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DELIVERING BETTER SIDE ROAD JUNCTIONS

Sustainable mobility design specialist and founder of City Infinity, Mark Philpotts, and street design specialist Robert Weetman analyse side road junctions and how to make them safer and more accessible. They make the case that, for real innovation, we need to put network-level thinking at the heart of what we do

People often express concerns about anything that is unfamiliar on our roads and streets. Floating bus stops and 20mph speed limits have most recently been controversial, but this isn't new. Seatbelts in the 1980s, zebra crossings in the 1950s, and the 'Red Flag Act' in the 1860s were all unfamiliar and controversial.

The way in which streets are used, regulated and how users are prioritised goes through cycles of

fashion, often with political or social pressure, but when something has been around a long time it becomes familiar. With that we lose sight of whether or not it is working and especially who it is working badly for.

This is evident in our recent work on side road junctions (also known as priority junctions). Having spent over a year thinking intensively about the most common UK junction type by far, and perhaps the most common design feature

on our streets, we cannot help but conclude that the country has stopped noticing how badly pedestrians are served.

We've been fortunate to have an opportunity to work on this. In early 2025, we were commissioned by Manchester City Council to develop a practical framework to guide the city. This work was radical in its response to Vision Zero, and in seeking genuinely accessible and decent streets that will put the most vulnerable people first.

The work had to respond to the vision of Manchester's Active Travel Strategy and Investment Plan (MATSIP) [1] consequential of the Greater Manchester Streets for All strategy [2].

We decided that it would be elegant to build our ideas on rules (H2 and 170) that were strengthened in the 2022 change to the Highway Code [3]. These reinforce the notion that pedestrians crossing a side road junction should be afforded priority by turning drivers. Of course, in the UK, our roads don't usually enable such behaviour – to the extent that the rules appear entirely mismatched with reality.

We found ourselves considering the following three key questions as a basis for our wider thinking:

- What are the conditions under which drivers are **LIKELY** to obey the Highway Code rules H2/ 170?
- What are the conditions under which drivers are **UNLIKELY** to obey the Highway Code rules H2/ 170?
- What are the conditions under which drivers are **UNABLE** to obey the Highway Code rules H2/ 170?
- What might this all mean in practice?
- Where do real conditions sit in this structure?

The first image (see *Image 1 on the right*) shows a priority junction where a residential road (visible at the right) joins a dual carriageway. The latter is subject to the national speed limit and it carries thousands of vehicles a day. There are deceleration and acceleration lanes for drivers, and pedestrians cross the end of the side road using a triangular splitter island. Even to the casual observer this is not pedestrian-friendly. There are dropped kerbs tucked out of view of the main road, but crossing in a wheelchair would be frightening. And this isn't about drivers disobeying the rules.

This is an arrangement in which drivers are unable to obey the Highway Code rules. Trying to do so would introduce a real risk that they would be hit by a following driver.

Layouts like this prioritise the safety and convenience of those in vehicles. If the most vulnerable street users - pedestrians - make a



Image 1



Image 2

mistake here, then the penalty they pay may well be their death. That's how things have always been, but from a Vision Zero (or Safe System) perspective this is unacceptable. What's obvious is that there isn't going to be a quick fix here, and this illustrates the challenge we face in improving environments that are designed to maximise motor traffic throughput.

Some readers may be thinking that we've picked the most extreme side road junction we can find to support our position. That is true to some extent, but we're also trying to offer a recalibration before delving deeper, and to make clear the scale of the problem.

What if we look at something not so obviously dangerous for pedestrians? The second image (*Image 2 above*) shows a crossroads in a traffic-calmed

residential area with a 20mph speed limit. The layout is much better than a typical side road junction. There has been work to alter the geometry, with footway build-outs to reduce turning driver speed and pedestrian crossing distance. However, the major road (running left-right) is a connector street and carries a few thousand vehicles a day. We think this situation falls into the scenario where most drivers could obey the highway code rules but remain unlikely to do so.

For pedestrians it is much better than the first example, but there is far more that needs to be done to make it truly pedestrian-friendly.

We distilled this thinking into a simple, yet powerful diagram (see *chart on opposite page*). This shows a scale of quality for pedestrians, from good at the left to



bad at the right.

The first example junction in Image 1 would sit toward the right-hand side of the scale. It has a flow-focused design, providing a very low-quality environment for pedestrians. It is clear that some disabled street users will be excluded.

The second example in Image 2 sits somewhere to the left of the centre of the diagram. It is a completely different environment and has some useful design features, but we think it remains a compromise design. It doesn't meet the pedestrian-friendly standard.

This highlights that we've intentionally set a high threshold for 'pedestrian-friendly' design, but the aim is to provide a clear vision for the long term rather than just a description of what 'a little bit

better' would look like.

So, what more is necessary? Imagine you have been given the job of designing a simple side road junction that will provide access to a small residential development from a major road. What can you actually control in the design? It is likely that the highway authority will have set geometric constraints in terms of carriageway width and junction radii (often linked to waste collection requirements). You can probably do very little that will influence traffic flow and speed on the major road, or that will change turning traffic volumes. You will have no influence on how the wider road network is designed and managed.

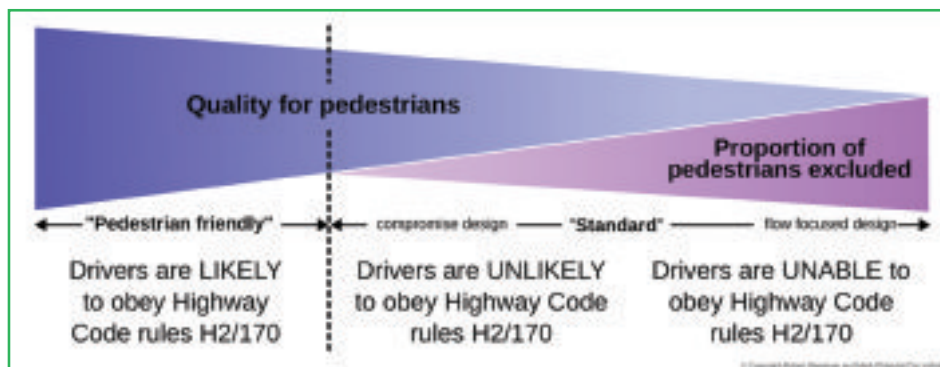
We ask this to make a point. Without really noticing it's happening, we keep asking designers to consider a junction

in isolation, or at best as part of a series on a corridor project. This, and a set of wider unwritten assumptions, drive standard design responses. These feel familiar but badly compromise conditions for pedestrians.

Breaking free of these limitations requires the understanding that network design is part of the jigsaw. We've taken a profoundly important step in making clear that side road junction design and highway network design are two parts of the same problem. We're essentially asking that the UK stops pretending that Vision Zero on KSIs can be delivered with warm words, or by individual designers following existing conventions.

Deploying a safe system approach, in a way that actually makes a difference, is entirely practical, but it will require a comprehensive programme, based around new conventions and much bigger changes. ●

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- [1] www.manchester.gov.uk/downloads/download/7572/manchester_active_travel_strategy
- [2] www.tfgm.com/strategy/streets-for-all
- [3] www.gov.uk/guidance/the-highway-code