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Motorway speed limits

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RoadPeace remains opposed to any increase in the motorway speed limit and believes the evidence is even stronger now for keeping and enforcing the 70 mph limit, if not reducing it to 60 mph, as was done in Spain during the Summer of 2011 in response to rising oil prices.

Background

The government is to consult on raising the speed limit on the country's motorways to 80 mph; it intends to bring in the measure in 2013, if it gets the backing of the public and campaigners.

The idea, first launched by Transport Secretary, Philip Hammond, has been taken up enthusiastically by his successor, Justine Greening, who said: 'We have motorways. Let us make sure that people can get along them as fast as possible.'¹

RoadPeace believes a proper analysis of the impacts would strengthen the case against increasing the motorway speed limit.

Increasing the motorway speed limit cannot be justified as it will lead to increases in:

1. road traffic casualties
2. carbon emissions
3. fuel consumption

Road traffic casualties

Motorways are our safest roads, in the sense that they have the lowest casualty rate per km travelled. This is due to the lack of junctions and frontage access, the presence of medians, and the exclusion of cyclists and pedestrians. With collisions from right angle, head-on and with vulnerable road users excluded, motorways should have low casualty rates; but this is no reason to accept more deaths and serious injuries.

¹<http://www.dailymail.co.uk/news/article-2051045/Justine-Greening-backs-80mph-speed-limits-motorways.html#ixzz1bPm4tpot>

Increasing the legal motorway speed for cars will increase the probability of collisions, due to increased distances travelled as drivers react and increased stopping distances. This will be compounded by the greater levels of variation in speeds across cars (just under a third of drivers travel at 65mph or less in free flowing conditions on the motorways²) and between cars and HGVs (with more than two axels) that are limited to 60mph.

Crashes will not only be more likely but more damaging. Crash energy increases with the square of the vehicle speed, so a 14% increase in speed (from 70-80 mph) results in a 30% increase in crash energy. However well designed, there are limits to the amount of crash energy that can be managed by vehicles, restraint systems, and motorway infrastructure such as barriers. The higher the speed, the higher the likelihood that these limits will be exceeded in the event of a crash, and that the occupants will be injured or killed.

The DfT suggested that their 'initial analysis' of increasing the speed limit would result in a rise of 1% in total road deaths or 19 more fatalities over 2010.

There were 118 motorway deaths in 2010, according to DfT statistics³; a rise of 19 deaths would constitute a 16% rise in this figure. (If proportionate, this would imply 128 people would also suffer serious injuries). Using standard DfT methodology⁴, this would suggest annual economic costs (lost output, human cost and medical cost) from casualties of just over £30m from fatalities and nearly £23m from serious. Correspondingly higher figures would be implied were casualty increases to be closer to those experienced in the USA, where a 10 mph increase in speed resulted in a 38% increase in deaths on rural interstates⁵. (On autobahns in Germany, where there is no speed limit, casualty rates are 75% higher than in the UK.)

Carbon dioxide emissions

The DfT's initial analysis suggested that, with an 80 mph speed limit, emissions of carbon dioxide would rise by "a modest" 0.67m tonnes of CO₂/year. These figures need to be challenged.

An alternative calculation by Dr. Jillian Anable (University of Aberdeen), cited in the Guardian of 30th September, gave a figure of around twice this (1.3 m tonnes). Figures from the Committee for Climate Change, an independent body that advises government, suggest that additional emissions would be more than three times the DfT figure (2.2m tonnes)⁶, equivalent to almost a 2% increase in total emissions from transport or every household in the UK leaving an additional 60w bulb on every night.

Any projection will be debatable, due to the variety of assumptions that are needed, but it is clear from the range of these figures that the impact will be significant and, when we should be striving to reduce these emissions, in the wrong direction.

² <http://www.dft.gov.uk/pgr/statistics/datatablespublications/roads/free-flow-vehicle-speeds>

³ <http://www.dft.gov.uk/statistics/releases/reported-road-casualties-gb-main-results-2010>

⁴ <http://www.dft.gov.uk/webtag/documents/expert/pdf/unit3.4.1.pdf>, Table 1

⁵ Patterson, T.L.; Frith, W.J.; Povey, L.J.; and Keall, M.D. 2002. The effect of increasing rural interstate speed limits in the United States. *Traffic Injury Prevention* 3:316-20.

⁶ Committee for Climate Change (June 2011) *Meeting Carbon Budgets – 3rd Progress Report to Parliament*, Chapter 4, Progress reducing transport emissions. http://hmccc.s3.amazonaws.com/Progress%202011/CCC_Progress%20Report_Ch4_interactive.pdf

Fuel consumption

An increase in fuel consumption can be anticipated for the same reasons and, broadly, to the same degree as the increase in carbon emissions. Its implications differ though. First, it will have a direct impact on the pockets of motorists. Where they are aware of the true cost of travel at different speeds, this can be seen as a consumer decision, reflecting the greater value to them of the time they gain relative to their additional fuel costs (which may be zero if their companies pay). Where ignorant of the cost of their additional speed or when swept along by the weight of traffic at a higher speed than they would have chosen, their time savings may be worth less to them than their additional costs⁷.

It will contribute to our continued dependence on imported oil and, in so far as our decisions on location adjust to our travel options, it may leave us more vulnerable to future shocks to the oil price. There will be one effect the government may welcome, an increase in tax revenue of up to £364 m⁸.

What time savings?

The argument for increasing the speed limit is the time that may be saved. In a time poor world, saving time always sounds appealing. But these gains may prove illusory while the cost in terms of lives lost and additional carbon emissions will not.

The relationship between maximum speed allowed and travel time is not always simple. When motorways are congested, which is increasingly the case, the Highways Agency now prefers to reduce the speed limit to avoid jams caused by a stop-start cycle. *“A driver doing a steady 60 mph along a motorway is likely to get to the destination sooner, more safely, less stressfully and with a lower carbon footprint than a driver who proceeds at 80 mph from jam to jam.”*⁹ This was also argued in the Road Traffic Speed Report 2002.

More subtly but perhaps more profoundly, increasing the speed limit on motorways reinforces the culture of speed: encouraging drivers to drive faster off motorways as well as on, increasing the incentive to own more powerful and often heavier cars and generally perpetuating a situation where we drive too far and too fast. For a government with a stated ambition to be the “greenest government ever”, this is a strange – if no longer surprising -- way to go.

The reasons against increasing the speed limit appear significantly more robust than those in its favour. This issue has been reviewed repeatedly since 1995. The only things that have changed in this time are all reasons to enforce, if not reduce the limit, with the increased fuel costs and increased awareness of the need to decrease carbon emissions.

⁷ See Campaign for Better Transport <http://www.bettertransport.org.uk/system/files/relative-impact-on-fuel-duty-80mph.pdf>

⁸ See CBT, *op cit*.

⁹ Department for Transport (2007) *Towards a Sustainable Transport System*, para A24, p.86