



**RESPONSE TO TRANSPORT COMMITTEE
INQUIRY INTO CYCLING SAFETY**

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WHY BRITAIN HAS A CYCLING SAFETY PROBLEM

Riding a bike is, generally, an intrinsically safe activity. As Jacobsen and Rutter (2012) observe

Most of the risk of severe injury while cycling is not intrinsic to the activity; motorists impose it on cyclists. Cycling is a benign activity that often takes place in dangerous environments. The majority of injuries to cyclists do not involve a motor vehicle and typically do not cause severe injuries, which are far more likely to arise in the far smaller number of collisions with vehicles.

92% of all UK cycling KSIs (Killed or Serious Injured) involve a motor vehicle (Department for Transport 2012). The issue of cycling safety is therefore essentially one of managing the dangers posed to people cycling, by motorised traffic.

Unfortunately Britain manages this danger particularly poorly, compared to one of our closest neighbours, the Netherlands, where the involvement of motor vehicles in cycling KSIs is much lower. Only 64% of Dutch cycling KSIs involve a motor vehicle.

The fatality rate for cycling in the UK, per distance travelled, is around three times greater than that of the Netherlands. Per amount of *time* spent travelling by bike, the fatality rate in the UK is about four times greater (Mindell et al. 2012). It is harder to compare KSI rates between the two countries, due to different ways of recording serious injury, but what estimates that do exist again suggest that cycling in Britain is substantially more hazardous than in the Netherlands (Drawing Rings blog 2012). A comparison of the rate of *all* cycling injuries suffered, per distance travelled, suggests that the Netherlands is around four times safer than Britain (Pucher & Buehler 2009).

Even these figures are likely to represent an underestimate of the difference in risk, for one simple reason. A considerably larger proportion of the amount of cycling in the Netherlands is undertaken by children and the elderly than in the UK. For instance, 40% of all trips made by those under the age of 17 in the Netherlands are made by bike. The equivalent figure for the UK is 2%.



Similarly 23% of all trips made by Dutch over-65s are cycled - the equivalent figure for the UK is just 1% (Buehler & Pucher 2012).



Both these groups are vulnerable in different ways. Children are less experienced, and more prone to making misjudgements and errors. The elderly are generally more frail and more likely to suffer serious injuries or death than a younger person in an equivalent incident. Someone cycling over the age of 55 has more than double the risk of a

fatality in a collision, all other factors being equal (Department for Transport 2009).

This is borne out by the casualty statistics. In 2012, 71% of all Dutch cycling fatalities were people over the age of 60, and 25% were people over the age of 80 (Statistics Netherlands 2013). In Britain the distribution of cycling deaths is weighted far more towards middle age - in 2012, 61% of those who died while cycling in Britain were aged between 20 and 60. Accident statistics show that the young and the elderly are at greater risk while cycling in urban environments (CROW 2007).

So the Netherlands has a safety record that is around three times better than Britain, despite a considerable proportion of its cycling being undertaken by people who are more vulnerable. What all this tells us is that Britain has a serious cycling safety problem. 118 people died while cycling in Britain in 2012, but if cycling here was as safe as it was in the Netherlands, we find, by comparing risk exposure, that *80 of those people might still be alive today* (Aldred 2013a).

SUBJECTIVE SAFETY

The poor safety record for people who already choose to cycle in Britain isn't the only reason the issue of safety should be addressed. The Understanding Walking and Cycling Report, a major three-year study into the obstacles to more walking and cycling in England, identified traffic danger, and the perception of it, as one of biggest barriers to increasing cycling levels. In the extended summary of their research - now available as a book - the authors note that

The overwhelming message that emerges from our study of everyday travel in four English towns is that, with the exception of a small minority of committed cyclists, most people are deterred from cycling regularly on urban roads because of fear of traffic and their perception of the risk of serious injury.
(Pooley et al. 2013)

The same results are found in other research. A large Department for Transport survey, published in 2010, found that safety concerns, and fear of traffic, were a key barrier to cycling. 63% of respondents who could already cycle felt that cycling on the roads was 'stressful'. 60% felt it was 'too dangerous to cycle on the roads.' These figures were worse for older age groups, and females. Cycling was felt to be the least safe mode of transport, in terms of risk of accidents, by respondents. (Department for Transport, 2010).

The 2011 British Social Attitudes Survey found that 67% of those surveyed were 'not at all confident' or 'not very confident' about cycling on Britain's roads (National Centre for Social Research, 2011). Further surveys by Brake (2012) and Sustrans (2012) have also found that a clear majority of people do not feel that Britain's roads are safe to cycle on.

So considerable demand for cycling is being suppressed by hostile conditions, that present both real and subjective danger to people who attempt to cycle on them. These conditions must be addressed if we want to ensure the safety of the small minority people already willing to cycle, and to enable the rest of the population to do so.

SAFETY BY DESIGN

Britain has a road and street network designed for motoring, with cycling fitted in around the edges - if at all. While it has some of the safest roads in the world, this has come at the cost of excluding cycling from the network. The few who do choose to cycle have to share space with motor traffic travelling at much greater speed, or in high volumes (or both), or resort to inadequate, off-carriageway provision that all too often amounts to nothing more than cycling on pedestrian facilities.

What is needed is a mature, design-led approach to safety that reduces the danger posed to people cycling **at source** by minimising the amount of interaction with motor traffic. This is the bedrock of the Dutch approach, and explains both why cycling is so popular in the Netherlands, and so safe - namely, the use of infrastructure measures, that separate bicycle traffic from motorised traffic as much as is possible (SWOV 2009).

We note that the Select Committee's call for submissions wants to hear views on

Whether it would be desirable and feasible to segregate cyclists from other road users

Our response is that separating cyclists from other road users is not only entirely feasible, and desirable, but also absolutely **necessary** if we are to have a significantly lower casualty rate. This separation can take many forms, but the ultimate purpose is to reduce the chances of collisions occurring by lowering the amount of interactions between motorised traffic and people cycling.

The Dutch CROW design manual recommends that, for safety purposes, cycling should not be combined with motor traffic on routes where that flow of motor traffic is greater than 2000 PCUs (Passenger Car Units) per day (CROW 2007, p.81). If this cannot be achieved then cycling should be separated physically from motor traffic.

A form of this policy approach has been adopted by the London Cycling Campaign (Aldred 2013b). The aim is simultaneously to improve the quality and attractiveness of the cycling experience, and also the statistical risk of cycling. We now look at what this kind of separation means in practice.

SEPARATION OF CYCLING AND MOTORISED TRAFFIC

Separating cycling from motor traffic does not mean building cycle tracks alongside every single road. The network of cycle tracks in the Netherlands is significantly shorter than the length of the entire road network. Crucially, however, it does mean ensuring that motor traffic is low on the parts of the network that are shared. This is an important way of ensuring the safety of people who are cycling.

For instance, Dutch residential streets are typically impermeable to through traffic. This is achieved either by physical measures such as bollards (which still allow people to pass through by bike or on foot) or by one-way systems, with exemptions for cycling. They are unattractive as routes for driving, and will be suitable only as a means to access properties. This immediately means that encounters between motor traffic and people cycling are much less frequent than on the equivalent streets in Britain - this is the simplest way of reducing exposure to danger.



These streets are also designed in such a way that, while mixing does occur, it is as safe as possible. Low speed limits of 30km/h (19mph) are enforced through design, with speed tables at junctions, rough surfaces, and tight geometry. Most town- or city-centre streets in the Netherlands take this form too, with motor traffic only able to use these streets for access, not as through-routes. They are attractive and safe for cycling.



This approach goes hand-in-hand with the more familiar physical separation along main roads, with cycle tracks running between footways and the carriageway. People cycling are protected from the dangers posed by motor traffic simply by being in their own space, with barriers in the form of kerbs, verges or parking. Potential conflicts at side roads are minimised both through the fact that the motor

traffic will often only be turning into these roads for access (meaning for fewer opportunities for conflict), but also through careful design.

Footways and cycle tracks extend continuously across the junction mouth at a raised level. Typically the cycle track is set back from the carriageway, meaning drivers can turn off the road, and then pause before turning across the cycle track, and the footway. Turns have to be made at slow speed; the environment is forgiving.

At larger junctions people cycling are separated from motorised traffic either in space or in time. Physical conflict is kept to an absolute minimum. Signalised junctions are designed to separate flows of bicycle and motor traffic, with turning motor traffic held at red signals while bicycle traffic progresses ahead. Another form of this junction is the 'green scramble', which holds motor traffic from entering the junction, while bicycles have a green light, in all directions; the only conflict is between people cycling.



At signalised junctions, and at roundabouts, right turns (the equivalent of our left turn) are frequently 'free'; always available, and separated from the movements of motor traffic. In short, across the whole network, great care is taken to ensure that cycling is a comfortable and safe experience, free from interaction with motor traffic. We highly recommend that members of the Select Committee experience for themselves the way the Dutch design for safe cycling, on a David Hembrow study tour.

SUSTAINABLE SAFETY

The principles of Dutch cycling safety flow from a concept called Sustainable Safety (SWOV 2010). This is a Dutch system of road design, that aims to make roads and streets understandable; to make them safe by default; to reduce conflict; and to minimise the danger posed when mistakes occur. There are five central principles, of which perhaps the two most important, as far as cycling safety is concerned, are

- Homogeneity of mass, speed and direction
- Forgiving environments

The first principle ensures that large differences in mass and speed between road users

in the same space are eliminated as much as possible. It means that people should never find themselves cycling on roads with fast motor traffic, and when they do share space with motor traffic, speeds are kept as low as possible. The ‘mass’ requirement is equally important; particular attention is paid to separating bicycle traffic from large vehicles such as lorries and buses. Unlike in Britain, where ‘combined’ cycling and bus lanes are commonplace, the Dutch do not implement shared bus and cycle facilities.

The second principle flows from an acceptance that human beings are fallible, and will make mistakes, be they walking, cycling or driving. Roads and streets are designed in such a way that these mistakes will not lead to crashes, or that if they do, serious injuries are avoided (Wagenbuur 2012).

This stands in stark contrast to Britain, where very often there is little margin for error. A notorious example is the cyclist-HGV ‘left hook’. A decision to travel up the inside of a large goods vehicle on a marked cycle lane, combined with a momentary failure of the driver to check his mirrors, can easily result in serious injury or death, if the vehicle turns left across the path of the person cycling.



When safety relies upon perfect vigilance and behaviour, the road environment is not sufficiently forgiving. These kinds of conflicts are in the process of being designed out on Dutch roads and streets; design that protects people cycling from vehicles that have the potential to do great harm. The penalty for human fallibility should not be serious injury or death.



EDUCATION AND TRAINING

While education and training rightly have a proper role to play in increasing the safety of people cycling, we feel that, all too often in Britain, education is used to compensate for



basic failures of design. For instance, Transport for London frequently run campaigns aimed at discouraging people who are cycling from travelling up the inside of HGVs.

But this advice stands in stark contrast to the way roads across the country are actually laid out, with narrow cycle lanes at junctions encouraging people to cycle into

precisely these positions. The problem is at root one of a failure to design properly; to keep people who are cycling out of danger. These kinds of junctions should separate cyclists from HGVs in time and space. If this cannot be achieved then serious consideration should be given to removing the largest vehicles from roads where it is not possible to insulate cycling from the dangers these vehicles pose.

Another example involves 'pinch points' - places on the carriageway that are too narrow for cyclists and motor vehicles to safely occupy the same space. Fatalities and serious injuries can and do occur at these locations.

The advice contained in Cyclecraft - the official UK cycling guidance - is to adopt a 'primary' position at these, and other locations (Franklin 2007) - that is, to position yourself directly in the middle of lane.



You should use the primary riding position when riding on narrow or winding roads and at other types of narrowing (such as in traffic calming schemes) where overtaking could be unsafe.

While this is sensible advice, in and of itself, we would argue that suggesting people should cycle in this manner is indicative of a failure to design properly. It is not reasonable to expect children or the elderly to cycle in the middle of a lane, directly in front of motor vehicles, to ensure their own safety. Their safety should be ensured by the design of the road itself.

At present much cycle education is built around expecting people to behave in counterintuitive ways, like cycling far away from the kerb. We should create road environments that are designed around people's ordinary behaviour, rather than attempt to compensate for poor design by training people to do what does not feel natural.

SUMMARY

A sea change is necessary in the way our roads and streets are designed for cycling. Not just because people who currently cycle are exposed to unnecessary risk and danger, but because that danger - and the perception of it - is itself the major barrier to the uptake of cycling for the vast majority of people.

We believe that everyone - be they five or ninety-five - should have the freedom to go about their business by bike, without fear or harassment.

Unfortunately Britain's planning and transport policies have to date served to confine cycling only to the quick and the brave, leaving the rest of us behind. Promoting cycling without tackling the fundamental issue of safety will not raise cycling levels significantly. We urgently need to adopt and implement best practice from those countries that have made cycling a safe and attractive mode of transport, for all, by separating it from the dangers posed by motor traffic.

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