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Design development of side road crossings for pedestrians and cyclists

Focus Group Report v0.1

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by

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EXECUTIVE SUMMARY

The Road Safety Trust awarded the Centre for Transport and Society at the University of the West of England, Bristol a grant to undertake research to understand which design factors influence the efficacy and safety of side road crossings in the UK, with a focus on side road layout, detailed design of priority for crossing cyclists and pedestrians, and how that priority is indicated through road markings.

This report presents the findings of the qualitative social research component undertaken in March 2022. By carrying out eight on-line focus groups with forty-seven people, this research explored the opinions and behaviours of disabled and non-disabled pedestrians, cyclists, drivers and other road users, in relation to different side road crossing configurations in UK cities.

The key findings are as follows:

- There was no indication that people felt more comfortable and safer crossing a side road after the changes in the Highway Code that came into effect in January 2022. (The main relevant change being that road users should now also give way to people waiting to cross the side road, as well as those already crossing the side road).
- Whilst changes in how road users behave are possible, for example because of regulatory changes, such changes take time and need further support, such as enforcement and education.
- People identified positive and negative features in all the junctions under consideration, and these included eleven junctions featuring a parallel crossing with different types of road markings indicating priority for cyclists and pedestrians and three control junctions with a typical simple give way markings for the side road
- Zebra road markings were perceived to be generally recognised and respected, hence perceptions of junctions which featured this type of pedestrian crossing tended to be more positive.
- Marked priority junctions that did not feature a zebra crossing were perceived as creating ambiguity, hence potential risk, for pedestrians.
- Road markings indicating priority for crossing cyclists were positively perceived, especially when reinforced by other design elements such as cycle symbols, using the same colour and material

across the cycle crossing as on the approaches and differentiated from the colour of the carriageway, and having a raised crossing at the same level as the cycleway.

- The position of the pedestrian and cycle crossings (no, partial or full set-back from the edge of the main road carriageway) influenced perceptions of safety and convenience in different ways. Confident cyclists may decide to ride on the main road carriageway rather than the cycleway to avoid having to deviate from their desire line with full set-back crossings. Set-back crossings raised some criticism, in that they seem to push cyclists towards the pedestrian, hence undermining their status as traffic with the ability to move at speed.
- Deviations from the desire line need to be clearly and unambiguously indicated for pedestrians who are blind or partially sighted.
- People were generally more concerned with vehicles turning into the side road than with those exiting the side road. Drivers turning into the side road (from the left and the right-hand side) could potentially do so at speed, and without gaining a full picture of all the road users crossing, or waiting to cross, the side road.
- Contextual factors were important as well in shaping people's perceptions. These included the speed limit on the main road and the side road, the radii of the kerb between the main and side road, the length of the crossing, the volume, direction and type of vehicles that could travel through the junction at any one time, whether the footway and the cycleway were physically separated, and whether any other nearby junctions had similar or different treatments.
- Disabled and non-disabled people shared many concerns, however there are specific issues that affect how disabled people cross a side road junction.
- Blind and partially sighted people expressed a preference for clear and unambiguous crossing designs such as signalised crossings. Wheelchair and mobility scooter users favoured the absence of slopes and cambers, the use of dropped kerbs at both sides of a crossing, and raised crossings.
- Overall, people recommended more consistency in the use of road markings, and types of treatment and street furniture across the country to minimise ambiguity and confusion.

1 INTRODUCTION

The Road Safety Trust awarded the Centre for Transport and Society at the University of the West of England, Bristol a grant to undertake research to understand which design factors influence the efficacy and safety of side road crossings in the UK, with a focus on side road layout, detailed design of priority for crossing cyclists and pedestrians, and how that priority is indicated.

This report presents the findings of the qualitative social research component. Using focus groups, this research explored the opinions, mindsets, mental approaches and behaviours of pedestrians, cyclists, drivers, and other road users, including disabled people, in relation to different side road crossing configurations in UK cities.

The focus groups were carried out to address the following questions:

1. How do different road users (i.e. pedestrians, cyclists, drivers) perceive different types of side road crossing, and why?
2. How do different road users think people should behave in those different types of side road crossings, and why?
3. How clearly and effectively do different road users think priority is indicated in those different types of side road crossings, from the layout of the junction and road markings, and why?

Section 2 describes the methodological approach. Section 3 outlines and justifies the approach taken to analyse and interpret the data. Section 4 presents the results and section 5 concludes the report.

2 METHODOLOGICAL APPROACH

Originally developed for market research purposes, focus groups are widely used in many different disciplines within the social sciences, including social research applied to the study of transport and travel behaviour (Clifton and Handy, 2003). As the name suggests, a focus group involves a ‘focused’ discussion on a specific topic, facilitated by a trained researcher, among a number of people which normally ranges from a minimum of six to a maximum of ten. According to research practice, focus group participants are encouraged to share their views on the issues under investigation, however there is no expectation that participants have pre-established views on such topics, and that they will reach consensus.

Originally, the intention was to conduct focus groups in two or more cities where some of the side road crossings that are being analysed in the observational studies are located. This would have provided the possibility to organise site visits with focus group participants, to experience the specific road crossings under study first hand. As a result of the Covid-19 pandemic and the national restrictions in place to limit the spread of infection, we developed an alternative methodology for conducting the focus groups remotely, using the UWE-approved on-line meeting platform Microsoft Teams.

We carried out eight on-line focus groups between 7th-12th March 2022. Participants’ recruitment and focus group composition are provided in section 2.1, whilst focus group session structure and facilitation approach are discussed in section 2.2.

2.1 Recruitment and focus group composition

Participants were recruited through a variety of channels, including e-mails to personal and professional contacts, and social media (Twitter, Facebook and LinkedIn). We sought to recruit people aged 18+ from all walks of life and geographical locations across the UK. However, we had a special focus on recruiting from areas in proximity to the fifteen junctions that are considered in the observational studies. Most importantly, the constituency of the focus groups was crafted to ensure the appropriate input from disabled people with different types of impairments, which would provide a wide range of experiences and interactions with transport infrastructure and other road users. To create opportunities for learning from each other’s experiences and perspectives, our aim was to mix disabled and non-disabled participants in each focus group session.

Overall, we sought to involve people who belonged to one or more of the following categories:

- Disabled and non-disabled people;
- People who regularly walk for transport (including with children, pushchairs etc.);
- People who regularly cycle for transport (including with children and adapted cycles);
- People who regularly drive for transport (including e-scooter users etc.).

As a result of our call for participants, several organisations offered to promote our research across multiple channels, including cycling and walking groups, active travel organisations, and disabled people's charities and interest groups across the UK.

Over eighty people contacted us in response to our call for participation and were provided with all the necessary information. Fifty people agreed to take part. Of these, forty-seven took part in the focus groups (three people did not attend), split between twenty-seven women and twenty men. Fifteen participants were disabled and reported having physical and sensory impairments affecting their day-to-day mobility: four had a mobility impairment (two used a wheelchair) and eleven were blind or partially sighted (BPS). Of these, four were guide dog users.

Among the thirty-two non-disabled participants, five reported being involved with disabled people or people with reduced mobility in a professional or personal capacity, for example as carers, volunteers or family members; two reported having long term conditions or injuries affecting aspects of their day-to-day mobility (such as balance), at the time of the focus group or in the past; and, finally, one participant reported having been injured in a collision with a vehicle while cycling.

Table 1 provides an overview of the composition of each focus group.

Table 1: Summary of focus groups and their composition

| Focus group | Composition | Disability |
|--|--|--|
| Focus group 1 N=6 participants. All those invited took part. | Four women and two men, aged 33 to 72. Geographical location: Midlands, Surrey, Hampshire, Greater London, Scotland. | All participants are non-disabled. One has a long term condition affecting their mobility. |
| Focus group 2 N=6 participants. All those invited took part. | Six women, aged 38 to 67. Geographical location: Greater London, Essex, Middlesex. | One BPS participant (long cane user). |
| Focus group 3 N=6 participants. All those invited took part. | Five women and one man, aged 34 to 71. Geographical location: Yorkshire, North West of England, Berkshire. | One BPS participant (guide dog user). |
| Focus group 4 N=6 participants. All those invited took part. | Three women and three men, aged 32 to 71. Geographical location: Greater London, Essex, Lancashire, Wales. | Three BPS participants (one is a guide dog user) |
| Focus group 5 N=5 participants. Two people did not attend. | Three women and two men, aged 25 to 57. Geographical location: Yorkshire, Wales, North West of England. | One disabled participant with mobility impairment. |
| Focus group 6 N=7 participants. All those invited took part. | Four women and three men, aged 31 to 77. Geographical location: West of England, North West of England, Wales. | Two disabled participants with mobility impairment (one is a wheelchair user, the other uses an adapted cycle). Two BPS participants. |
| Focus group 7 N=4 participants. Organised by an external organisation. | One woman and three men, age not specified. Geographical location: West of England. | One disabled participant with mobility impairment (wheelchair user). Two BPS participants (one is a guide dog user, the other is a long cane user). |
| Focus group 8 N=7 participants. One person did not attend. | One woman and six men, aged 27 to 67. Geographical location: Yorkshire, Midlands, North West of England, Greater London, West of England, Scotland. | Two BPS participants (one is a long cane user). |

Prior to the focus group, participants received the project information sheet and consent form by email, so they could ask questions. The process we followed in this qualitative research complies with UWE research ethics guidelines and has received ethical approval by the Faculty of Environment & Technology Ethics Committee.

2.2 Focus group session structure and facilitation approach

The eight focus groups took place between 7th-12th March 2022. All but one was hosted as virtual meetings on Microsoft Teams, the UWE-approved platform. One group was organised as a virtual meeting on Zoom by an external organisation, as this was the preferred platform used by their disabled members. Both platforms allowed people to join from an electronic device or a smartphone.

The focus groups were scheduled on different days of the week, including a Saturday, and at different times of the day - morning, lunchtime and late afternoon - to offer the widest range of options possible to suit participants' availability and schedules. Each focus group lasted about 75 minutes and was facilitated by Dr Miriam Ricci. The discussions were digitally audio-recorded and transcribed for analysis by a trusted external provider.

Each focus group session started with a brief introduction and icebreaker, to ensure participants felt at ease with each other and the researcher and understood how to engage in the discussion via the on-line platform. Following this, we used a PowerPoint presentation showing examples of side road crossings including images and videos, which were audibly described from a written script.

The PowerPoint slides began with the image of a generic side road junction featuring an informal pedestrian crossing, one of the most common side road crossings in the UK (Figure 1). This allowed participants not only to express their views on this common type of crossing design, but also to describe their day-to-day experiences of crossing similar side roads.

We then examined three or four different junctions, featuring a parallel crossing at the intersection between a main road and a side road (i.e. a pedestrian crossing and cycle crossing side by side). For each junction, a short video footage and a few images extracted from Google Maps were shown and audibly described in detail from a written script. These examples were selected because they provide a variety of design details and treatments to indicate priority for cyclists and pedestrians crossing the side road, on which we sought to elicit public opinions.

We took time to garner reaction from all participants to the initial description of the junctions. This opening format was important because it assisted in generating discussion amongst all participants about the nature of the junction and the crossing from multiple points of view, informed by different lived experiences. This allowed for a meaningful level of mutual understanding within the group about general issues and concerns that were immediately apparent at the junctions.

For example, once the key details of the junction had been read out while the images and video footage were being shown, participants could add their own observations to the description provided by the researcher, ask questions of each other and provide answers, thus enriching the breadth and depth of the comments on the junction under examination. As most of the groups engaged disabled people in dialogue with non-disabled people, these enriched, co-created descriptions of the junctions enabled expression and appreciation of the challenges faced by disabled people in general when walking (or wheeling), and more specifically when crossing a side road at the intersection with a main road, and the factors that can help, or hinder, them in this process.

After this initial phase, the focus group discussion moved on to address a series of individual topics of interest, listed in the focus group topic guide (see Appendix 1 - Focus group topic guide).

The junctions examined in the focus group sessions were chosen from the list in **Table 2** according to the geographical distribution of the group’s members. Participants were encouraged to discuss these junctions using their own experiences, and points of view, as pedestrians (including on wheelchairs and mobility scooters), cyclists and/or drivers.

Table 2: List of side road junctions examined in the focus groups

| Junctions under examination | Key features |
|---|---|
| Birmingham, Milton Street/A34 Bradford, Valley Road/Inkersley Road | Marked priority junction with full set-back ⁱ parallel crossing (zebra crossing with parallel cycle track) |

ⁱ Full set-back means that the cycle crossing point is set further away from the edge of the junction, so there is space for a vehicle to stop to give way without obstructing the crossing point or the main road carriageway.

| | |
|--|--|
| Birmingham, Olton Boulevard East/Summer Road | Marked priority junction with partial set-back parallel crossing (zebra crossing with parallel cycle track) |
| Leeds, Wykebeck Valley Road/York Road Cheltenham, Hesters Way Road/A4013 Kingston, Denmark Road/A24 (London) | Marked priority junction with full set-back cycle track and adjacent informal pedestrian crossing |
| Ickenham, High Road/Austin's Lane (London) | Marked priority junction with partial set-back ⁱⁱ cycle track and adjacent informal pedestrian crossing |
| St. Pancras, Byng Place/Gordon Square (London) Enfield, Sebastopol Road/Fore Street (London) | Marked priority junction with no set-back ⁱⁱⁱ cycle track and adjacent informal pedestrian crossing |
| York, Hallfield Road/Windsor Close | Full set-back cycle track and adjacent informal pedestrian crossing, but no marked priority for cyclists or pedestrians. |

ⁱⁱ Partial set-back means that the cycle crossing point is set further away from the edge of the junction, but less than a vehicle's length.

ⁱⁱⁱ No set-back means that the cycle track crosses the junction without any deviation.

3 DATA ANALYSIS AND INTERPRETATION

The transcripts of the focus group discussions constitute our qualitative data, which have been organised, managed and analysed using NVivo, Version 1.5. (QSR International, 2022).

NVivo is a computer-based software that supports qualitative data analysis in a variety of disciplines from sociology, psychology to business and marketing research. It allows researchers to organise and manage a wide range of research material, including not only the data collected and/or generated, but also all the literature and contextual information gathered for the research project. In doing so, it allows to interrogate and gather insights from the data more efficiently and effectively.

NVivo allowed and simplified the identification of key concepts and themes that emerged during the focus groups and stored the corresponding text in a thematic coding structure, which has been interrogated (using query tools in NVivo) according to the project's research questions. The coding structure has been developed collaboratively by the research team and applied consistently across all materials to ensure reliability of data analysis and interpretation.

4 RESULTS

The key findings from the focus group discussions are presented in the following sub-sections, which summarise the thematic analysis undertaken with NVivo 1.5. Each sub-section discusses the comments made on each individual junction at a time, starting with the typical side road junction which was also the first to be examined in each focus group session. The order of presentation of the comments made on the other junctions follows the order of the junctions in **Table 2**. Verbatim quotations are provided to illustrate the various themes emerging from the discussions using participants' own words.

4.1 Experiences and perceptions of crossing a typical side road

This section reports views and experiences of crossing a typical side road at the intersection with a main road. The image in Figure 1 was shown to stimulate discussion on the factors that make side road crossing safer and more comfortable for pedestrians, as well as those which make it less safe and comfortable, including infrastructural and behavioural aspects.

The following text was read out when the image was shown:

This picture shows a woman who has started to cross a side road, at the intersection with a main road. She is walking in the direction of the traffic on the main road. A car is turning left into the side road, but the driver has seen her and so stops to give way before turning. The mouth, or opening, of the junction is quite wide. There are no dropped kerbs and tactile paving at the implied pedestrian crossing point.

Figure 1: Example of a typical side road crossing (DVLA & DfT, 2022)



The image shown in Figure 1 accompanies Rule 170 of the UK Highway Code (DVLA & DfT, 2022), which concerns the behaviour drivers should adopt when approaching junctions. This allowed us to

explore participants' awareness and understanding of some of the changes in the Highway Code that came into effect from 29 January 2022, as well as their experiences of crossing side roads before and after these changes.

One of the changes concerns Rule 170 and requires drivers to give way not only to those already in a carriageway, but also those waiting to cross the carriageway of a side road. It states the following:

“Take extra care at junctions. You should: Watch out for cyclists, motorcyclists and pedestrians including powered wheelchairs/mobility scooter users as they are not always easy to see. Be aware that they may not have seen or heard you if you are approaching from behind. Give way to pedestrians crossing or waiting to cross a road into which or from which you are turning. If they have started to cross they have priority, so give way (see Rule H2)”.

Rule H2 - Rule for drivers, motorcyclists, horse drawn vehicles, horse riders and cyclists, in particular, states that “at a junction you should give way to pedestrians crossing or waiting to cross a road into which or from which you are turning” (DVLA & DfT, 2022).

A range of issues were raised in the comments participants made on the image in Figure 1:

- Design features such as the absence of a dropped kerb and tactile paving, and the wide mouth of the junction, which “invites high speeds”, give the impression of a junction designed to prioritise vehicles not people.

Although theoretically the woman crossing has got priority at that junction, there’s nothing in the junction design that tells either the driver or the woman crossing that that’s the case. It’s an old-school junction designed around the minimum of inconvenience to someone turning off that main road into that minor road. (Male, non-disabled)

So, as a driver, I wouldn’t have necessarily stopped for this person so I would have assumed, actually, that if I were coming off a main road or a bigger road then the side road that the car has the sort of right of way, so to speak. (Female, non-disabled)

- The wide opening of this junction would also allow cyclists to turn into the side road without having to slow much, however this was seen more as a safety benefit rather than a mere convenience.

A sweeping junction is better than a right-angle one because I don't have to slow so much. The more I have to slow, the greater the hazard I have from traffic behind me. (Male, non-disabled)

- Whilst the crossing pedestrian has priority at the junction and drivers turning in or out of the side road should give way, the design does not make people feel they can cross with confidence.

Well, I think if it was me crossing as a pedestrian if I thought there was a car that near I would be looking at it quite hard. And although there is that line across the entrance between the car and the side road, I wouldn't necessarily be trusting that it would be giving way. I mean I know it should. (Female, non-disabled)

She's not looking. She seems completely oblivious to the car. If that was me – I know technically pedestrians are meant to have priority –but I would be turning my head, keeping an eye on that car. She's kind of ambling along there and doesn't look like she's going particularly fast. I would probably speed up or shoo my kids along. Come on, go, go, go. (Female, non-disabled)

It's not clear from the picture whether any eye contact has been made before the lady starts to cross. I never have and never would, even with the change in the code, wouldn't cross a side road if there was a car coming without making eye contact with the driver. (Female, non-disabled)

- The design does not indicate where the pedestrian crossing point is, so people have to judge for themselves where it would be safe to cross, whether at the edge of the junction or further into the side road. Participants offered various strategies they would adopt in this scenario, which poses significant challenges to disabled people, in particular wheelchair users (because of the absence of a dropped kerb) and especially BPS people.

The way we are trained with our guide dogs is that you would never cross at the widest point and generally you wouldn't be crossing on the corner because the vehicle is turning. So you would look for a drop kerb. If you didn't get the drop kerb then the dog would indent a little bit until you tell the dog kerb right or kerb left depending on which is the direction of travel. You would be asking the dog to get to the kerb so you would indent into the road so that you cross at the narrowest point if you are able to assess that. (Female, disabled, BPS)

When I come to a junction like that obviously the edge of my cane would simply go off the pavement and you'd wonder for a second there what's going on. (Male, disabled, BPS)

I'd wait until it was quiet before I went, and if I could hear a vehicle, I wouldn't go, I'd wait for it to go because I guess part of my challenge sometimes the drivers indicate that it's okay for you to go. But I won't pick up on those visual clues, so I always wave them on. [...] The other thing is because there's no tactile markings, I'd naturally slow down because I wouldn't want to end up in the road without knowing as well. So, it's just kind of finding my bearings at the same time when there's no drop kerb. (Female, disabled, BPS)

- Visibility is the only positive aspect mentioned about this junction. People commented that “the view is quite clear” and “it's daytime. It's actually a very brightly lit day”.

There are also no trees or buildings or anything blocking the visibility of the driver or the pedestrian which, where I am, is often quite rare in terms of if you can cross a road and have decent visibility and feeling like you can trust that. (Female, non-disabled)

With the way this one is designed, if you can call it designed as it is more like just how roads used to be built, it is really typical of the kind of side road crossings that you get round where I live but this one has got incredibly good vision so the driver can see really well that there is someone waiting. I think this is obviously a fantasy scenario where the driver is aware of the changes in the Highway Code and thinks I shall be polite and wait. I don't think the vast majority of drivers are necessarily aware. The vast majority of pedestrians probably aren't aware either. Around where I live usually there are parked cars and parked vans and you can't be seen really very easily by cars pulling into side roads anyway. (Female, non-disabled)

The following points emerged from the comments made in relation to the changes in the Highway Code:

- The revised rules can potentially create clashes with the current guidelines BPS people follow when crossing the road, including with a guide dog.

It's not brilliant to walk in front of a car 'cause it goes against what the dogs have trained. (Female, disabled, BPS)

Yes I find it quite disconcerting to be honest with you yes. I'm not used to drivers letting me cross, it's normally you know you as a pedestrian kind of wait just because then you know it's safe. (Female, disabled, BPS)

- Questions were raised about how drivers would understand that someone is waiting to cross, and the possible implications of letting a pedestrian cross at a busy intersection where other drivers may behave differently.

The idea that I need to give way if the woman is on the pavement waiting to cross [...] in this situation it's not too bad because there's not loads of other cars around, but I would be concerned that I would be sort of implying that it was safe to cross when actually there might be other drivers and other people doing stuff that I hadn't kind of clocked and someone might be coming up fast and then going to turn right from the other direction, so I feel quite uncomfortable with the idea of that new rule, even though I absolutely support the idea that the pedestrian should be able to cross there and not have to go out of their way to another crossing, but it's just how I would feel about, it is uncomfortable. (Female, non disabled)

It puts undue pressure on the driver, encouraging or forcing the driver into a position where they have to indicate to a waiting pedestrian to cross, that it's safe for them to cross. (Male, disabled, BPS)

- Overall, there was no indication that people were confident that changes to the Highway Code would be complied with, because of general perception of poor publicity and expectation that changes might take some time to be translated into practice. There was mistrust about the hierarchy of road users.

That has just changed hasn't it? With the Highway Code they have just changed it so that pedestrians get priority over cyclists and cyclists get priority over cars. However, my own perspective on that is the bigger you are the higher priority you are. (Male, disabled, BPS)

- Some of the Highway Code changes were perceived to reinforce current cycling guidance.

I think the change to the Highway Code just emphasises that cyclists could have always done that. Cyclists always have always had the right. Even if there's the cycle path you always have the right to cycle on the main carriageway and you can occupy the lane if you have to so that you don't have fast overtaking if that's what you need to do to keep yourself safe. (Female, non-disabled)

- The debate about the changes highlighted differences in how priority for so-called vulnerable road users is determined and enforced in different countries. In some European countries, as

one of our participants indicates, it is common practice for drivers turning into or out of a side road to let waiting pedestrians cross.

I just moved to the UK about a year ago almost, so I was in [EU country] and I have an EU driving licence. So, when I start to walk around the city it was interesting for me that when I'm crossing the roads [in the UK] nobody stopped for me, for example, because it's rare in Europe generally. The pedestrian and the cyclist have the high priority. (Male, non-disabled)

- People who reported being aware of the Highway Code changes had heard it via traditional channels (TV, radio, newspapers etc.) but also through word of mouth, social media (e.g. Facebook, Twitter etc.) and even music streaming services (e.g. Spotify). A few mentioned that they knew about the changes because of their professional or personal engagement in issues such as local transport, disabled people's rights etc. Several comments expressed doubts that the general public (drivers) are aware about these changes and have incorporated them in their driving practices. The inflammatory tone of some of the media coverage of the changes was picked up in one of the comments.

Most of the publicity I saw about it was like very sort of headlines that are meant to create anger for car drivers. (Male, non-disabled)

4.2 Comments on Birmingham, Milton Street/A34

The junction features a full set-back parallel crossing, with a zebra crossing and bi-directional kerb-separated cycle track. It is quite a complex junction lying adjacent to a busy dual carriageway (the A34), with turns to the opposite carriageway being made via link road across the central reserve. This is part of the Birmingham's Blueway cycle network and extends from the city centre to Perry Bar. Whilst cycle priority is given at most side road junctions along this route, this is not the case for pedestrian priority. The arrangement has been established since about April 2019.

Figure 2: Milton St./A34, Birmingham



The following issues emerged from the comments made on this junction:

- In terms of priority, the zebra crossing was mentioned in the comments as the key visual cue alerting drivers to stop for crossing pedestrians. Priority for cyclists appeared less clear.

I think the intention is that the pedestrian and the cyclists crossing should have priority going across here. I think the intention is clear but I think it is very chaotic in practice. I would argue that it probably doesn't really achieve much and, yeah, the video you showed was very chaotic. People were crossing everywhere. (Female, non-disabled)

I think it's much clearer that you need to give priority to pedestrians because there's a zebra crossing. For the cyclists, it's less clear. Pedestrians to me in my mind have more priority, if I were a driver, than the cyclists and I wouldn't necessarily be expecting the cyclists. (Male, non-disabled)

- Familiarity with the junction would allow people to anticipate which road users they might encounter on the crossing point.
- Drivers may not expect fast cyclists to cycle on the cycleway.
- The set-back crossing point is "reassuring" for pedestrians.

4.3 Comments on Bradford, Valley Road/Inkersley Road

The junction features a full set-back parallel crossing, with a zebra crossing for pedestrians. There is a bi-directional cycle track painted in green running along the main road. The cycle track is kerb separated from the footway. The side road appears to be a non-adopted private road, as suggested

by the 5mph roundels. That might indicate limited turning traffic, but there is a Post Office customer service point accessed via this road.

Figure 3: Valley Rd./Inkersley Rd., Bradford



The following issues emerged from the comments made on this junction:

- Priority for cyclists appeared unclear to drivers. It could be reinforced by painting green the whole crossing.

The cycle one should be green to continue across to reinforce it. It still looks like the car has priority there. (Female, non-disabled)

As somebody who does cycle, I think I would on an ordinary bike I would be able to have some confidence that the drivers should give way, but I would obviously slow a little bit in order to check, in order to make sure that I could stop if they weren't. And I would assume that by being able to look them in the eye they'd probably would then deal with things in the right way. Also, I cycle a wheelchair tandem with my mother on it. And I would find that coming on or off that crossing was a bit of a – maybe a bit of a sharp turn. It's hard to see, but it might be a bit of a sharp 90 degree turn. But if it wasn't then that would be okay. (Female, non-disabled)

I have ridden it. When I actually approached that junction, I'm already trying to time it so I'm already aware of what's on my right-hand side if I'm travelling up the image. I can clearly see, the line of sight is really good, looking up. What I can't allow for – because of the trees and the foliage – is someone exiting that junction. I would approach that junction at either side with caution and assuming someone is going to exit, and I've got to assume they're not going to stop. (Male, non-disabled)

- Vehicles turning into the side road may be travelling at high speed and not slow down much (the video footage seems to suggest this), which can create a risk to both crossing pedestrians and cyclists. However, the zebra crossing, as well as the dotted line and cycle symbols on the cycle crossing, provide some reassurance that drivers will expect people crossing.

My question is, why do they always make those junctions so easy for the car not to slow down, why can't they make it more of a right angle turning and then you're forced to slow down. Do you know what I mean? They're always so smooth aren't they which doesn't impede but you know doesn't retard the car at all. (Female, non-disabled)

I would feel quite confident. I would still make sure I waited to make sure the cars did stop, I don't think I'd just literally walk out without looking. But I feel there is a space before that the cars can clearly wait in so I think I would be fairly confident on that to go across. (Female, non-disabled)

Also even crossing a zebra, I think you might feel a little bit more comfortable on a zebra than if there's nothing there – because you know that the majority of drivers will stop – but you still have to be defensive. On our local high street, we've got raised tables for all the zebras. We've got about four or five of them. It's great and most people do stop – it's 20 miles an hour zone anyway – but there are still times where somebody will just whip round the corner and not look, tunnel vision. Not look to see if there are cyclists, pedestrians, or children around and they just go. As you were saying, you have to kind of change how the drivers think. There are just still a few too many drivers around that don't think about other road users. (Female, non-disabled)

- Wheelchair users asked if there was a camber on the crossing, as this would make it more difficult to cross, and questioned the position the lamppost which can obstruct the way and create a hazard for visually impaired people.

That looks very narrow that paving going up the route, I might struggle to get my wheelchair up the sides of that which means I might be better in the cycle lane. Also, this lamppost right on the junction is a terrible place. They could have put it over on the other bit of curb for the cycle way because that blocks that and also gives you a trip hazard if you are BPS. You've crossed the crossing, you've walked straight into a lamppost. (Male, disabled, wheelchair user)

- The physical separation between cycle track and footway is a positive feature, although a detectable demarcation is absent along the crossing, so there is potential for conflict if a BPS person veers into the cycle crossing.

- Familiarity with this junction would help all road users, including BPS people.

I don't know Bradford and, if I turned up there tomorrow at this junction, I'd be very cautious because I wouldn't know whether I was in an area where there is this issue with drivers not stopping even when you're on the crossing. Or whether they're still old fashioned up there and they would stop and everything would be fine. (Female, non-disabled)

- The set-back position of the parallel crossing means that cyclists, and pedestrians, have to deviate from their desire line, which some people consider an inconvenience but at the same time a feature that provides added safety.

When I'm cycling with my kids – and if they're on the same bike as me and we've got luggage on – it's quite heavy. Firstly it can be a bit disconcerting having to turn around. It feels a bit wobblier. Having to slow down and then speed up again – it's such a heavy machine – it's a bit annoying. I don't like discontinuous routes, although I do choose to use them. There is one route we've got near us. It's very stop, start. You do have to keep stopping at junctions and looking over your shoulder. I prefer to do that. When I've got my kids with me, I don't really want to be on the big fast road. It's a bit of a compromise there. You want to be able to just keep going. That's the joy of cycling, isn't it? (Female, non-disabled)

4.4 Comments on Birmingham, Olton Boulevard East/Summer Road

The junction features a partial set-back two-staged parallel crossing. Olton Boulevard is four lanes wide, with each side separated by trees, which leads to a two-stage parallel crossing. Either side of the parallel crossings there is shared space, i.e. there are no separated cycle tracks. Unusually, the zebra crossing is located nearest the main road traffic and the parallel cycle crossing on the far side. At the network level, it is not very clear how and what the cycle crossings link to. The junction is close to a school and the road opposite has cycle markings on the road. The arrangement has been established since at least August 2018.

Figure 4: Olton Boulevard East/Summer Rd., Birmingham



The following issues emerged from the comments made on this junction:

- Opinions on this junction were mixed.
- Participants noticed that there were shops and other amenities around the junction, which might encourage people to drive carefully “because it feels like a place where you expect to see lots of pedestrians and where you expect to see lots of cars pulling out and stuff so that sort of feels a bit more pedestrian friendly.” The visibility of the junction appeared to be good from the available images.

The visibility there is very clear so, actually, even as you're driving along the straight you would see if there were people waiting to cross or about to cross. (Female, non-disabled)

- The video footage prompted comments highlighting potential dangers from vehicles turning into the side road at speed, and having many different road users navigating a complex junction at the same time:

It's such a busy complicated streetscape for the drivers. (Female, non-disabled)

My first thought is the whole thing is chaotic and dangerous. (Male, non-disabled)

There's traffic going everywhere. There's just not much order here. (Male, non-disabled)

A number of cars have stopped at or before but that one there, that red one, that was over the stop line right up to the zebra crossing. There needs to be a way of slowing the general throughput of main traffic down before they're executing the turn down the side roads. (Male, disabled, BPS)

- The cycle crossing did not appear to be linked to a cycle lane (“It is really peculiar. It just pops out, out of nowhere, doesn’t it?”), making the area around effectively a shared space where people may not necessarily use their designated crossing facility.

It was interesting looking at the fast play that the cyclist was going over the pedestrian zebra crossing and most of the people are going into the cycle lane. (Female, non-disabled)

- There was general agreement that the shared space is a negative feature in this junction, potentially creating conflict between pedestrians and cyclists, as well as posing significant risks for BPS people.

As someone who is severely sight impaired and obviously for other blind or partially sighted people this segregation from cyclists is really important and for me, it might sound really silly, but I’m actually terrified of being hit by a cyclist. (Female, disabled, BPS)

- People who reported to regularly cycle for transport highlighted the risks of sharing the space with pedestrians. They also acknowledged that the cycle crossing per se looked relatively safe because it is adjacent to a zebra crossing, which “provides a really visual indicator to drivers in stopping” and has the cycle symbols on it. Several people however indicated they would not use the crossing and cycle on the road instead.

I reckon this is one of these cycle crossings that probably helps families with children perhaps but not necessarily people on a longer journey somewhere, like commuters. I mean, I don’t know. I would have opted to cycle on the road in this instance, put it that way. (Female, non-disabled)

From the cyclist point of view there’s absolutely no way to get on or off there at all. There’s just nothing to help you so I would use the road. I wouldn’t even attempt to use the crossing. (Male, non-disabled)

- The position of the pedestrian crossing close to the edge of the junction was picked up in several comments, which highlighted both positive and negative implications.

I think, from a pedestrian point of view, it’s very convenient because there’s no – you don’t have to divert out of your way. The crossings are on the desire line. (Male, non-disabled)

I think because of that I would be a very nervous pedestrian crossing. I think there’s a conflict with if cars are turning onto the side road they would like to clear themselves. The instinct as a driver is to clear yourself out of the oncoming traffic lane so you might naturally be accelerating at that

point in time and then have to stop very suddenly and I think several cars didn't need to stop very suddenly in the video. So I would be nervous as a driver and nervous as a pedestrian and a cyclist crossing here so I think it's one of these situations where some – if an accident happens I would have a bit of sympathy on both sides because it was a poor setup to put all of the users in a very unclear situation. (Female, non-disabled)

There's nowhere to stop [as a driver]. You know, my worry is who's behind me and who's going to pile into the back of me, because if I'm giving her way [crossing female pedestrian in the image] I'd be worried about what's going on behind me more than anything. (Female, disabled, mobility impairment)

- Several people suggested that reducing the width of the junction and raising the crossing, or even placing a signalised crossing, would provide more safety, however not everyone agreed with this.

I agree that it looks like a mess as a driver, but for me as a pedestrian and cyclist, I am fine with the crossings as they are and would prefer them to traffic light crossings where I would have to wait to cross. (Female, non-disabled)

I like that zebra crossing. I would stop at a zebra crossing. I think it does have the respect of every driver knows what a zebra crossing means. I think drivers do respect zebra crossings. (Female, non-disabled)

4.5 Comments on Leeds, Wykebeck Valley Road/York Road

The junction features a full set-back parallel crossing, with unidirectional kerb-separated cycle track and informal pedestrian crossing. The parallel crossing is adjacent to a fast dual carriageway, with the risk of fast traffic turning left into the side road. However, there are several car lengths between the major road and the cycle track. There is a give way warning sign for exiting traffic, but not for vehicles turning in. The cycle track and footway remain separate and there is no shared space. It is part of Leeds City Superhighway, so part of an extensive network with numerous examples. It was completed around May 2016.

Figure 5: Wykebeck Valley Rd./York Rd., Leeds



The following issues emerged from the comments made on this junction:

- There was disagreement on whether priority for pedestrians and cyclists was clearly indicated.

If I crossed at that location probably I would be keeping my eyes peeled to the road traffic signs i.e. give way signs in case someone is driving towards me I would just be able to point at the give way sign on the post there or on the tarmac because otherwise there isn't anything else to say I should be there, there is no Belisha beacon there is no markings on the tarmac itself, the only clue I would have as pedestrian is they have the tactile paving that's the only clue which says to me in a way that's a pedestrian crossing point. (Male, non-disabled)

Well, this junction would give me a lot of confidence as a driver, pedestrian and cyclist because I think it's very clear what's going on and who should be doing what and who has priority. (Male, non-disabled)

- There was confusion over the meaning of road markings and signs at the parallel crossing, and whether other warning signs would be needed.

The other thing which worries me as a cyclist, there aren't any significant warning signs for drivers to say caution there is a cycle crossing and I know that when you do have a cycle route crossing a road there are the triangular signs with the cyclist in the middle which probably should be applied to that location. (Male, non-disabled)

The road markings, the give way road markings approaching that raised table or whatever it is there, indicate that motor vehicles, or the road vehicles in this case, the road vehicles should give way to some other road vehicles crossing here and the only other road vehicles crossing here are cyclists. Those markings, those give way markings, do not indicate to drivers to give way to pedestrians. They don't have that meaning. (Male, non-disabled)

What is weird I think is where the give way sign next to the first give way line has dual carriageway when actually there's another give way line for the dual carriageway further up and the give way line there is for the crossing, so I feel like that's just a bit confusing. (Female, non-disabled)

I'd be confused. I wouldn't really know, I mean bearing in mind that I'm a country bumkin and I don't come across these kinds of places very often, I wouldn't know why I was stopping because the crossing is so unclear it's so unmarked apart from the give way, so I agree you know if I see a give way you know I'll give way. I don't think it would really enter my head that that was why. Like you said, a different sign to tell you this is a crossing, you know, it needs to be clearer. (Female, disabled, mobility impairment)

- The main road is a busy dual carriageway, which prompted concerns about the speed of traffic turning into the side road.

There's a place near me which is like quite a fast dual carriageway and some people really zoom off into one of those crossings and I always worry about if someone starts crossing as the car turns in, the car might not see that person crossing and the person crossing might not see the car sort of thing. (Male, non-disabled)

- The image shows a vehicle parked (presumably illegally) next to the parallel crossing. This blocks the view of people walking and cycling approaching the crossing and increases safety risks.
- There is a lamppost obstructing the footway, so pedestrians with pushchairs and wheelchair users may need to use part of the cycleway to reach the crossing. The video footage shows pedestrians doing that and also walking on the cycle crossing, as this provides a shortcut for pedestrians.

I think the car parked next to it is unhelpful. I also think the lamp post is unhelpful because it pushes people especially if you've got something like a pushchair it would push you into the cycle lane, there might be some conflict there and so then you're looking around the car and you're looking for cyclists as well. So I think if the lamp post wasn't there it would just naturally put you in a better position. (Female, non-disabled)

Human beings, being the awkward annoying creatures that we are, we don't always follow the rules even when they are clear and on this, I don't think it's entirely clear, it looks a bit implied, so I'm not surprised that some pedestrians are going over into the cycling area when they shouldn't be or it's unsafe for them to do so. (Male, disabled, BPS)

- The deviation from the direction of travel along the main road would be an inconvenience for some cyclists, although it is recognised that the aim is to increase safety.

As a cyclist I'm a bit conflicted with these junctions because yes, I know that they're safer, but ideally I would be on the carriageway, and I would be holding my lane in the carriageway and go with the traffic. Imagine one of those junctions at every single side street it would just be ridiculous, there's a thing called the Leeds Bradford Super Highway and it's like this every junction is you're going into the side street coming out of it, it's just ridiculous you know, it makes your journey so interrupted it takes twice as long you know, and I even think oh shall I be bothered shall I just drive because I can drive in a straight line you know. I don't know what the answer is, but I know you probably don't get them in the Netherlands. (Female, non-disabled)

- BPS people pointed out the key issues they would need to know about a junction like this, for example how the diversion from the pedestrian desire line is signalled, and about the size and level of the pedestrian crossing.

From a blind pedestrian point of view, how would I know whether I was in the cycle lane? Maybe there's a kerb there but it doesn't sound like it's very visible and if it's not very visible maybe it's not very easy to detect with a white cane. If pedestrians are being diverted from their desire line to sort of indent and cross, how is that signalled? How, as a blind pedestrian, would I pick up on the need to move away from the mouth of the junction in order to cross? And if I didn't divert in to find that tactile paving and if I just kind of went straight ahead, would I detect when I stepped into the road if the road is raised to the same level as the footway? (Male, disabled, BPS)

If you've got a guide dog, you do tend to walk straight. If you don't have a guide dog that you're following, a lot of people veer off to the left or the right. I just wondered if there was any chance of them – not exactly falling off, 'cause it's not a cliff edge – but I just wondered if there was any opportunity for maybe going over on your ankle [if stepping on the slope of the raised crossing]? (Female, disabled, BPS)

4.6 Comments on Cheltenham, Hesters Way Road/A4013

The junction features a full set-back parallel crossing, with bi-directional cycle track, paint-separated from pedestrians. There are give way warning signs in both directions. There are give way markings in and out. There are similar arrangements in the network across several junctions, but this junction is busier than some of the others. The arrangement has been established since at least May 2009.

Figure 6: Hesters Way Rd./A4013, Cheltenham



The following issues emerged from the comments made on this junction:

- First impressions from the video footage and images were negative and included statements such as “nightmare junction” with busy main road with fast traffic.
- People expressed concerns that drivers turning left, presumably at speed, would ignore give way road markings, as shown in the video footage. The wide radii of the junction raised safety concerns, although the set-back crossing point provided some reassurance.

I find it very strange that, once again, the junction entry angle and exit angle for cars is so wide so that encourages speed but it also means that cars enter at an angle if they’re coming from the left where they won’t see a pedestrian or cyclist crossing, whereas if they were forced to slow down and do a much more 90 degree turn they would then be in a position where they’re much more likely to see a crossing pedestrian or cyclist and be going at a speed that would allow them to stop safely. (Male, non-disabled)

- It was noted that vehicles exiting the side road might end up in a queue blocking the parallel crossing, making it difficult for pedestrians and cyclists to cross safely.

The cars are ignoring the give way signs so queueing over the junction. I find on my trike that because it is a lot wider, so it is about a metre wide, that I can’t actually even move between the traffic to get across, so it increases the amount of time I’m waiting and I’m then dependent on a car driver stopping as they are supposed to, to be able to get across. (Female, disabled, mobility impairment)

- BPS people expressed concerns about the potential risks from vehicles travelling at speed on the busy main road turning into the side road without slowing down.

For me, this would become almost a no-go area. I would avoid it because I would be so scared of the traffic that coming off that road potentially doesn't seem to slow down because of the shape of the corner. Then the queueing, as you say, particularly when they are exiting and queueing over the crossing. The other problem that you have as a guide dog owner is that we are trained not to cross between vehicles because you've got to be mindful that sometimes when people take their handbrakes off they roll backwards which could hit you or the dog. So there is the queueing over the crossing but there is also the issue around your dog knows how wide it can cross but if there are vehicles there the dog just will not cross. It will refuse, so no, this will become something of a no go area for me and probably lots of other blind or partially sighted people because you wouldn't feel safe at all. (Female, disabled, BPS)

- The cycle crossing painted in red stood out and highlighted the lack of a similar treatment for the pedestrian crossing. It was suggested that a signalised crossing or a zebra crossing would provide a safer, more prominent pedestrian crossing in this context.

I'm not suggesting more clutter but somewhere like that I hope we could help drivers by saying, "Look, here is a zebra crossing," that everybody recognises as a pedestrian crossing and that really would jump out at you and I think probably in a situation like that, that's what drivers need. (Female, non-disabled)

From the perspective of a cyclist, this arrangement is actually better, from my perspective, only in the sense that when you're coming up the pavement you're still broadly parallel to the road so that, as a cyclist, you can keep an eye on what's over your right or left shoulder depending on which direction you're going and you would still have good visibility of the cars who might be turning in. So this is a more direct crossing which does slow you down so that you can cross safely but is still direct enough that you can see what's coming ahead of you and look over your shoulder on the right. (Female, non-disabled)

4.7 Comments on Kingston, Denmark Road/A24 (London)

The junction features a full set-back parallel crossing, with a bi-directional cycle track, kerb-separated from the main road and the footway. There is an informal pedestrian crossing next to the cycle crossing. Both crossings are on a raised table. Both in and out give way markings consist of double dash lines only. It is part of a growing cycle network first opened in 2019. The arrangement has been established since about May 2019.

Figure 7: Denmark Rd./A24, Kingston, London



The following issues emerged from the comments made on this junction:

- Pedestrian priority was not clear to drivers turning into the side road, although the presence of a raised table might indicate a crossing point.
- The cycleway keeps the same colour and material along the crossing, which was considered a positive feature. The crossing would appear more prominent to drivers and crossing cyclists would feel more conspicuous and safer. However, the set-back position of the crossing raised some criticism, in that it seems to push cyclists with pedestrians, undermining their status as “traffic”.

You’ve got really clear give way indicators across the cycle path and the pedestrian crossing although, I don’t know whether that would be clear that it’s just for the cyclists and for the pedestrians or whether it’s for just the cyclists. I mean I know that the laws have changed so, for me, it shouldn’t make any difference. (Female, non-disabled)

So if I make the comparison where so I’ve cycled over on the continent and their crossings are – when they’re like this are closer to the road so that it becomes more obvious that the cyclist is cycling along with the car. And that to me feels better than this one. I feel safe that the road users understand that that is the part of the road that I am traffic as well. (Female, non-disabled)

- BPS people felt reassured by the set-back position of the pedestrian crossing, which might alleviate the issues of vehicles blocking the crossing while waiting to exit the side road. However, there were concerns that drivers might end up queuing to exit the side road and block both crossings in practice.

I can’t see any signage saying give way, no waiting on those, so people don’t pull over. There’s nobody crossing and people pull up and then they’re waiting, they’re likely to block the pedestrian

path whilst they waiting for the box at the front to clear so they can move into that to move out. [...] If this was a busier road, there could be potentially loads of cars queuing up over that pedestrian cycle crossing point and then as a car goes off the next car just keeps coming over it and you could be waiting ages to cross. (Female, non-disabled)

- Drivers may notice give way signage more than road markings, especially if these are obscured by other vehicles.

For me, it's definitely signage. (Male, disabled, wheelchair user)

I'm going to say signage probably I think signage definitely grabs you more because especially if it's on a busy road, the chances are you don't necessarily see the road markings if you're just like following bumper to bumper, whereas signage should not be in an ideal world blocked or obscured, so it should be easier and I think especially with so many changes how junctions should be used, having the signage is going to be key. (Female, non-disabled)

- The crossings are not on the desire line, especially the pedestrian crossing, which may cause difficulties to BPS people, for example when changing their direction of travel to reach the crossing without stepping on the cycleway, and then correctly reach the other side of the crossing to continue walking along the main road.

There's nothing to stop if you were walking straight along, how would you know you've not stepped into the cycleway if you're blind or visually impaired? (Male, disabled, wheelchair user)

- The shape and position of the tactile paving could also create confusion to visually impaired people. Guide dogs would need to correctly identify the crossing point in the absence of a dropped kerb.

That tactile on the bottom side of the picture, it's a funny triangle so it's not the same depth approaching the crossing point. That should be the same depth all the way round that crossing point, even if it's curb rather than cut because if you're approaching the right side, the building side of that crossing point, you might miss that tactile. (Male, disabled, wheelchair user)

- Lastly, one of the images showed a bin at the corner of the junction next to the cycleway, so a pedestrian would need to walk across the cycleway to use the bin.

4.8 Comments on Ickenham, High Road/Austin's Lane (London)

The junction features a partial set-back parallel crossing. The crossing for pedestrians is informal. There are dropped kerbs on both sides. On the left-hand side of the crossing point, the bi-directional cycle track is kerb separated from the footway, but on the right-hand side it is shared space although it looks like a cycle track. The implied pedestrian crossing point from the right is inside the give way markings on the carriageway and so priority is granted for crossing pedestrians. This could create confusion as there is not consistency between approaches at adjacent junctions.

Figure 8: High Rd./Austin's Lane, Ickenham, London



The following issues emerged from the comments made on this junction:

- Overall, this junction attracted negative comments.

So the first thing I notice is that all the cars stopped in the cycle lane before they could proceed. So that's bad design so any cyclists coming along the lane can't get past the car. They have to swerve or stop or whatever so that's really, really bad design, from my point of view. If I were a cyclist I'd hate that and it's really not clear where pedestrians go. Pedestrians are having to walk on the lines or risk the cycle track, or whatever, so for me that's really quite a scary junction from a pedestrian and cyclist point of view, I think. (Female, non-disabled)

I think it looks very dangerous for pedestrians to cross there. (Female, non-disabled)

Sounds too confusing, I mean personally I don't think I'd be very confident in crossing no. (Female, disabled, BPS)

I agree, the whole place is quite hostile. (Female, non-disabled)

- The speed of traffic on the main road was an important element in the discussions.

- The pedestrian crossing point was considered rather unclear/ambiguous and participants noticed that vehicles did not stop for pedestrians in the video footage.

The tactile directs people on to what isn't a pedestrian crossing. (Female, non-disabled)

There was an interesting moment as well with the pedestrian coming along from the left, encountered a car and had to walk around it. For me that would be quite scary because if I suddenly have to make a movement I can fall over. So, I'm absolutely fine, I can hammer along in a straight line on an even pavement but, coming up against something and suddenly having to get out of the way, that's really difficult. (Female, non-disabled)

- The presence of planters, such as those shown in the video footage, may reduce the footway.
- The space allocated to cyclists and pedestrians along the main road appeared insufficient.
- The lack of physical separation between the cycleway and footway on one side of the junction might create a risk of conflict between cyclists and pedestrians, and an additional risk to BPS people who would not be aware of the cycleway.
- One of the London-based participants, who knew this junction well, provided a lengthy explanation of the features that can make it unsafe and confusing.

That cycle lane has got multiple side roads crossing and most of them don't actually have priority for the pedestrians and cyclists as indeed this does have. And so most the cars don't expect, really expect it to actually have that priority, and there's certainly nothing there for pedestrians. There has been a very slight change. They've actually ended up with give way signs I think on the cycle – I'm not sure exactly, there's a triangular marking on the cycle lane – where the tactile now are there's a triangular marking on there, which I think means that cycles are supposed to give way or something. But one thing about it is that the cycle lane is supposedly two way, but there is a cycle, a very narrow painted cycle lane on the other side of the road going in the other direction. And then, if you do cycle along it from the direction we're looking up towards the top of the opposite direction to where the cyclist is actually going. It says it's two way but there is no indication on that cycle path further up where it stops being two way and where you're supposed to cross the road back on to the other side. And you end up just on road, it's really bad. (Female, non-disabled)

- Another London-based participant suggested an alternative design for this junction:

I've seen newer cycle schemes on similar type routes in other parts of London where, instead of trying to be set-back by one metre, the cycle track continues on a raised table straight across the intersection and then the pedestrian crossing and the stopping point for cars on the side road is actually behind that. All the while, that's not set-back at all from the main road. That's preferable to me as a cyclist and also a driver because I can see quite clearly that there's a raised table with a coloured track which means it's got my attention. I shouldn't be turning into it if someone's crossing onto it. It's just like another lane. It looks and feels like another lane of traffic, so I think these junctions, they're either fully set-back with a pedestrian crossing or they are not at all and on a raised table with painted – like a colour. (Female, non-disabled)

4.9 Comments on St Pancras, Byng Place/Gordon Square (London)

The junction features a parallel crossing in a 20 mph zone, with no set-back, so both pedestrian and cycle crossings are the edge of the junction. The cycle track is unidirectional and is closest to the main road carriageway. It is kerb separated from the footway. Give way markings are indicated by double dashed lines only. Marked priority is granted for crossing cyclists, but not for pedestrians.

Figure 9: Byng Place/Gordon Sq., St. Pancras, London



The following issues emerged from the comments made on this junction:

- Participants expected that pedestrians have priority, however the video footage showed pedestrians having to wait and/or yield to vehicles.
- Questions were asked about the raised crossing, for example regarding the presence of any inclines and/or cambers, which could cause problems to wheelchair users.

As a wheelchair user, if I was coming from where the first man stepped out which is on the right of the screen as I look at it under the greenery, there's a raise – that path is lower than the road going

up – so it's a slight incline on the road going up to the other side as they step out, it looks like they walk up a bit and this runs down a bit there. That change in difference is going to be quite hard for some wheelchair users to adapt to. Quite often if there's old roads that are just tarmacked onto top of cobble have that curbed effect. Quite often I end up just sitting in the guttering because I can't get my coasters of the front wheels to climb up from the path to go up and over. (Male, disabled, wheelchair user)

- Wheelchair users welcomed the presence of a raised crossing but questioned its position at widest edge of the junction. Non-disabled participants raised this point as well.

They are forcing people to cross where the road is at its widest point. If you put the pedestrian crossing further down where it is narrower people aren't going to walk to that either so what really needs to happen is the mouth of that road needs to be much more narrow so cars can't sweep into it and just think I'm just going to drive here now at the same speed I was on before. It's just too open and people aren't going to amend their speed if they are driving. (Female, non-disabled)

- A question was asked about the function and position of the refuge island in the side road, and whether it should be brought forward.
- The comments below provide a range of views about how different road users would or should behave.

As a cyclist I would be confident that I have priority but I wouldn't ask drivers to behave like I have priority. As a pedestrian I think I would probably be more confident on that crossing in terms of priority, but they've upgraded it to having the raised footway and haven't changed it from a bell-mouth junction. (Female, disabled, mobility impairment)

As a driver turning into that side road, I can't see whether the paint's worn away or whatever, it doesn't look like you're going to go up and over the crossing, so it doesn't look like you're driving over a crossing. (Female, non-disabled)

Because the rules have changed now so the cyclist if they're going straight on you would need to allow them to go straight on before you turn and then of course the issue with that and where it's set up is then if you've allowed a cyclist to go on you then wait, blocking the cycle lane for the pedestrians to cross. (Female, non-disabled)

The issue there is, white van man and taxi driver, especially if they're in a hurry for work aren't necessarily going to wait for cyclists and pedestrians. (Male, disabled, wheelchair user)

The other point that may be contentious I assume if you're travelling down that cycle path on a cycle, you can turn left into that side junction and again that could cause a possible interaction with pedestrians trying to cross inside of where you're cycling? (Male, disabled, BPS)

- BPS participants asked specific questions about the type of tactile paving used, its size and position on the edge of the crossing, to understand how easy it would be for them to cross the side road. Guide dogs users raised questions relating to the issues this crossing may create for a guide dog:

My dog is trained to recognise kerbs, so tactiles are a clue to them, but actually there is no kerb. 125mm is obviously the standard height which one would ask for because it is the best safety measure but actually guide dogs cannot detect anything below a 60mm drop so the dog isn't sure. Also, the issue is if the dog hasn't got a kerb to head to there is the potential for one to go off at a diagonal angle as well. (Female, disabled, BPS)

What I would do if I came to a junction like that and I had no previous experience of how it was set up, I would indicate [to my guide dog] intent to cross and I would walk then behind the lump in the road which is there and go right across the road without even knowing it was there. So I would still go down a step and up a kerb and I would be ignoring what's there because nobody would have told me. (Male, disabled, BPS)

4.10 Comments on Enfield, Sebastopol Road/Fore Street (London)

The junction features a parallel crossing with no set-back in a 20 mph zone. The crossing is raised. The cycle track is unidirectional, and kerb separated from the main road and the footway. There are give way markings on the approach to the pedestrian crossing, for vehicles turning out of the side road into the main road. The arrangement has been established at least since May 2019.

Figure 10: Sebastopol Rd./Fore St., Enfield, London



The following issues emerged from the comments made on this junction:

- Priority for cyclists was unclear to participants. Even when people thought there was priority, they were reluctant to assume drivers would give way in practice.

I would take priority there. I would treat that as if I was cycling on road 'cause it's immediately parallel to the road and I would just go for it. (Female, non-disabled)

I think you do literally have priority. I wouldn't assume I had priority. (Male, non-disabled)

I think drivers will not perceive it as a continuation of the cycle track and assume that they give cyclists right of way. (Female, non-disabled)

- The following positive aspects were mentioned: visibility for both drivers and cyclists on the cycleway appeared good; the pedestrian crossing looked safer compared to other junctions.

I would feel more comfortable as a pedestrian to cross this one because it is not too wide either. I mean, you can be quick and go, like I would have this feeling it is not too long to cross. (Female, non-disabled)

With one of the other junctions, it would take ages to get across that with kids or whatever else, or if you had mobility problems. (Female, non-disabled)

- The 20mph sign should warn drivers that they need to slow down and give way. It was also pointed out that there is a bus lane adjacent to the cycle track, which drivers would need to cross before turning left into the side road, giving them plenty of time to slow down and look around.

Drivers should have a big advantage here because you do have a bus lane, so you have also like a setback given that you can turn left over that lane in the first place and look around you [...] they

don't just turn left straightaway. We can see how everyone is forced to slow down because it is quite narrow, the entry point and exit point from that junction. (Male, non-disabled)

- However, people noticed that several vehicles in the video footage did not stop for pedestrians crossing or about to cross.
- Another issue raised concerned the width of the pedestrian crossing, which did not seem to match that of the footway, creating potential confusion for pedestrians wishing to cross.

This van, he's blocked the walkway, but it doesn't look like a walkway, it's clearly marked for cyclists, but the other bits, a bit sort of wishy washy where am I supposed to cross there. (Female, disabled, mobility impairment)

- The paving material and colour of the cycle crossing is different from those used in the cycle track. Using the same colours and materials would have improved the perception of safety of this crossing.
- Finally, a comment was made about the potential risks of a raised crossing for cyclists riding on the main road and wanting to turn left into the side road.

Having raised tables and raised junctions [...] the only problem I have with those as a cyclist on a tricycle, so my cargo bike is a tricycle, is if we took this picture and example, I would try to turn left into this arrangement and this was a steep camber onto a raised table, I would be at risk of capsizing my bike, and in fact I've done that before with a child in it. So the ideal, actually, is if it's a sharp turn to the left, sort of a left turn like this, there should be some way of being able to kind of glide yourself onto the cycle path to be able to turn left, which you can't do here because it's a raised kerb, or the whole junction is on a raised table so that when you actually need to do the 90 degree turn you don't tip yourself over. (Female, non-disabled)

4.11 Comments on York, Hallfield Road/Windsor Close

This junction features a full set-back parallel crossing where there is no marked priority for crossing pedestrians and cyclists, i.e., there are no road markings requiring carriageway traffic to give way to people crossing.

Figure 11: Hallfield Rd./Windsor Cl., York



The following issues emerged from the comments made on this junction:

- Whilst there are no road markings indicating priority for crossing cyclists and pedestrians, the recent changes to the Highway Code should guide drivers' behaviours.
- The crossing point and the area adjacent to it look like a shared space creating potential conflict between pedestrians and cyclists.

The junction is just appalling. I mean, I don't even know, as a pedestrian, where I should be on it. I've got no idea at all. (Male, non-disabled)

The danger zone is this grey pavement area where both the cyclist and the pedestrian lines end, so there's a big empty space here. The lines run out here and there's about three or four feet before you get to the raised pedestrian area, before you get to the edge of the pavement when it's bit of a free-for-all and it's kind of 'well, is this bit for the cyclists or is this bit for the pedestrians?' and on one or two occasions, certainly when I've been walking in this area, on one occasion I nearly came a cropper by being hit by a cyclist because he wasn't sure whether he was on the right bit or I was on the right bit because there's no lines to indicate, it doesn't go right the way up to the pedestrian area before you get to the edge of the pavement, so that's just one of numerous problems with this layout. (Male, disabled, BPS)

- Whilst the set-back crossing would help drivers stop for crossing pedestrians and cyclists without blocking traffic on the main carriageway, the layout of the cycleway and the crossing point might create inconvenience and risks for cyclists, in addition to the shared space issue.

I wouldn't use that cycle lane because there are a number of hazards from my point of view. I wouldn't use the cycle lane at all. It doesn't look safe to be as a cyclist, as are the vast majority of urban cycle lanes are unsafe from a cyclist perspective. (Male, non-disabled)

4.12 General comments and recommendations

4.12.1 Types of crossings and road markings

- From the focus group discussions, there was no indication that people would feel more comfortable and safer crossing a side road after the changes in the Highway Code that came into effect in January 2022.
- BPS people expressed a preference for signal-controlled crossings.

Obviously coming from the RNIB my perspective has got to be from people with sight loss and we really need a safe place to cross the road, and zebras and courtesy crossings aren't, because they are controlled by eye contact. (Male, disabled, BPS)

- Zebra road markings are perceived to be generally recognised and respected, although there are differences in their use across countries.

What I find in Spain is that the key road marking makes a real difference and most of these locations there's a zebra. So there's a zebra marking which is recognised, you know, universally pretty much. That makes a huge difference so there's no playing around with all these different kinds of markings that we see here [in the UK]. There's just a zebra and people almost universally respect it and that makes a massive difference. (Male, non-disabled)

- There was some support for trials of Zebra crossings without Belisha beacons.

I know that we can't have a zebra crossing on the pavement without the belishas and all the rest of it. I'm really hoping we fix that soon because that would at least be a visual cue which everybody understands. If there are zebra markings on the road, this is where we expect pedestrians to cross, let them cross. (Female, non-disabled)

- More consistency in the use of road markings, treatments and street furniture is needed across the country to minimise ambiguity and confusion.

As a human, you are looking for visual cues as to what to do and how to act, how to interact with it. If there's a lack of consistency, then it's really difficult for people to just have a consistent approach, I guess, to behaviour. (Male, non-disabled)

I am concerned that road markings at some junctions will make others ambiguous and more dangerous for all road users. (Male, non-disabled)

There is, I guess, a problem if you have lots of different crossing types that you create more confusion especially by drivers on what they have to do. I can imagine a situation but it is premised on drivers doing what they are supposed to do, that is that you take away all crossing points and the Highway Code is followed and pedestrians have priority then that obviously is the best situation isn't it. Not having them, there is that logic that there is the uniformity across every single crossing and that drivers will stop because they will know there is no confusion there. Yes, it is premised on the drivers doing what they are supposed to. (Female, disabled, mobility impairment)

There's so much paint, so much signage. I can totally see why people just ignore it or just put their foot down and try and get out of that. It's stressful, urban driving. Particularly in that image, there's a lot going on. There are signs every which way. (Female, non-disabled)

- The use of design, colours and contrasting paving materials can be useful to indicate priority, but there are caveats.

I've seen on some crossings, well I don't know what they are exactly, where a pedestrian route on the road has been painted which I don't think has any sort of enforcement in the highway code but a lot of people stop to let you cross on a painted section of road which I think is quite a nice low key way of doing it, cos sometimes you don't want loads of infrastructure or there might not be space for it and it just makes it a little bit easier and as a driver some of these crossings have an awful lot of white markings and you're looking at the changing speed limit, you're looking at the other traffic, there's all these white shapes all over the place. Whereas a big block of colour sort of grabs your attention and you immediately slow down because you're like 'what am I supposed to do here'. (Female, non-disabled)

The thing is, it's what is noticeable or not noticeable anyway, no matter what the Highway Code does or doesn't say. What actually will be noticed? I'm not sure that's always been done that well anyway. (Female, non-disabled)

In Leeds, they've had these multicoloured crossings whereas we would normally have the zebra. That's another no-no for people with learning difficulties, severe migraines, epilepsy and all that. (Male, non-disabled)

- Reducing the radii of junctions to slow turning traffic was generally supported.

The shape of junctions needs to change, to tighten turns that do require drivers to change gear and slow down which will also hopefully mean they will see pedestrians but whether they'll stop in accordance with the new highways code is dubious. (Female, disabled, BPS)

4.12.2 Road users' attitudes and practices

- Changes in how road users behave, for example because of changes in the Highway Code, are possible, but take time and need further support, such as enforcement and education.

That's one of those things where it becomes socially normalised like I believe in other European countries. It is very much that expectation that every driver and every pedestrian knows and so every social practice shifts but going from where we are in this country it is the big move to get to a stage where we can get rid of crossings. (Male, disabled, wheelchair user)

Road markings, spaces, crossings etc obviously play their part but I believe what is needed most is to change culture and people's thinking. This will take time but could be possible with an all-embracing comms campaign with appropriate messages linked to a central theme e.g. "be kind." (Female, non-disabled)

- Presumed liability^{iv} was mentioned as one of the possible ways to improve safety for those road users, such as pedestrian and cyclists, most at risk from the actions of others, such as drivers.

If you as a driver hit a pedestrian or a cyclist unless you can show otherwise you are responsible. Now, every time anybody suggests that here you get the Daily Mail headline 'Motorist persecuted' but that's what we need, presume liability insurance. It would make a huge difference. (Male, non-disabled)

- Those who use different means of transport, including walking and cycling, are perceived to be more mindful of other road users' needs.

^{iv} Presumed liability, or strict or stricter liability, would mean that the default assumption is that the driver of a motor vehicle is liable to give compensation in civil law in cases where they collide with other road users.

I think when you don't just drive – when you walk, cycle and take public transport – you have a much more egalitarian approach to behaving. I definitely think that. I think you behave in a better way as a driver. (Male, non-disabled)

4.12.3 Other considerations

Wider considerations about road crossing design and road users' behaviours were made, including:

- Continuous footways: visually impaired participants expressed strong opposition to this type of design.
- Micro-mobility, such as electric scooters: supported in principle but several significant shortcomings were noted, such as obstruction of the footway.
- Pavement parking and other obstructions such as A-boards: these were perceived as very important issues for disabled and non-disabled participants.

5 CONCLUSIONS

The following key points emerged from the focus groups discussions:

- There was no indication that people felt more comfortable and safer crossing a side road after the changes in the Highway Code that came into effect in January 2022. (The main relevant change being that road users should now also give way to people waiting to cross the side road, as well as those already crossing the side road).
- Whilst changes in how road users behave are possible, for example because of regulatory changes, such changes take time and need further support, such as enforcement and education.
- People identified positive and negative features in all the junctions under consideration, and these included eleven junctions featuring a parallel crossing with different types of road markings indicating priority for cyclists and pedestrians and three control junctions with a typical simple give way markings for the side road
- Zebra road markings were perceived to be generally recognised and respected, hence perceptions of junctions which featured this type of pedestrian crossing tended to be more positive.
- Marked priority junctions that did not feature a zebra crossing were perceived as creating ambiguity, hence potential risk, for pedestrians.
- Road markings indicating priority for crossing cyclists were positively perceived, especially when reinforced by other design elements such as cycle symbols, using the same colour and material across the cycle crossing as on the approaches and differentiated from the colour of the carriageway, and having a raised crossing at the same level as the cycleway.
- The position of the pedestrian and cycle crossings (no, partial or full set-back from the edge of the main road carriageway) influenced perceptions of safety and convenience in different ways. Confident cyclists may decide to ride on the main road carriageway rather than the cycleway to avoid having to deviate from their desire line with full set-back crossings. Set-back crossings raised some criticism, in that they seem to push cyclists towards the pedestrian, hence undermining their status as traffic with the ability to move at speed.
- Deviations from the desire line need to be clearly and unambiguously indicated for pedestrians who are blind or partially sighted.

- People were generally more concerned with vehicles turning into the side road than with those exiting the side road. Drivers turning into the side road (from the left and the right-hand side) could potentially do so at speed, and without gaining a full picture of all the road users crossing, or waiting to cross, the side road.
- Contextual factors were important as well in shaping people's perceptions. These included the speed limit on the main road and the side road, the radii of the kerb between the main and side road, the length of the crossing, the volume, direction and type of vehicles that could travel through the junction at any one time, whether the footway and the cycleway were physically separated, and whether any other nearby junctions had similar or different treatments.
- Disabled and non-disabled people shared many concerns, however there are specific issues that affect how disabled people cross a side road junction.
- Blind and partially sighted people expressed a preference for clear and unambiguous crossing designs such as signalised crossings. Wheelchair and mobility scooter users favoured the absence of slopes and cambers, the use of dropped kerbs at both sides of a crossing, and raised crossings.
- Overall, people recommended more consistency in the use of road markings, and types of treatment and street furniture across the country to minimise ambiguity and confusion.

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APPENDIX 1 - FOCUS GROUP TOPIC GUIDE

Typical side road crossing

Show image of typical side road crossing and read out:

This picture shows a woman who has started to cross a side road, at the intersection with a main road. She is walking in the same direction of the traffic on the main road. A car is turning left into the side road, but the driver has seen her and so stops to give way before turning. The mouth, or opening, of the junction is quite wide.

Facilitate discussion using the following points as guide:

- What are your observations about this 'typical' side road?
 - Think about the design – how does it make people behave (pedestrians, drivers, disabled and non-disabled people, with children, buggies etc.)?
 - Consider wide radii (sweep or width of the mouth of the junction), dropped kerbs, visibility, tactile paving, colour/tonal contrast, raised crossing, street furniture (bollards etc.).
 - Consider speed, safety and pedestrian desire lines.
- Think about the rules – how do they make people behave? Especially Rule 170: "Take extra care at junctions. You should:
 - watch out for cyclists, motorcyclists and pedestrians including powered wheelchairs/mobility scooters users as they are not always easy to see. Be aware that they may not have seen or heard you if you are approaching from behind;
 - **give way to** pedestrians crossing or **waiting to cross** a road into which or from which you are turning. If they have started to cross they have priority, so give way."
- Consider whether people know the rules or obey them, and whether people know the changes to the Highway Code. What do they think of the changes?
- Consider who the rules seek to protect and whether they are enforced.

- Is there a difference between how people should behave and how they behave in practice and if so why? Consider pedestrians, cyclists and drivers.

Marked priority at side road crossings

Show images and video footage of junction. For each of the junctions that illustrate 'no set-back', 'partial set-back', 'full set-back' and a 'parallel crossing' go through the following points:

- Point out at the start that there is **marked priority** - road markings that indicate that people driving vehicles turning in or out of a side road should give way to people crossing that side road (which serves to reinforce the recent Highway Code changes).
- At **control sites** point out that there is no marked priority (there may be cycle track markings indicating that crossing cyclists should give way).
- Describe the junctions audibly using written script, pointing out where the crossing point is (for cyclists and pedestrians), any street furniture present and key characteristics, e.g. are there any shared spaces for pedestrians and cyclists, what type of markings indicate priority.
- Ask:
 - Whether the **exit give way** is in an appropriate place, i.e. before the footway crossing, or before the cycle track, and why/why not.
 - Whether there is **colour/tonal contrast** on the crossing surface and whether this is important and for whom.
 - Whether the crossing is at the **same level** as the footway and cycle track (humps) and whether it is important, or if there are **dropped kerbs**.
 - The extent to which pedestrians and cyclists have to deviate from their **desire lines** and perceptions of this.
 - The **tightness of the radii/mouth** of the junction.
 - **Visibility** from the perspectives of different users (drivers, cyclists, and pedestrians, when crossing or turning in or out).

- Is there any difference if you are crossing right to left or left to right or turn in or out of the side road and, if so, what?
- How might these designs make people behave? Think from the perspective of a pedestrian/cyclist/driver: Is it clear who has priority?
- Consider people pushing buggies, using a mobility scooter/wheelchair, BPS people (using guide dogs, canes, sticks...), people using adapted cycles or cycling with children, people driving along the main road – how might this design affect them?
- Have you ever used one and if so in what capacity? What was your experience?
- With the Highway Code changes in mind, are marked priority crossings less necessary/useful? Why? Why not?