



# Designing for Inclusion:

The accessibility challenges of some active travel infrastructure for people with vision impairment and other disabled people.

Summary document  
and Guide Dogs' recommendations



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# Executive summary

**No one should feel unsafe when they walk or use public transport in the streets and spaces where they live or work.**

Yet we increasingly hear that street designs are creating barriers for disabled people. That is why Guide Dogs commissioned University College London (UCL) to explore the impact of four different types of design on disabled people, including blind people and people with a vision impairment. We looked at Floating Island Bus Stops, Shared Bus Stop Boarders, Segregated Cycle-footways and Continuous Footways (Continuous Pavements). These designs all incorporate cycle paths into their design.



The research, which included a literature review, focus groups with disabled people, workshops with professionals and technical staff, site visits and controlled experiments at UCL's Person-Environment-Activity Research Laboratory (PEARL), identified significant problems with these designs and identified 15 recommendations for improvements (page 55).

We found that Floating Island Bus Stops are difficult for people with sight loss to identify and navigate. Participants particularly highlighted issues identifying and crossing the cycle path safely, with some people deterred from using them. Further research is needed to look at several elements in their design, particularly the size of the island platform, if they are to be made safe for disabled people. Guide Dogs believes that until this research is complete, there should be a pause in the further implementation of these designs.

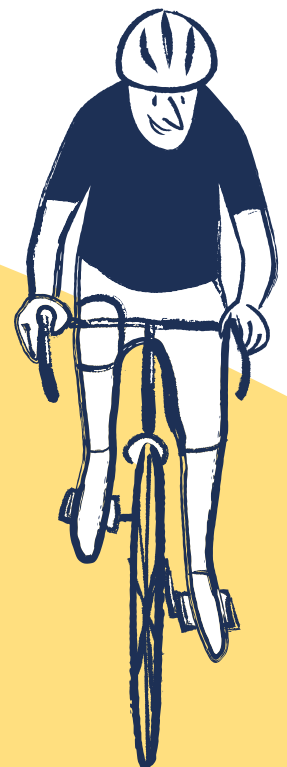


Our research also found that Shared Bus Stop Boarders are largely inaccessible and unsafe for disabled people due to the challenges they face when boarding and leaving a bus directly onto a cycle path. These problems are inherent in the design of Shared Bus Stop Boarders and therefore Guide Dogs do not think they should continue to be used.

The research also found that Continuous Footways are dangerous for blind people and people with a vision impairment, as they cannot detect when they are crossing onto a road. There is often a lack of tactile paving which means there is no way for people with sight loss to know when they could be crossing into the path of cyclists or vehicles. Guide Dogs are calling for the installation of tactile paving at all Continuous Footways and further research into navigating these crossings. This type of street design is not exclusively used where Segregated Cycle-footways are present and our recommendation applies for all these settings.

Finally, our research looked at Segregated Cycle-footways. We found that people with a vision impairment found it difficult to identify which side of the path was for pedestrians, and when they are joining a Segregated Cycle-footway. To improve their accessibility, the barrier separating the two paths needs to be more detectable for people with sight loss. Other measures, including ensuring the implementation of tactile paving, would also improve the safety of the design.

**Steps to improve the safety of cyclists are to be welcomed. However, our research makes clear that sharing space between cyclists and pedestrians can have a negative impact on safety, especially for disabled people. Our findings underline the need for street designs to be consistently designed, planned and tested with the involvement of all potential users, including disabled people.**



# 1. Introduction



# 1.1 Background

## Guide Dogs exists to help people with sight loss live the life they choose.

We're best known for our life-changing guide dogs, but we also campaign for the rights of people with a vision impairment and work hard to remove barriers and champion best practice.

No one should feel unsafe when they walk or use public transport in the streets and spaces where they live or work. Yet we are increasingly hearing that aspects of the built environment present problems for disabled people and particularly people with sight loss:

“

As soon as I leave that kerb there is danger. And if it doesn't go well, next time you think about even crossing there. The anxiety starts then, doesn't it.

”

“

That cyclist I couldn't hear came out of nowhere.

”

This report provides a summary of the research commissioned by Guide Dogs and conducted by University College London (UCL) into the problems that disabled people encounter when using bus stops and pedestrian footpaths that are designed to accommodate cycle paths.





# 1.2 The increase in active travel

In the UK there has been a focus on active travel, often described as walking, wheeling and cycling.

More people are being encouraged to take up walking and cycling to improve their physical health and help the environment, especially in large and busy cities. This has led to a welcome increase in cycling across the UK, up 10.6 per cent since December 2013<sup>1</sup>.

As a result of the uptake, there has been a focus on making cycling safer and protecting cyclists from traffic. This has included introducing more cycle paths, and in particular, segregated cycle paths that separate cyclists from the traffic.

These cycle paths are often built into the road by reducing space for vehicles. However, sometimes they are built into the pavements, reducing the space given to pedestrians. Sharing space between cyclists and pedestrians often has a negative impact on the safety of both groups, but especially for disabled pedestrians, including people with a vision impairment.

The problem of shared space between pedestrians and cyclists is heightened when pedestrians need to cross a cycle path, either to cross a road or at a bus stop when getting on or off a bus. In these cases, it is crucial that the design considers the needs of everyone – pedestrians, cyclists, bus passengers and other traffic.

**A welcome focus on:**



**walking,**



**wheeling and**



**cycling.**

# 1.3 New infrastructure designs

To encourage and support people who choose to walk, wheel or cycle, new infrastructure designs are trying to make sure the limited road space is used as safely as possible.

One design trend that has emerged in recent years is Continuous Footways. On these footways, instead of the pavement ending where it meets the road, usually with a dropped kerb and tactile paving, the area for pedestrians continues at the same level. In some examples, there is no tactile paving so there is no distinction where the pavement ends and the road begins. Another design that has been introduced is the delineated pedestrian and cycle path footway (Segregated Cycle-footways). This is where the pedestrian footway and the cycle path are next to each other but are separated by markings or a physical delineator.

There are two main designs that attempt to integrate cycle paths and bus stops:

- Floating Island Bus Stops, where the cycle path diverts from the kerbside to behind the bus stop, so buses are free to stop next to the bus stop.
- Shared Bus Stop Boarders, where the cycle path continues next to the kerb. This means the bus has to stop next to the cycle path, rather than the bus stop.





# 1.4 Undertaking research

**We have heard that disabled people are experiencing significant problems when using some of these new designs.**

Building on the important work of others in this area, including Sustrans, Living Streets and the National Federation of the Blind UK, we decided to commission University College London (UCL) to carry out new research. We wanted to understand how accessible these designs are for disabled pedestrians and bus passengers, including people with a vision impairment.

Our research included a literature review, a series of focus groups, workshops, site visits and experiments to explore individual responses to using these designs in a controlled environment. The full report sets out the methods and findings from our research, alongside clear evidence-based recommendations of the steps that need to be taken to ensure that both disabled pedestrians and cyclists can use public spaces safely.

This is a summary of that report which aims to provide those responsible for designing and maintaining public infrastructure, including local authorities, designers, planners and constructors, with evidence-based recommendations that will improve bus stops and street design for everyone.



## 2. What we decided to measure



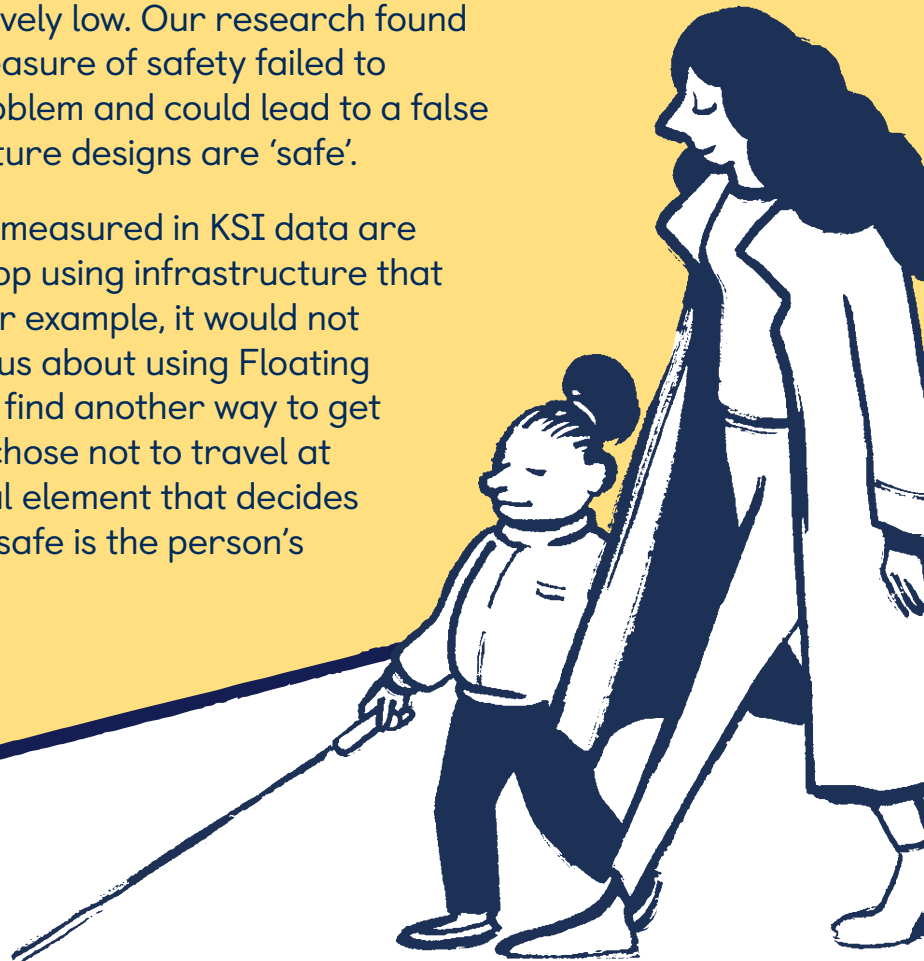


## 2. What we decided to measure

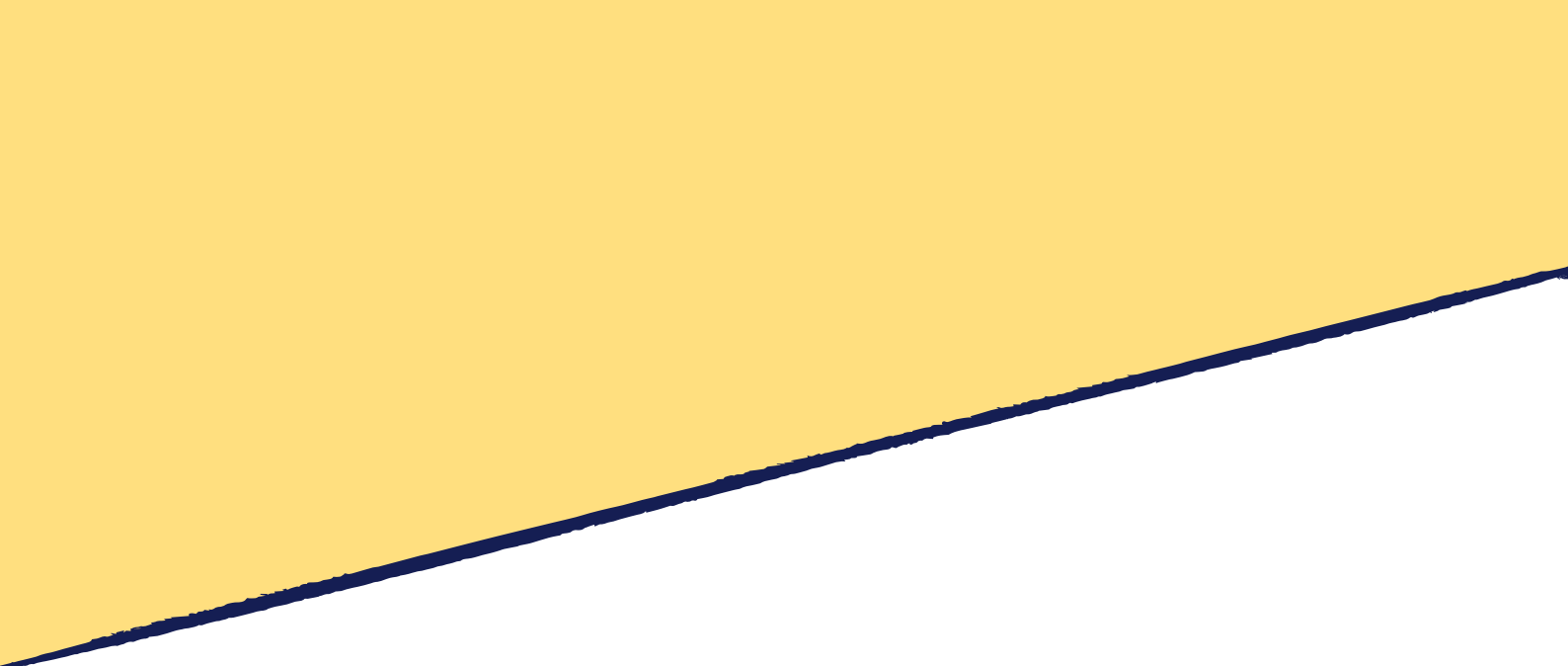
We wanted to look at two key design components in this study: accessibility and safety. When looking at accessibility, we focused on the impact of these designs on disabled people and people with sight loss. However, we explored a new measure to evaluate safety.

Most transport studies measure safety through the severity of injuries to people, often represented as 'Killed and Seriously Injured' or KSI. However, this is not always an appropriate measure, as although not impossible, the chance of a collision between a cyclist and pedestrian resulting in a fatality or serious injury (officially defined as requiring overnight admission to hospital) is relatively low. Our research found that always using KSI as a measure of safety failed to capture the nature of the problem and could lead to a false sense that certain infrastructure designs are 'safe'.

One group that would not be measured in KSI data are those who have decided to stop using infrastructure that they feel to be dangerous. For example, it would not include people that are anxious about using Floating Island Bus Stops so decide to find another way to get to where they need to go or chose not to travel at all. In this example, the crucial element that decides whether these bus stops are safe is the person's perception of safety.







It has been established that perceptions of safety are often an unconscious decision that arise from a combination of lived experiences, as well as any sensory information available. This means that perceptions may or may not be correct and may or may not draw on experiences that are relevant to the immediate situation. These perceptions drive action and decide the courses we take in our daily lives.

As previous experiences shape our perceptions of safety, infrastructure that evokes fear or stress can generate a stress response that can have long-term implications for the person affected. This could be regarded as a type of injury, one that is psychological rather than physical, and one that can worsen over time if the experience is repeated. Someone's perception that public infrastructure design is unsafe could ultimately decide whether they find an alternative way to travel or decide not to travel at all.

For our research we defined safety as

**the level of fear induced by the thought that a collision could occur.**

To measure this, we assessed the physiological responses that arise when using both bus stop designs and shared and Continuous Pavements in a controlled laboratory environment.

# 3. Challenges of the built environment





# 3.1 Challenges of incorporating cycle paths at bus stops

The accessibility of bus stops is crucial; if they are not accessible, the rest of the journey is made impossible.

It's therefore essential to ensure that bus stops are accessible to everyone. The safety of cyclists is also very important and further research is needed looking at their needs and experience. However, this research is solely focused on the experiences of disabled pedestrians.

Where cycle paths have been incorporated into bus stop designs, bus passengers need to carry out different actions and have new reactions which are different to when using an ordinary bus stop. For example, many bus stops require passengers to step up a high vertical gap to get on the bus. However, if added to this difficulty, the person also has to cross a cycle path and detect approaching cyclists, the complexity of dealing with that vertical gap is much greater.

Unlike many railway stations, most bus stops are not equipped with staff or deployable equipment to assist users when they arrive. This means bus stops have to be designed so any passenger can get on and off buses safely and comfortably.





Cycle paths at either Floating Island Bus Stops or Shared Bus Stop Boarders can take space usually dedicated to pedestrians. Pedestrians, either waiting for a bus or getting on or off one, need to have sufficient space to wait comfortably, have seating options, arrange their luggage, and have room for any assistance needed, including assistance dogs, companions, wheelchairs, pushchairs and mobility aids.

Passengers also need to be able to detect whether a bus is coming, with enough distance to flag down the driver to stop, and to know which bus service it is. The difficulty of knowing if a bus is coming, and if it is, which service it is, can raise the stress levels of waiting passengers who have a vision impairment.

There are also difficulties in boarding a bus resulting from the height difference between the bus and the bus stop platform. Where a ramp is needed, passengers often have to ask the driver at the front door to use the ramp, before moving down the side of the bus to the middle door where the ramp is usually deployed. All this activity requires extra space which can create conflict with other users of the shared bus stop space.

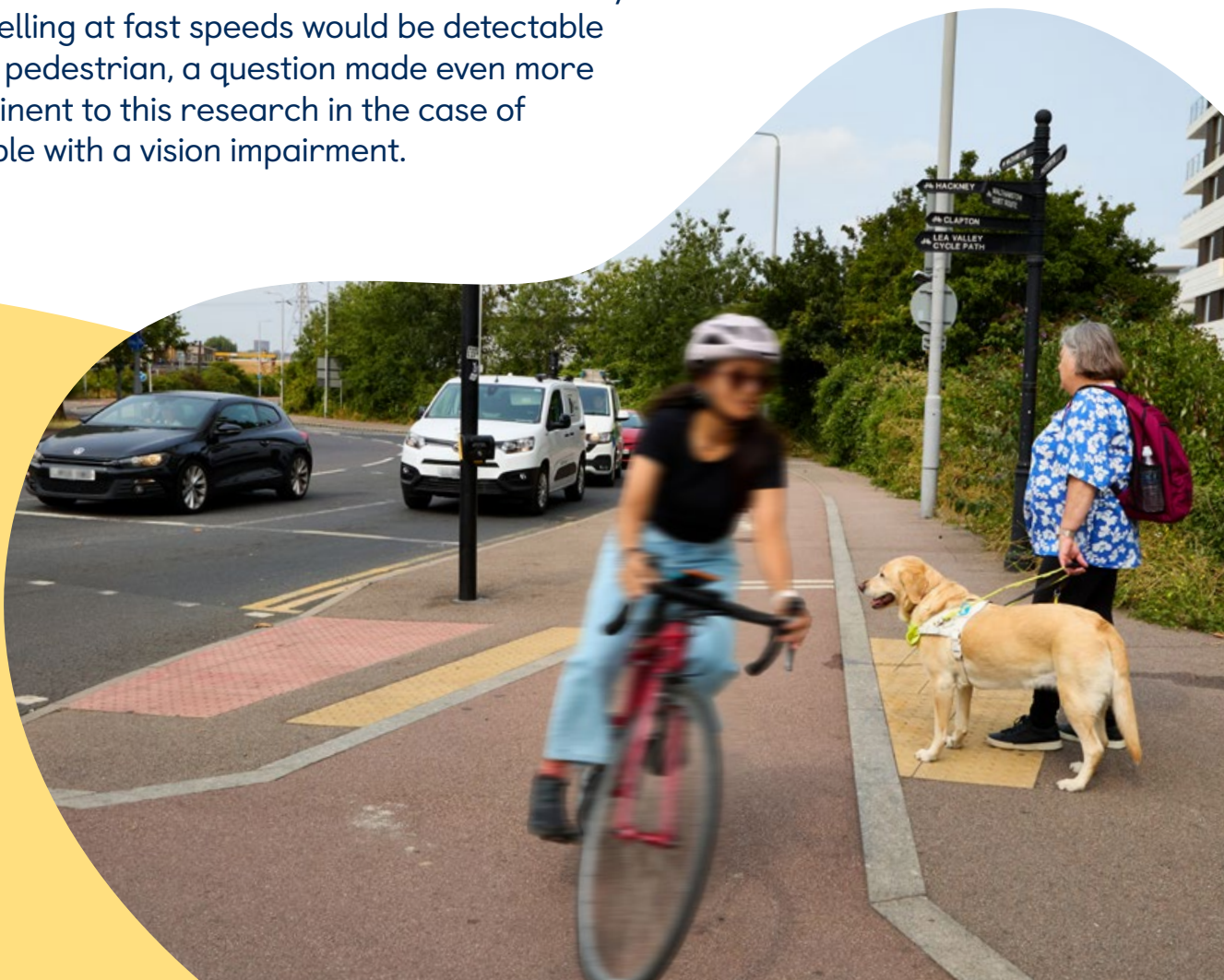
Before leaving a bus, the exit must be safe and clear of stationary or moving obstacles. Most passengers rely on a visual check before getting off a bus, but this is not possible for people with a vision impairment, who often have to rely on their hearing to determine if the exit is safe. This requires them to get accustomed to the environment outside the bus, but it remains difficult to hear an oncoming cyclist.

**Most passengers rely on a visual check before getting off a bus, but this is not possible for people with a vision impairment.**

This is also a challenge for people with buggies, wheelchairs or mobility aids who often leave the bus backwards as it's easier to manage the steep height difference this way. This places them at a disadvantage as they have reduced visibility getting off the bus. Assistance dog users also face problems. For example, guide dogs are trained to leave the bus first, requiring the user to follow the dog while listening out for any obstacles.

Cyclists can pose a particular risk as they are silent but still able to achieve relatively high speeds in dedicated cycle paths. Often cyclists can achieve the same local speed limits as motorised vehicles (20 or 30 mph) quite safely and without difficulty<sup>2</sup>. When travelling in a well-designed, segregated cycle path, these speeds are safe for both cyclists and other road users. However, consideration should be taken when segregation ceases and spaces are shared, such as at bus stops.

The speed difference between cyclists and pedestrians affects the outcome of any potential collision. The greater the difference in speed, the greater the level of damage incurred. Bicycles also tend to have quite sharp features (e.g. pedals, handlebars) that could inflict injury if they come into contact with a pedestrian. Before this research it wasn't known at what distance a cyclist travelling at fast speeds would be detectable by a pedestrian, a question made even more pertinent to this research in the case of people with a vision impairment.



## 3.2 Challenges with Floating Island Bus Stops

One way of maintaining a segregated cycle path when it meets a bus stop is for the cycle path to pass behind the bus stop at the level of the road (i.e. between the bus stop platform and the footway).

This creates a bus stop platform island with the road on one side and a cycle path on the other, with a pedestrian crossing connecting the two. This is called a Floating Island Bus Stop.

In these cases, anyone wishing to use the bus needs to cross the cycle path. To do so, there is usually a raised mini-zebra type crossing in the cycle path to ensure level access to the bus stop from the pavement. Tactile paving is installed on either side of the cycle path to alert people with visual impairments of the crossing.





On arriving at a Floating Island Bus Stop some people with sight loss may find it hard to know there is a bus stop there at all. Usually, the presence of a bus stop flag indicates to people with sight loss that they have reached a bus stop, and approximately where to wait and where the bus will stop. In this case there is not a clear marker on the main footway that there is a bus stop, as the flag is on the floating island separate from the footway. This makes it possible for people with sight loss to pass by bus stops unaware of their presence.

To use a Floating Island Bus Stop, people with a vision impairment first need to detect tactile paving. Then the pedestrian has to decide whether it is safe to cross the mini-zebra crossing to reach the Floating Island Bus Stop. This involves being able to detect whether a cyclist is coming. For blind and vision impaired bus users, perceiving cyclists in enough time to choose whether to cross or not cross safely presents an enormous challenge.

Once on the island platform, the passenger has to establish where to wait and board the bus. There isn't a standard layout of a Floating Island Bus Stop, so the location of the shelter and boarding point for each bus stop can vary.

The primary difference when waiting for a bus at a Floating Island Bus Stop is that the size of the island restricts the amount of space available for waiting passengers. This means passenger demand at the bus stop needs to be carefully reviewed alongside the space requirements of wheelchairs and other mobility aids. People with a vision impairment require more space if they are with a guide dog or companion.

**For blind and vision impaired bus users, perceiving cyclists in enough time to choose whether to cross or not cross safely presents an enormous challenge.**

To help with boarding the bus, buses should always stop at the same place so that passengers know where to stand each time. As with all bus journeys, knowing which bus service has arrived is always an issue for people with a vision impairment. There should be an audible announcement to say which service has arrived and if there is more than one, where each service can be found at the bus stop.

To get off a bus at a Floating Island Bus Stop, there needs to be sufficient space on the floating island to leave the ramp and manoeuvre across the island with other passengers including wheelchair users, companions and guide dog users.

Finally, passengers need to find the mini-zebra crossing and determine whether or not a cyclist is approaching to decide if it is safe to cross. In this case, the cyclist will be coming from an angle to the left and behind the passenger. Passengers who are able to see need to turn more than ninety degrees to their left to be able to see any oncoming cyclists. Passengers with a vision impairment often have to rely on their hearing, and will face similar sound detection challenges as those raised when entering the island.



## 3.3 Challenges with Shared Bus Stop Boarders

Another way to accommodate a segregated cycle path into a bus stop design is by raising the cycle path to kerb level and extending the bus stop into the road. This means the cycle path runs between the footway and the bus stop. This design is called a Shared Bus Stop Boarder.

The main challenge with this design is that any passenger wishing to get on or off the bus needs to navigate crossing, waiting and exiting onto a cycle path.

Some designs include hatched markings at the edge of the cycle lane which intend to create a 'safe area' for passengers to wait close to where the bus will stop. However, this area is unprotected between a busy road and a cycle path. Besides, as these markings are not standard or included in the Department for Transport's Guidance for Cycling Infrastructure Design LTN 1/20, some designs involve boarding and leaving a bus directly onto a cycle path<sup>3</sup>. Additionally, there is often no provision of tactile paving on the boundary between the footway and the cycle path to alert passengers with sight loss to cyclists.





To get on the bus, there is a time pressure to cross the cycle path once you see the bus is approaching. This makes it harder to cross the cycle path safely. It would be difficult to cross the cycle path before the bus has arrived as the hatched marking area has nowhere to sit and the passenger would be exposed to both nearby traffic in the road and cyclists on the cycle path.

If a passenger needs to use a ramp at the centre door, they would need to be able to move down the bus and turn onto the ramp, which could involve going onto the cycle path.

To leave the bus, all passengers have to exit directly onto the cycle path. As you can't see the length of the cycle path from inside the bus, wheelchair users and companions could find it difficult to detect oncoming cyclists. People with sight loss have to rely completely on their hearing to detect oncoming cyclists before leaving the bus. For people who use guide dogs, there is also a risk of the dog being struck by a cyclist as they exit the bus before their owner.

**People with sight loss have to rely completely on their hearing to detect oncoming cyclists before leaving the bus.**

## 3.4 Challenges with Segregated Cycle-footways and Continuous Footways

Cycle paths are also being introduced to pedestrian footways. Segregated Cycle-footways have become increasingly common across the UK. These are where a footway and a cycle path are next to each other and separated by a delineator of some sort. These can be a painted line, a continuous physical delineator or a physical delineator with gaps.

Challenges of this design for people with sight loss include trying to identify when they are on a Segregated Cycle-footway as opposed to a pedestrian-only footway, which side of the footway is for pedestrians, and how to detect the delineator to make sure they stay on the correct side of the path.



Continuous Footways are where the road is raised to the level of the footway to allow level crossing across a minor road.

This design is supposed to give priority to pedestrians as they cross the road. The challenge in using this design is the difficulty for people with sight loss to know when they are crossing from a pedestrian-only footway into a road.

In some examples, there is no tactile paving to warn people with a vision impairment that they are about to cross into the potential way of cyclists and vehicles.





# 4. Literature review



# 4. Literature review



To begin our research into these infrastructure designs, UCL conducted a literature review to identify existing gaps in understanding the experience of disabled people when using these designs. In particular, they looked for research that reviewed the impacts of these bus stop and footway designs on the safety and independence of disabled people.

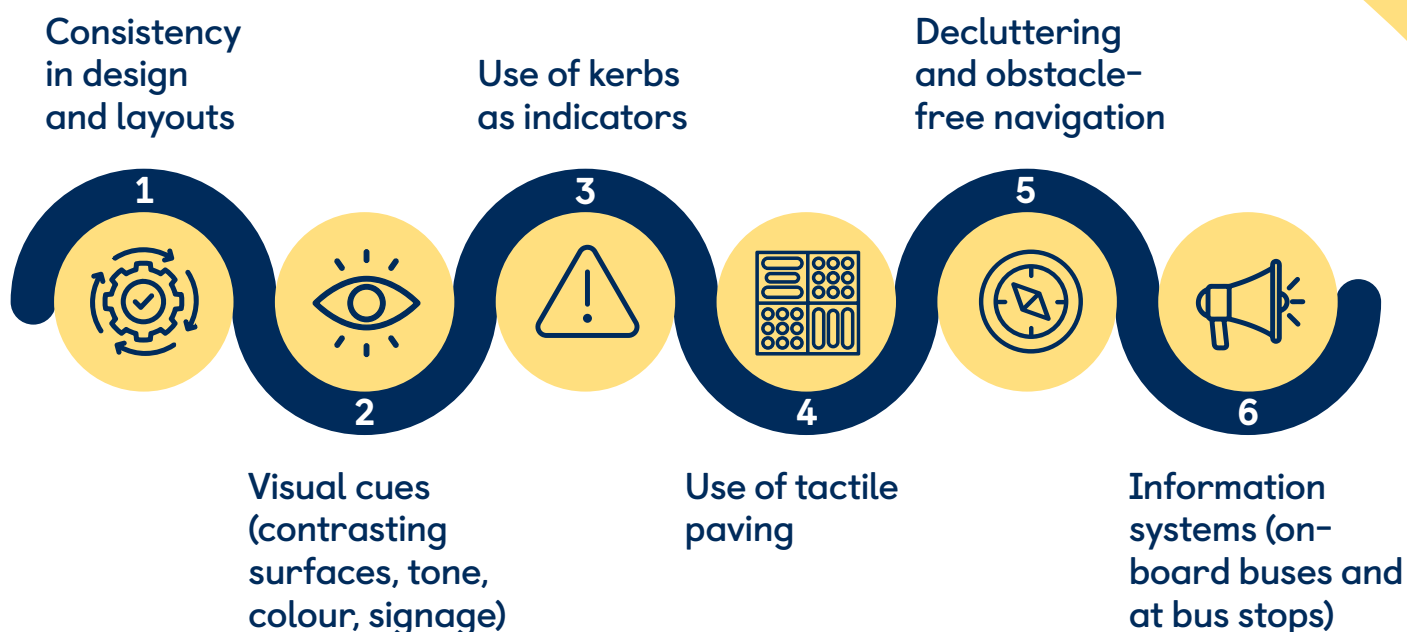
The findings of the review were used to shape our research questions and methodology. The full literature review can be found in the full report (Annex 1) [here](#). We provide a short summary below.

One of the main findings was that there is an extremely limited amount of literature looking at the impact of Floating Island Bus Stop designs and Shared Bus Stop Boarders on people with a vision impairment. The search queries from the Scopus database returned zero hits when searching for these matching terms. We did find some local guidance and test report references. The most recent of these was Living Street's 2024 report<sup>4</sup> that looks at inclusive design of bus stops with cycle tracks and included focus groups with disabled people (including those with a vision impairment) and an observational study.

Most existing scientific literature was based on observational studies looking at the movements (direction and speed) of passengers across the cycle path or while waiting for the bus. The scientific studies did not mention the particular challenges people with sight loss face, suggesting a lack of understanding of the key issues. There was a substantial gap in research on the safety of bus designs not only for people with sight loss, but for disabled people generally.

Most of the research highlights the need to provide for people with different access requirements but falls short of providing quantitative evidence to discard potential increased risks to these users.

The literature review did find six key aspects that are important to help blind and vision impaired pedestrians feel safer navigating bus stops and footways:





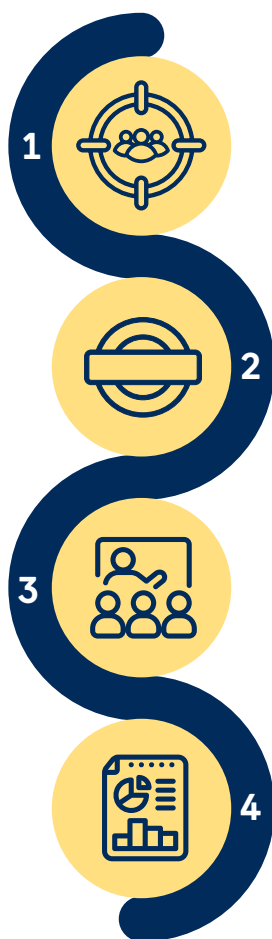
# 5. Research methods and findings



# 5. Research methods and findings

We wanted to understand how the integration of a cycle lane into a bus stop, Continuous Footways and Segregated Cycle-footways, affects disabled people.

**We used four different research methods to answer this question:**



1 We held focus groups across the UK with disabled people who had experience of using either bus stops or footways that included cycle paths.

2 We led accompanied site visits with disabled people to Floating Island Bus Stops, Shared Bus Stop Boarders and Continuous Footways in London.

3 We also held professional and technical workshops with people from professional institutions and transport authorities, as well as cycling and active travel advocates and mobility advisors.

4 Lastly, UCL conducted controlled experiments at their Person-Environment-Activity Research Laboratory (PEARL) facility. Here they measured participants' responses to a simulated Floating Island Bus Stop and Shared Bus Stop Boarder. They also measured how participants responded to four different barriers for Segregated Cycle-footways and two types of Continuous Footways.



# 5.1 Focus groups

We held focus groups in London, Cardiff, Glasgow, Birmingham and Belfast to hear from disabled people across the UK.

These participants included people with a vision impairment, as well as people with hearing loss, neurodiversity and mobility impairments. All participants had experienced using pedestrian and bus stop infrastructure which involves interacting with cycle paths. The feedback we received across these focus groups was very consistent.

Participants strongly agreed that cycle paths are necessary to protect cyclists from traffic. They were concerned however, that moving cyclists to mix with pedestrians was not the right solution. Many said that when they were at bus stops that involve cycle paths, they were unaware of cyclists passing, unsure which direction they were coming from, and felt the cyclists were going very fast. Participants noted that they already felt vulnerable at bus stops due to challenges boarding and leaving buses, and that adding a cycle path increased feelings of stress and anxiety.

“  
You’ve got to find the right bus, find the door and so on – it’s bad enough anyway without having to cope with the cycle path [Glasgow].  
”





There was a common call for a design that encourages cyclists to stop for pedestrians.

“Why can’t they just stop?” was a question raised in all focus groups.

Some participants said they have stopped using these bus stops because they cannot cope with the anxiety that using them brings.

“

**As soon as I leave that kerb there is danger in that and then of course it doesn’t go very well, next time you even think about crossing there. Well, the anxiety starts then, doesn’t it? Or last time it was that cyclist I couldn’t hear and came out of nowhere [Cardiff].**

”

These initial perceptions and bad experiences become part of the lived experience for many disabled bus users, and influence whether they decide to use the bus, or that particular bus stop, in the future.

Another concern raised was the size of the island platform at Floating Island Bus Stops. People felt the platform was too narrow for either wheelchair users or blind people, especially those using long canes. A neurodivergent person said they felt trapped on a “**long narrow island with too many people there**” [London].

Participants said they would like to be involved in finding a way to make Floating Island Bus Stops safer for everyone.

Focus groups found participants struggled more with Shared Bus Stop Boarders. They reported not knowing where things were and feeling very unprotected.

“  
**I nearly stepped into a cycle,  
it's a no-go isn't it? [Birmingham].**

”

Guide dog owners raised concerns that as their guide dog is trained to go first, their dog could lead them into the way of an approaching cyclist.

People assisting wheelchair users said when they are on a bus, they cannot see clearly down the length of the cycle path to detect an oncoming cyclist, before having to push the wheelchair user into the cycle path.

One person commented that her answer to this problem was to announce to the bus that she was blind and to ask if someone would help, but that this was an embarrassing experience

“  
**I feel like a prune, but I  
have to do it [Glasgow].**

”



Bus stops incorporating two-way cycle paths were raised as being very dangerous as people with sight loss are not sure which direction to expect oncoming cyclists.

Focus group participants felt that Shared Bus Stop Boarders could never be made safe and are not accessible.

The focus groups considered a number of other designs in addition to bus stops including Segregated Cycle-footways and Continuous Footways, and the issues were broadly the same. They were unaware of cyclists, they didn't know where they were coming from and they go very fast.

**In general, the focus group attendees reported that mixing pedestrians and cyclists increased stress for disabled people when making journeys. This led to some participants choosing to avoid using public transport altogether.**



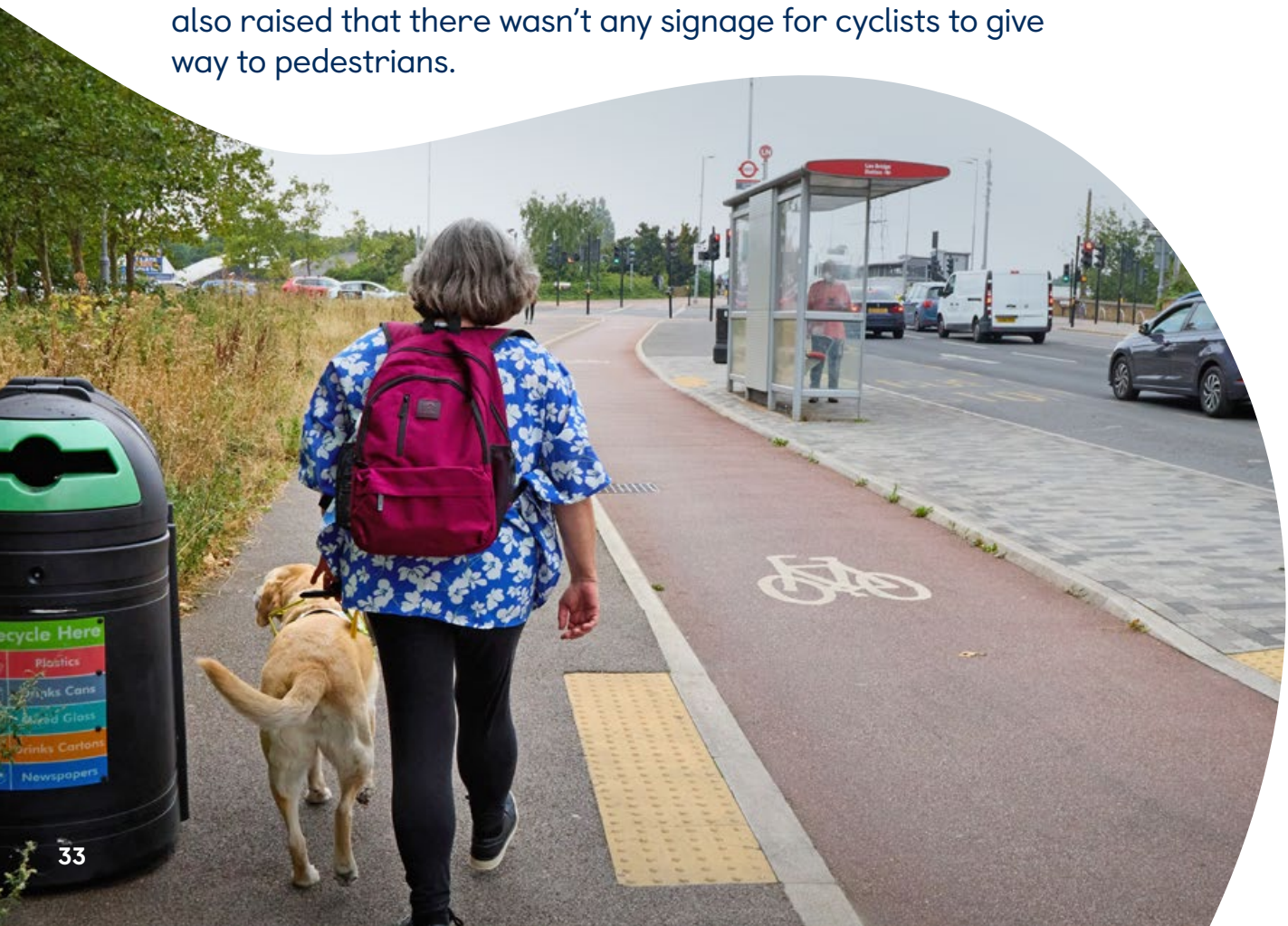
## 5.2 Accompanied site visits

Groups of disabled people attended accompanied site visits at a Floating Island Bus Stop, a Shared Bus Stop Boarder and an example of a Continuous Footway in London. Each group consisted of six participants with a range of disabilities.

### 5.2.1 Floating Island Bus Stop

Participants were accompanied to the bus stop and asked to use the bus stop as they usually would. For safety reasons, they were not allowed to cross on their own without having a safety signal from the researchers.

Participants immediately found the layout of the Floating Island Bus Stops confusing. People with a vision impairment also raised that there wasn't any signage for cyclists to give way to pedestrians.





Most participants who had to rely on their hearing felt it was virtually impossible to detect cyclists with other noises around. They felt the danger was increased by the speed at which cyclists were travelling and their tendency to not give way to pedestrians.

One participant noted there was a design flaw at one of the Floating Island Bus Stops, as once they had crossed to the floating island they had no way of knowing if they needed to turn left or right to find the shelter or bus stop flag. This could be solved by adding tactile paving that would guide the pedestrian straight from the crossing point to either the flag or shelter. It then requires design consistency for people with sight loss to know where the flag is relative to the shelter.

Another participant raised how, when they are on a bus, the on-board announcements that tell passengers whether they are stopping at a Floating Island Bus Stop or a Shared Bus Stop Boarder, are only on some services, and only alert people to the danger but do little to help to avoid it.

At Floating Island Bus Stops all participants found detecting cyclists to be difficult. People with sight loss often had to cross the cycle path and hope the cyclist would detect them in time to stop.



## 5.2.2 Shared Bus Stop Boarders

The research also included a site visit to a Shared Bus Stop Boarder. All participants said they had concerns about their safety when using these stops. Many felt that they need to be fully redesigned to achieve better safety and accessibility. Some believed that it would be safer to divert the cycle path, turning them into a similar layout to a Floating Island Bus Stop. Some participants suggested that special cyclist routes away from pedestrian areas would be better.

A common challenge was identifying where the bus stop was and where the footway ends and the cycle path begins. Participants said this made them feel unsafe particularly when unaccompanied. One participant recounted a recent incident where his cane got caught in the wheel of a cyclist, causing a fall.

For participants with a vision impairment, shared spaces for cyclists and pedestrians were confusing and difficult to navigate, especially when the design of these spaces and bus stops are inconsistent.

They also felt that the current design of Shared Bus Stop Boarders was condensed into too small a space, with pedestrians forced to be too close at times to both vehicles in the road and the cycle path.





## 5.2.3 Continuous Footways

We also carried out a site visit to a Continuous Footway. This is where the road is brought to the level of the pedestrian footway to allow level crossing. Participants were asked to cross from one side of the road to the other, while being accompanied by a researcher from UCL guiding the visit.

Many participants had difficulty using the Continuous Footway, and where available, they chose to use alternative, more obvious crossings, such as a zebra crossing, to locate the junctions.

A main cause of this challenge was the lack of markings. They felt that as there is no kerb, there should at least be the correct tactile paving to alert people with sight loss that they're about to step onto a road.

One participant was unable to identify any difference in the crossing and walked onto the road unaware. The crossing had no tactile paving or any other feature pedestrians could use to identify the road.

Most users considered the design of this junction to be dangerous, especially for people with sight loss, as there is no way to identify when a pedestrian is about to step into a road.



## 5.3 Professional and technical workshops

We also hosted professional and technical workshops with industry to get their views on Floating Island Bus Stops, Shared Bus Stop Boarders and Continuous Footways.

These workshops included people from professional institutions, transport authorities, cycling and active travel advocates and mobility advisors.

These workshops produced some useful insights. It was noted that whilst there had been research into the design of Floating Island Bus Stops, there was a sense that Shared Bus Stop Boarders were installed during a time of rapid expansion for the cycling network and had been less well researched before they were implemented.

There was strong agreement on the need to ensure public space was accessible to all, and that cyclists were protected from heavy traffic. However, there was less agreement about the impact of the way cycle paths integrate with bus stops. Some participants felt cyclists should have uninterrupted cycle paths, stating this design had been used safely in Europe for many years. In response, other participants noted how the culture in some European countries was safer for cyclists, so we needed to adapt our infrastructure to reflect the difference in cycling culture in the UK.

The general sense was that Floating Island Bus Stops were a better solution than Shared Bus Stop Boarders, with the main issue being a lack of available space to allow for them. One participant suggested that the frequency and number of buses should be considered; where the number of bus services is lower at the stop and space is tight, a Shared Bus Stop Boarder could work. There were also suggestions that either traffic or cyclists could be diverted to another route to make space for an adequate bus stop design.

A main challenge raised with Floating Island Bus Stops was the way the bus stop flag is located on the island. This means the usual training point of identifying this on the pavement does not work for people with a vision impairment. It was agreed that the bus stop flag could not be moved to the footway as then it would not be visible to the bus driver. The other point raised was the challenge of navigating from the bus to the crossing to leave the island when they cannot guarantee where the bus would stop in relation to the crossing. If there were tactile guidance paving or the blister tail from the tactile paving at the crossing, that would help, but still would not resolve the issue of how the person knows whether to turn left or right on leaving the bus in order to find it.

On Continuous Footways, there was general agreement that they cause a real issue for people with sight loss as it is hard to know whether they are on a road or footway. To solve this, most agreed tactile paving should be installed at the road edge to warn pedestrians. The main debate remained over whether the road surface should be the same as the footway.

Lastly, regarding Segregated Cycle-footways, there was a clear sense that a vertical marker between the cycle path and the footway is essential. Clear signage is also needed so people know which side of the shared path they should be on. Additionally, there were concerns about splitting a footway up for pedestrians and cyclists where it is not wide enough. People also highlighted the need for different indicators at the start and end of sections that become Segregated Cycle-footways.





# 5.4 Controlled experiments conducted at PEARL

UCL researchers undertook experiments in a controlled environment at their PEARL (Person-Environment-Activity Research Laboratory) facility.

Here they measured data of participants approaching a bus stop and getting on and off a bus, as well as using some shared spaces. They collected data for each phase of using a bus stop separately so that participant responses could be more clearly detected and analysed.

At PEARL, they built two bus stops (a Floating Island Bus Stop and a Shared Bus Stop Boarder) based on the designs in the Department for Transport's Guidance for Cycling Infrastructure Design, LTN 1/20. These bus stops incorporated a 70-metre cycle path approaching the bus stop, a footway, and a stationary bus at the bus stop. They also provided a 4D soundscape of urban traffic sounds at a typical sound level and lighting was set to match a midday light.

Participants included blind and vision impaired people, neurodivergent people, wheelchair users and people with learning disabilities.



**At the Floating Island Bus Stop, UCL measured participants responding to each of the following phases:**

Detection of cyclists when crossing from the footway to the island

Boarding the bus from the island platform

Detection of cyclists when crossing from the island to the footway



Determination of safe crossing

Leaving the bus onto the island platform

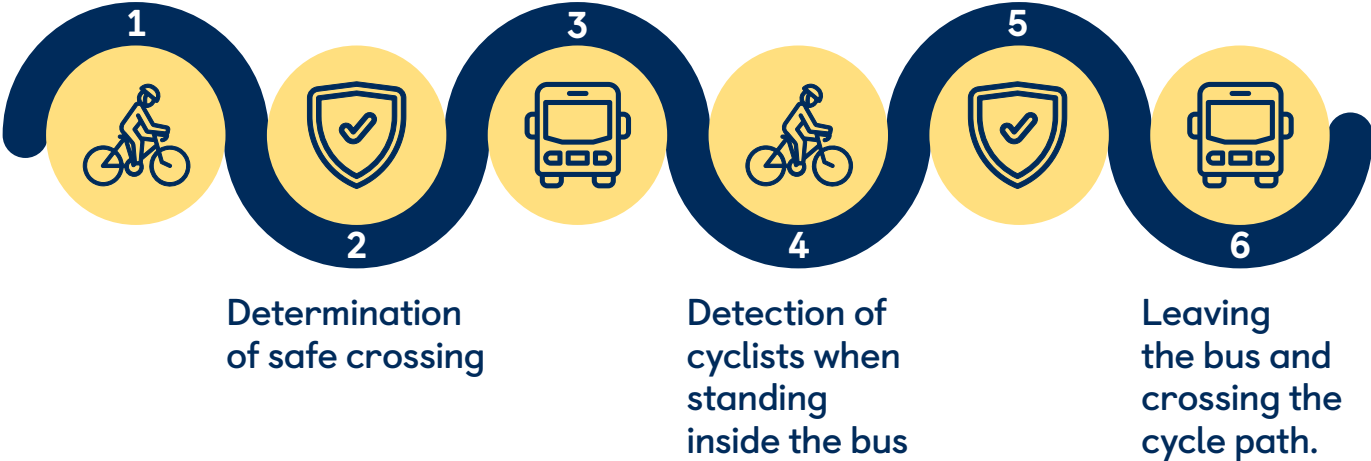
Determination of safe crossing

**At the Shared Bus Stop Boarders, UCL measured participants across the following phases:**

Detection of cyclists when crossing from the shelter to the bus, but not crossing the cycle path

Boarding the bus

Determination of safe crossing



Determination of safe crossing

Detection of cyclists when standing inside the bus

Leaving the bus and crossing the cycle path.

Participants' Heart Rate Variability was also measured, alongside data from a questionnaire after the experiment, to understand how they felt about using the bus stops.

Additionally, participants were measured using Segregated Cycle-footways with four different types of delineators to mark the boundary between the footway and cycle path. Lastly, they were asked for their feedback on two different types of Continuous Pavements.

The full methodology, breakdown of participants and detailed results can be found in the **full report** (Section 4). We have summarised the key results below.



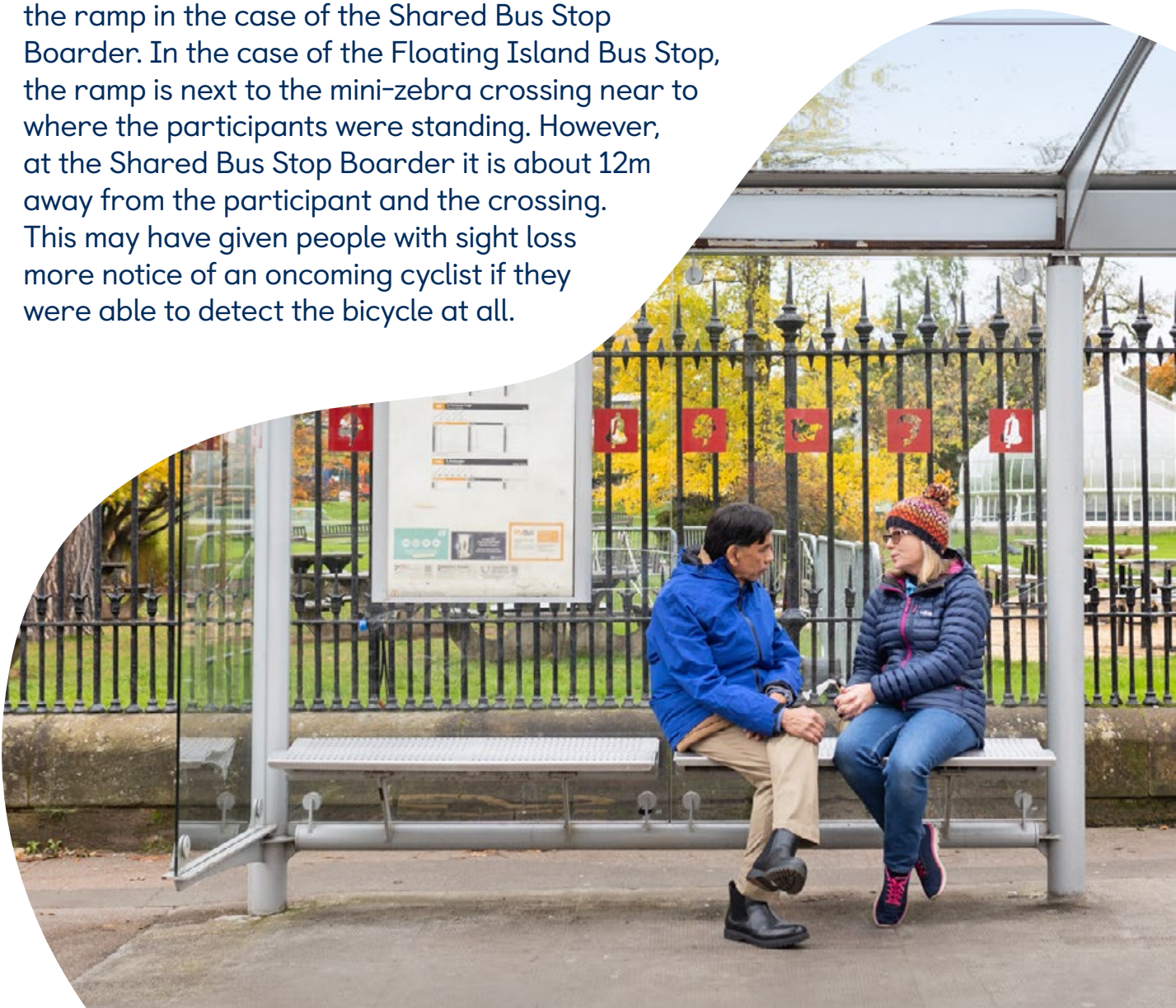


# Bus stop designs findings

UCL measured the distance to detect a cyclist at both bus stop designs; a greater distance gives more time for the participant to decide whether it is safe or not to cross the cycle path.

The research found the distance to detect a cyclist was slightly better at the Shared Bus Stop Boarder than in the case of the Floating Island Bus Stop.

This difference may have resulted from a distinctive, but small, change in sound when a cyclist mounted the ramp in the case of the Shared Bus Stop Boarder. In the case of the Floating Island Bus Stop, the ramp is next to the mini-zebra crossing near to where the participants were standing. However, at the Shared Bus Stop Boarder it is about 12m away from the participant and the crossing. This may have given people with sight loss more notice of an oncoming cyclist if they were able to detect the bicycle at all.



UCL also measured when participants felt it was not safe to cross the cycle path. We called this the Not-Safe-To-Cross distance. Several participants found the Not-Safe-To-Cross distance was greater than the distance to detect a cyclist. This could be viewed as a proxy measure for their fear or stress about the situation. If a person is scared about the possibility of a cyclist coming towards them, this could affect them deciding whether to cross even if they cannot detect a cyclist coming.

The results from measuring the Not-Safe-To-Cross distance found many participants only realised it was unsafe to cross when they heard or felt the wind from a cyclist passing them. This means that, the participant would have thought the cycle path was safe to cross when it wouldn't have been safe to do so.

UCL found heart rate variability was quite low, suggesting that just being in the bus stop environment might induce stress for disabled people. The results found the Shared Bus Stop Boarder resulted in a slightly lower heart rate variability compared to the Floating Island Bus Stop, suggesting the Shared Bus Stop Boarder was more stressful to use than a Floating Island Bus Stop.



The post-experiment questionnaire found the Shared Bus Stop Boarder was more difficult to use for all participants. People with a vision impairment rated both bus stop designs to be below the 'neutral' score of 3, implying that they find them both difficult to use. However, the Shared Bus Stop Boarder was rated more difficult than the Floating Island Bus Stop.

The responses also found it was challenging for people with a vision impairment to detect cyclists at either bus stop design, but the Shared Bus Stop Boarder was more difficult to use than the Floating Island Bus Stop.

However, the responses to the questionnaire found that Shared Bus Stop Boarders were easier to understand how to use, compared to Floating Island Bus Stops. This makes sense as they are more similar to an ordinary bus stop, the only complication being the addition of a cycle path.

Despite this, when measured on feelings of safety, Shared Bus Stop Boarders were found to be unsafe by all participants.

**Blind and vision impaired participants found both the Shared Bus Stop Boarder and the Floating Island Bus Stop to be unsafe, with the Shared Bus Stop Boarder scoring worse overall. All participants, especially blind and vision impaired participants, rated the designs of both bus stops as being dangerous.**





## Segregated Cycle-footways and Continuous Pavements

Participants were asked to stand in front of a Segregated Cycle-footway and move to the “correct” side for a pedestrian. The researchers then asked them if they had detected any colour contrasts between the footway (which was plain concrete) and the cycle path (which was black asphalt).

This found that 62 per cent of blind and vision impaired participants detected the correct side of the path and slightly more than half (54 per cent) could detect the colour contrast. This compared with 90 per cent of other participants being able to detect the right side of the path and the colour contrast. However, six out of ten participants were able to detect both the delineator and the contrast between the different sides of the path, showing the importance of having both in a design to help people with a vision impairment.

### Blind and vision impaired participants



**62 %**

detected the correct side of the path



**54 %**

detected the colour contrast

### Other participants



**90 %**

detected the right side of the path and the colour contrast

Researchers then asked participants to answer questions on their experience using four different types of delineators between footways and cycle paths. The four types used were:



1

A raised trapezoidal continuous delineator, 50mm height, white colour.



2

A raised trapezoidal delineator with gaps, 50mm height, white colour.



3

A kerb upstand with the edge of the kerb painted white.



4

A continuous painted white line.

These results found that raised trapezoidal continuous delineators were detected by most users, whereas the raised trapezoidal delineator with gaps was less easily detectable. The kerb upstand was even less easy to detect, and the painted white line came last as the least detectable.

**We then asked participants to give their feedback on using two different types of continuous pavements. One had tactile paving to warn participants they were about to enter a road, and another had no tactile paving. Participants declared a clear preference for the continuous pavement with tactile paving.**



# 6. What our findings mean



Taking all the evidence from the focus groups, workshops, site visits and experiments together, it is clear that disabled people feel unsafe when using both Floating Island Bus Stops and Shared Bus Stop Boarders. This leads to a general sense of fear about using them which causes some disabled people to avoid using bus services.

## 6.1 Shared Bus Stop Boarders

The research found that Shared Bus Stop Boarders cause more concern for disabled people than Floating Island Bus Stops. This is despite Floating Island Bus Stops often being more complicated and harder to understand. The focus group participants' clear sense that Shared Bus Stop Boarders are inherently unsafe, due to the need to board and leave a bus directly into a cycle path, was supported by the results from the experiments.

The real danger of Shared Bus Stop Boarders is that the cycle path conflicts with the space used by people boarding and leaving the bus, which cannot be made safe without guaranteeing that cyclists will not enter this area when a bus is there.

The design places three aspects of urban activity in the same place: cyclists travelling in what they believe to be – and should be – a segregated safe place, pedestrians perceiving the same-level cycle path as being a part of the footway, and bus passengers believing they are in a safe space for waiting for, boarding, and exiting buses. These are fundamentally incompatible.



The focus groups highlighted that some bus users, including wheelchair users, assistance dog owners and companions, already face challenges to exit the bus and now need to do so while being confident that a cyclist is not approaching.

The results also suggest the speed of cyclists would be harder to control at Shared Bus Stop Boarders as there is no (or at least less) deviation from the direction of travel.

**It is hard to see how the issues raised in this research could be resolved in the same infrastructure setup. At the very least there is a strong case for conducting further research so that appropriate designs can be investigated and, if successful, implemented.**



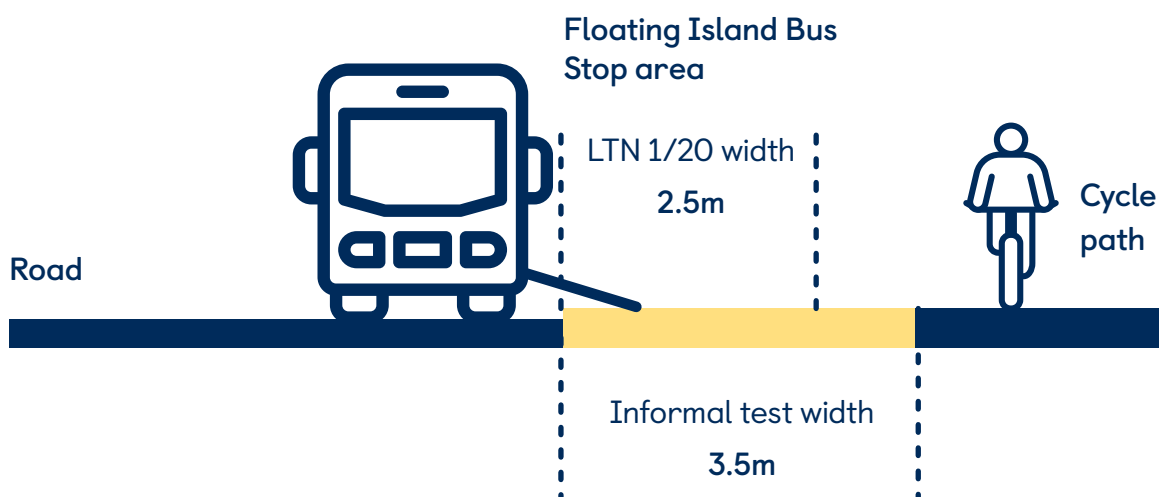


# 6.2 Floating Island Bus Stops

The research also found a number of issues with Floating Island Bus Stops that need to be resolved.

The main concern was over the size of the floating island, also referred to as a platform area. At a normal kerbside bus stop, during busy periods pedestrians can spread out along the adjacent footway safely. At a Floating Island Bus Stop, if pedestrians need more space than is available on the island, this would involve spreading out onto either the cycle path or road, which would be unsafe. This basic safety problem is made worse by the fact that some people require more space than others at a bus stop, including wheelchair users, people travelling with a companion or assistance dog or other mobility aids.

Design guidance provided in LTN 1/20 shows the width of a floating island should be 2.5m, but the research suggests this is inadequate. Informal tests with a carer-propelled wheelchair indicated that a minimum width of 3.5m would be required to enable them to leave the bus and navigate to the mini zebra crossing. This is supported by the Department for Transport's 'Inclusive Mobility' report that suggests people with assistance dogs require 1.2m from the point of being seated in the shelter<sup>5</sup>. The length of the island should also depend on the number of buses expected to be stopped at the same time. Given the length of buses and allowing space for their manoeuvrability, this suggests an island may need to be up to 30m in length. This is a subject for urgent further research as it greatly affects the accessibility of Floating Island Bus Stops.



The focus groups also raised the issue of knowing which way to go on leaving the bus to find the crossing. People did not know whether to turn left or right and became disorientated and could not find their way to the safe crossing. We believe this requires firmer control over where the buses stop at the bus stop, and a suitable protocol for when there is more than one bus at the stop at one time. One way to do this would be by providing road markings to help the driver not just at the stop itself, but ahead of the stop so they can make sure they stop in the right place.

It would also be helpful if the design of the island is consistent so that the blister tail paving is always in the same place on the island. If the bus cannot stop at the right place, there needs to be an information system with the capability to adjust the wording of an announcement to inform passengers of the correct direction.

Control of cyclists' speed at the bus stop was raised as a big issue for pedestrians. When crossing a cycle path there is often a large speed difference between the cyclist and the pedestrian, which can be dangerous to them both.

**Apart from the risk of physical injury resulting from a collision, the relative silence of cyclists means that the sudden realisation of the presence of a cyclist can cause a considerable shock.**

This is one of the principal causes of fear in using both Floating Island Bus Stops and Shared Bus Stop Boarders. As explained, this can result from a single bad experience and even repeated non-experiences are unlikely to reduce the shock in the short term.

The experiments conducted by UCL found that detecting a cyclist approaching a bus stop can be a real challenge, especially in enough time to make the right decision about whether to cross a cycle path.

The focus groups agreed that is important to protect cyclists from traffic but there was a clear sense that moving them into pedestrian spaces is not a good solution. The evidence from this research, including the results from the experiments indicating increased stress and anxiety, show that despite fatalities from cyclist-pedestrian collisions being unlikely, the stress caused by the thought that there could be a collision, is a major source of concern for disabled pedestrians.

**From the focus groups it is clear that this anxiety causes disabled people to stop using some bus stops, reducing their ability to carry out daily activities independently.**

A large component of the fear of a collision, is the speed at which cyclists travel. It is difficult to control their speed near bus stops, which could be a matter for further research.



## 6.3 Segregated Cycle-footways and Continuous Pavements

The research found general agreement that in principle a Segregated Cycle-footway, where there is a physical segregation between the space where a bicycle can travel and the space reserved for pedestrians, is a very sensible idea. However, the researchers found that problems arise where the delineation between the two paths is missing. The findings show, that a delineator that is just a painted line is insufficient. People with sight loss find a continuous raised delineator much easier to detect, so this should be the preferred option. However, this alone is not sufficient. Tactile paving at the start/end of the Segregated Cycle-footway indicating which side is for the pedestrian and which for the cyclist is essential. Without this it is easy for a person with a vision impairment to get confused. People will not always join a footway at the start, so this tactile paving needs to be repeated so people can ensure they are on the right side.

Finally, the research looked at Continuous Pavements. The research found that the main problem with Continuous Pavements is for a pedestrian to know when they are actually in the roadway and when they are on the footway. The focus groups reported a sense of not knowing where they are on these crossings. This situation is made worse when there is no tactile paving in place. The experiments showed quite clearly that having tactile paving made a positive difference for blind and vision impaired people.



# 7. Guide Dogs' recommendations



Based on the findings of the UCL research, Guide Dogs have developed the following **15 recommendations** to improve infrastructure that incorporates cycle paths into their design for disabled people (for UCL's full recommendations see the full research report):

## Generic recommendations

- 1.** Local communities (including disabled people) and professional specialists must be involved in the co-cultivation of pedestrian infrastructure to ensure that inclusion and accessibility are embedded into the planning and design process.
- 2.** Investigate different ways of enabling cycle lanes and bus stops to interact which do not raise safety concerns amongst passengers and pedestrians using the stop. This investigation should include consideration of alternative positions, alignments and routes for the cycle lane to ensure that both cyclists and pedestrians are safe around bus stops. Until findings from this research are available, stop the further installation of Floating Island Bus Stops and Shared Bus Stop Boarders.
- 3.** Investigate in detail the psychological stress and fear caused by the interactions between bicycles and pedestrians at these designs of bus stop, Continuous Footways and Segregated Cycle-footways and the psychological barriers this presents to disabled people.
- 4.** Investigate signalling, signage and other technologies to ensure that cyclists are aware of the bus stop and take suitable action to ensure that any interactions with boarding, alighting, waiting, arriving or leaving passengers are safe.



# Floating Island Bus Stops

- 5.** Investigate the current minimum standards for the dimensions for the platform area of a Floating Island Bus Stop and whether these are appropriate. This must consider the needs of all passengers using the bus stop as well as footfall, the number of buses pulling up at the same time and the types of buses accessing the bus stop.
- 6.** Investigate different methods of reducing the speed differential between cyclists and pedestrians at and around Floating Island Bus Stops (and other infrastructure containing possible conflicts of this nature). This research must take into considerations the hierarchy of road users.
- 7.** Investigate how to ensure that buses always stop in the same place at a Floating Island Bus Stop so that alighting passengers know how to navigate across the island.
- 8.** Investigate methods for passengers to identify specific buses at bus stops where there is a possibility of different bus services using the same stop. This applies to all bus stops, but it is especially important at Floating Island Bus Stops and Shared Bus Stop Boarders, where space is more limited and conflicts greater than at 'normal' bus stops.
- 9.** Investigate the communication of the design and operation of the Floating Island Bus Stop and the consequent training needs for all users, so they can be used as safely as possible.
- 10.** Investigate revisions to the audible and visual announcements on buses so that the bus stop is identified as a Floating Island Bus Stop (with the cycle lane 'behind' the bus stop and between the bus stop and the footway) or the Shared Bus Stop Boarder (with the cycle lane positioned immediately outside the bus).

## Shared Bus Stop Boarders

- 11.** Investigate if there are any means by which Shared Bus Stop Boarders can be made safe in practice. Until there is evidence on whether they can be developed safely, the installation of Shared Bus Stop Boarders should halt.

## Segregated Cycle-footways

- 12.** A tactile paving delineator should be used at all times rather than a painted white line. Investigate different designs and profiles of continuous central delineators on Segregated Cycle-footways. Such routes should only be considered if the recommended space can accommodate the requirements for both users.
- 13.** Tactile paving should be installed at the beginning and end of each section, as well as at regular intervals within the Segregated Cycle-footway, in line with the guidance.

## Continuous Footways

- 14.** Local authorities should install tactile paving and other signalling at all such crossings so that there is a consistency of approach.

**Our final recommendation is that guidance is amended to reflect the findings of the research so that the recommendations can be consistently applied:**

- 15.** We would recommend a research investigation to explore how LTN1/20 and other relevant guidance might be revised to take account of the technical findings of the research undertaken for this report, including involvement of disabled people and other users of such infrastructure so that guidance can be created that enables infrastructure that is accessible, safe, equitable and works well for all.



# 8. Conclusion





**The research found that bus stops and pedestrian infrastructure that incorporates cycle paths can cause fear and stress for disabled people, especially for blind people and people with a vision impairment.**

This is due to the very real threat of failing to detect an oncoming cyclist, and the risk of colliding with them travelling at a high speed. To avoid this threat, some disabled people choose to avoid using these types of infrastructure, limiting their access to daily activities and opportunities.

The findings raise many problems with Floating Island Bus Stops in their current form that must be urgently addressed. Floating Island Bus Stops are difficult for people with sight loss to identify and navigate. Neurodivergent participants raised concerns about crowding in the constrained space of the floating island, and wheelchair users were also concerned about the lack of space to manoeuvre on the floating island. Floating Island Bus Stops were also found to be more confusing to use than Shared Bus Stop Boarders. Further research involving local communities must be carried out to review different ways of including cycle paths around bus stops, and to establish a minimum size of floating island.



## The research found that Shared Bus Stop Boarders pose a greater threat to disabled people and are considered less safe than Floating Island Bus Stops.

Participants in our research were universally opposed to the use of Shared Bus Stop Boarders, and the experts consulted were equally sceptical of their safety. These problems are inherent in the design of Shared Bus Stop Boarders and we do not think they should be used in their current form. Some of the main risks of this design include the higher travelling speeds of cyclists and risks boarding and leaving buses directly onto a cycle path. More research is needed to understand if these designs can be made to be safe and accessible, but until this is complete, the design should not be further implemented.

The research found Continuous Footways are dangerous for blind people and people with a vision impairment, as it is difficult for them to detect when they are crossing onto a road. This means people with sight loss may not know when they are putting themselves in the way of oncoming cyclists and vehicles. Installation of tactile paving at all Continuous Footways must be implemented and further research into safe navigation of these crossings is needed.



**Lastly, the research found that the use of Segregated Cycle-footways was widely supported. However, blind people and people with vision impairments find it difficult to identify which side of the path is for pedestrians, and to know when they are joining a shared cycle path-footway.**

To improve their accessibility, the delineator separating the two paths needs to be made more detectable for people with sight loss. Other measures, including ensuring the implementation of tactile paving to assist with identifying which side is for the pedestrian and cyclist, would also improve the safety of the design.

There is a clear need for a safe and segregated cycling infrastructure and steps to improve the safety of cyclists on our roads should be welcomed. However, our research makes clear that sharing space between cyclists and pedestrians can have a negative impact on safety, especially for disabled people.

Action is now needed to address the concerns highlighted in this research, to ensure disabled people feel safe when they walk or use public transport in the streets and spaces where they live or walk. Any new infrastructure must be consistently designed, planned and tested with the involvement of all potential users including disabled people, to avoid these design problems reoccurring in the future.





# 9. References



# References

1. Official Statistics, Cycling traffic index, England. Updated 27 June 2024 <https://www.gov.uk/government/statistics/cycling-index-england/cycling-index-england>  
**[BACK]**
2. O. Woodman, "London crowned as Strava's most active cycling city," BikeRadar. <https://www.bikeradar.com/news/london-crowned-as-stravas-most-active-cycling-city>  
**[BACK]**
3. Department for Transport, "Cycle infrastructure design (LTN 1/20)," GOV.UK, Jul. 27, 2020.  
**[BACK]**
4. Living Streets, "Inclusive design at bus stops with cycle tracks," 2024  
**[BACK]**
5. Department for Transport, "Inclusive mobility: making transport accessible for passengers and pedestrians," GOV.UK, Jan. 10, 2022. <https://www.gov.uk/government/publications/inclusive-mobility-making-transport-accessible-for-passengers-and-pedestrians>  
**[BACK]**





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