

What is wrong with blanket 20mph limits?

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Driving Sense supports the targeted application of 20mph limits where this is appropriate to a very localised risk environment, where the road engineering is consistent with its use; and where other measures (e.g., temporary, time-specific limits) cannot be used.

We do not condone the indiscriminate, unnecessary and economically costly proliferation of wide-area 20mph zones, where road configurations are not conducive; and these measures are implemented purely to make motor vehicle use less pleasurable, more difficult, more time-consuming and more costly.

The Mind Driving Risk Model teaches us that to minimise the probability of crashes, drivers / riders must keep three risk elements *in balance*

$$\text{Risk} = \frac{\text{Speed} \times \text{Surprise}}{\text{Space}}$$

If any of these elements is compromised then so is the entire safe driving process.

With regard to Speed we ask: *How well can I change speed or direction to avoid a potential collision?*

- Controlling speed is not an isolated element of safety
- More casualties happen in crashes that are below speed limits than above them
- Choosing a safe speed is the driver or rider's responsibility and cannot be delegated to a speed limit
- drivers assessment of the risks in their speed should be very objective

Inappropriately low limits, enforced heavy-handedly (manually or by automation) breed road user inattention. Drivers & powered two-wheeler (PTW) riders are either distracted into spending a disproportionate fraction of their time looking for overt or covert enforcement

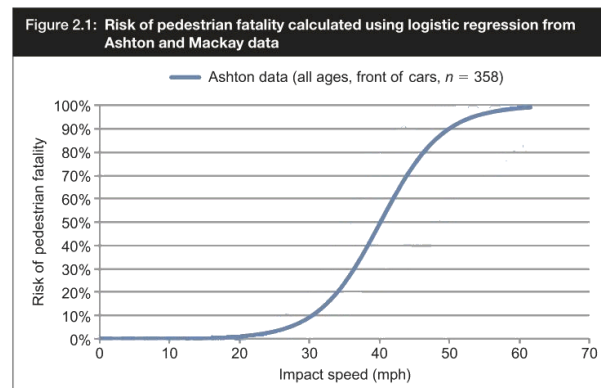
equipment; or else they become speedometer-fixated – spending a disproportionate fraction of their time looking at their speedometers¹. The following two questions underpin this reasoning:

Q1: Do you think you could drive safely if your speedometer was totally obscured?

Q2: Do you think you could drive safely if your windscreen was totally obscured?

Some road safety 'experts' allege that excessive speed is a 'cause' (invariably one of several) in one third of road accidents (actually inappropriate speed is a 'contributory factor' in some 3% to 12% of accidents depending on severity level; but let's concede them this inaccuracy); that 70% of road users break the 30mph urban limit; and that 95% of pedestrians die if struck at speeds above 30mph. So, according to the received wisdom, this means that 33% x 70% x 95% = 22% of pedestrian casualties should be fatalities. The actual proportions are c.2.0% and c.0.6 % respectively for urban adult and child pedestrian fatalities.

The Ashton Mackay curve impact speed vs. % casualty relationship² was developed by European road safety researchers (see below). This curve tells us that for only



2.0% of pedestrian casualties to be fatalities, the actual average impact speed across all UK road accidents involving pedestrians must be **below** 20mph already. Clearly this is because drivers/ powered two-wheeler (PTW) riders in urban areas currently generally pay attention. They are able to brake to significantly below 30mph, or take avoiding action, before impact.

Under a heavily-enforced blanket 20mph scenario, driver/ PTW rider observation & concentration levels are going to be significantly degraded (for the reasons already covered previously) compared to the 30mph scenario. Factor in that vulnerable road users have been given the mistaken perception that 20mph zones are safer than 30mph ones; this results in their behaviour in such zones being less cautious than is actually advisable.

Because of these adverse effects on road user observation & concentration levels in the blanket 20mph scenario, it is highly likely that any braking inputs will either occur later - or be totally absent - under these conditions than was the case in 30mph areas. ***It is therefore probable that higher - rather than lower - average impact speeds will occur in most accidents involving pedestrians in blanket 20mph zones³.***

Which is preferable? An alert driver/ rider doing 30mph (or even travelling slightly above that speed); but observing and reacting to developing hazards and moderating speed accordingly; **OR** a distracted one (in effect a zombie crash-dummy driver/ rider) doing exactly 20mph - who will therefore collide with other road users at this speed or very little below it?

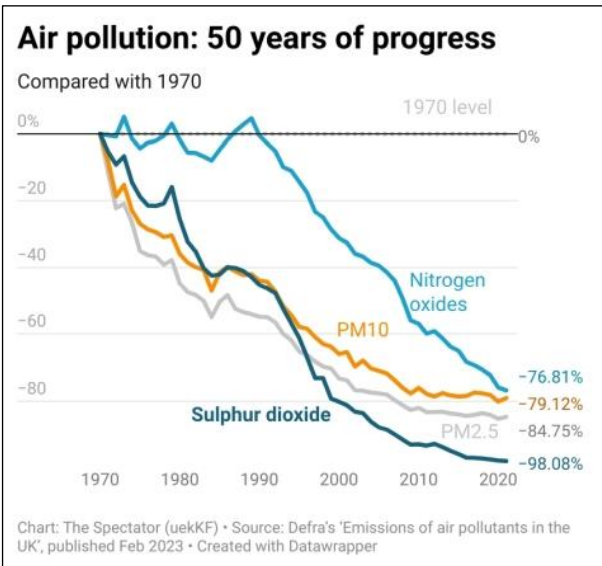
Retaining an alert state is impossible while travelling long distances at a mind-numbing 20mph in a predominantly low-risk environment, not engineered to support such a limit. Road user attention will inevitably wander and the risk factor rise as distraction takes hold.

What is wrong with blanket 20mph limits?

Aside from the adverse road safety effects, blanket 20mph zones: (a) increase road transport emissions, (b) significantly lengthen every journey, leading to a massive productive economic time loss, and (d) specifically lengthen emergency vehicle response times.

Emissions:

It must be emphasised at the outset that UK air quality has NEVER been better than it is nowadays.

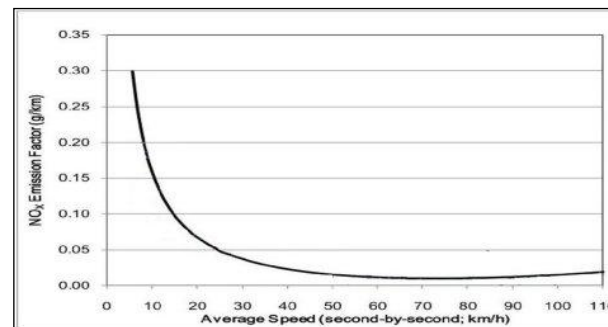


London air quality ranks 'Good' at 90th out of 120 world cities (San Francisco 120th & best), where 1st (Delhi, India) is worst⁴.

Per the schematic for NO_x emissions shown adjacent right, for conventional internal combustion engine vehicles (ICEVs) to travel at speeds at or below 20mph requires the selection of lower gears, which means higher engine revolutions and increased emissions.

Transport for London's own data⁵ provides a catalogue

(pp.18-32) of curves for air quality-influencing tailpipe emissions of various classes of vehicle versus average speed. This evidence scientifically corroborates that protracted travel at low speeds has a significantly detrimental effect on air quality – which should anyway be blindingly obvious to anyone with even rudimentary automotive knowledge.



Battery electric vehicles (BEVs) are significantly worse overall than internal combustion engine vehicles (ICEVs) as their tailpipe emissions are in general merely displaced to a CCGT-fired power station elsewhere; while their associated battery weight penalty makes their brake and tyre particulate emissions far worse than for ICEVs⁶.

Journey Times:

To travel, say, 60 miles at 30mph takes 2 hours. The same journey at 20mph takes 3 hours: 50% longer. The journey time for every previously 30mph journey is therefore lengthened by potentially up to 50% at 20mph.

In the year following the imposition of an 80kph blanket speed limit on France's previously 90kph rural roads, there were no significant casualty reductions (as some so-called "road safety" advocates had expected), but the policy did succeed in deflating the French rural economy by 4.4€Bn⁷. Similar lost productive time

arguments clearly also apply to blanket 20mph zones.

Emergency Vehicle Response Times:

It has already been documented⁸ that the carpet-bombing of London boroughs with road humps caused more fatalities through increased emergency vehicle response times than the humps had notionally saved.

Similar considerations apply to wide-area 20mph zones; many of which are being implemented in areas in which it is impractical for drivers to pull over to let emergency vehicles pass. Also, exceeding the speed limit to expedite their progress is no defence against an illegal speed NIP; so is highly inadvisable.

With the proliferation nowadays of various types of Mobility Restriction Zones (MRZs), LTNs, ULEZs, CAZs etc; none of which have any positive effects on urban air quality as illustrated in the preceding paragraphs, many more lives are being needlessly sacrificed to regulations inspired by anti freedom of mobility ideological dogma, instead of sound science⁹.

References:

- ¹University of Western Australia study: Vanessa K. Bowden et al. Lowering thresholds for speed limit enforcement impairs peripheral object detection and increases driver subjective workload, Accident Analysis & Prevention (2017). DOI: 10.1016/j.aap.2016.09.029. Read more at: <https://medicalxpress.com/news/2016-10-strictor-impair-driver-safety.html#jCp>.
- ²Relationship_between_speed_risk_fatal_injury_pedestrians_and_car_occupants_Richards, Transport Research Laboratory, 2010.
- ³See: <https://www.bristolpost.co.uk/news/local-news/baths-20mph-zones-increased-deaths-942560>
- ⁴See: <https://www.igair.com/world-air-quality-ranking>
- ⁵<https://content.tfl.gov.uk/london-exhaust-emissions-study-developing-a-test-programme.pdf>
- ⁶<https://www.emissionsanalytics.com/news/2020/1/28/tyres-not-tailpipe>.
- ⁷<https://www.thenewspaper.com/news/66/6628.asp>
- ⁸<https://injuryprevention.bmj.com/content/9/3/196>
- ⁹Expressing air quality in µg/m³ units is highly misleading. It's actually equivalent to millionths of a gramme per million cubic centimetres, so parts per trillion. This is such a low concentration that it's only detectable with very sophisticated equipment, and there's no scientifically-validated evidence that such levels pose any health risk: <https://junkscience.com/2016/09/fact-sheet-particulate-matter-in-outdoor-air-does-not-cause-death/>
Email: brian.gregory@drivingsense.uk