimates the cost of a road death as £2m and there are 1,720 deaths in 2017, the total cost is £3.44bn (Letters LTT 31 Aug). Readers may have come away with the impression that I agree with the £2m figure. However, I pointed out both that the figure is abject nonsense and that the net effect in cash terms of a road fatality (the small difference between large sums subject to wide margins of error and differing opinions on what to include) is unknowable but essentially trivial.

That said, it is of course perfectly reasonable to base road safety policies on notional values of reductions in deaths and injury, but please not on fantasy economics.