

Witness Statement – 20mph speed limits

CTE panel, 17th July 2017, 4:30 PM, Guildhall, Bath.

Introduction

I am Mr. Francis King, MA (Physics) MSc (Transport Planning and Engineering, with distinction). I am a member of the Chartered Institute of Highways and Transport, the Transport Planning Society, and the (US) Institute of Transportation Engineers. As a transport planner, I model transport flows on highway networks, and through road junctions, sometimes involving toll modelling. I have been doing transport planning for 11 years. Before that, I was a research scientist working for the British government.

1. 85th percentile

A key concept is the 85th percentile. You go to a road, and measure the speeds of all of the vehicles. You order these speed measurements from lowest to highest. You go from the bottom through 85% of the measurements (or go 15% of the way from the top). The speed which you've reached is the 85th percentile speed.

Because only 15% of people exceed this speed, they can be knocked into line by setting this speed as the speed limit (rounded up or down). The vehicles go nose-to-tail down the road, with a minimum of overtaking. Because overtaking is more dangerous than just driving the vehicle behind the vehicle in front, this is the safest thing to do.

It also follows that just putting up 20 mph speed roundels will have little effect, and may prove to be dangerous. I would expect a 1 mph reduction in average speed, and this is what the council engineers have found. This is a waste of money.

2. The need for a 20 mph speed limit

However, bicycles are a bit different. They have limited speed and power, and they cannot do 30 mph. Consequently, you can set up the 85th percentile speed on the motor vehicles, which is about 30 mph, and still have a lot of dangerous overtaking and undertaking.

Setting a 20 mph speed limit for both cars AND bicycles would make cycling a lot safer. The bicycles (two wheels or four) would be in the centre of the lane, where they could see and be seen properly, and where they could turn left or right equally easily. Much of the 'cleverness' with cycle lanes and 'facilities' can be swept away.

A 20 mph speed limit will make it a bit safer for pedestrians, but better crossing facilities would do more.

3. Technical requirements

Since we are now attempting a speed of 20 mph, which is below the 85th percentile, some sort of speed restriction in the motorised vehicles is required. This is something that central government will have to mandate.

Equally, the bicycles have to do 20 mph*. Unfortunately, the current law requires electric motors to cut out at 15 mph, which is too slow. Again, this is something that central government will have to mandate.

It would also be nice if the non-existent crash protection on bicycles could be increased to a vestigial level.

4. Other issues

An objection is the increase in travel times when going from 30 mph to 20 mph. In fact, the difference on the scale of Bath is at worst a few minutes. At lower speeds, give-way and roundabout junctions work better, with lower delays.

Going from a heavy car (1000 or 2000 kg) to a bicycles (10 or 20 kg) means that grade separation is now much cheaper.

Going from 30 mph to 20 mph reduces the capacity of signalised junctions. A shift from cars to bicycles may help (because bicycles take up less space in the junction). It may be necessary to remove some of the safety protocols (called 'intergreens').

A shift from cars to bicycles will reduce parking revenue.

Notes:

If you attempt to use a faster electric motor at the moment, you will break a lot of laws. The vehicle would not have type approval, it would be an unregistered and untaxed moped, with no insurance, etc.

<http://www.pedelecs.co.uk/forum/threads/when-15-mph-isnt-enough.3424/>