

Creating a public realm for all



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Foreword

Prof. Nick Tyler



When we say creating a public realm for all, we mean all. And that, I think, is very important. We are not segregating people into divisions for whom we can make the public realm accessible and then saying there are some people left over at the end – this is about everybody.

With this in mind, CIHT organised a working group to consider how to make the public realm accessible for all. I was very honoured to be asked to chair the group, and I would like to extend my thanks to all the members of the group, and the tireless CIHT staff who supported us, for all their hard work and valuable contributions to our work in approaching this difficult but hugely important challenge.

If the environment requires you to do something more than you are capable of, then it is inaccessible to you. The accessibility of the public realm is therefore a matter for the whole of society.

In this report we have attempted to bring together some of this thinking and to indicate where readers should start to think about accessibility (spoiler: before you do anything else) and, based on advice from our diverse group members and others who attended the workshops we held, where to look for ideas, examples, and guidance about what may or may not be done.

There are two fundamental messages in the report. First, such guidance as there is only provides for the bare minimum – we should be striving for real accessibility for everyone, which usually means doing a lot more than the guidance lays down. Secondly, the only people who really know whether somewhere is accessible are the people for whom it presents a barrier. Accessibility is never “done”: there is always more that needs to be done to enable everybody to join in society and, in doing so, thrive.

Foreword

Sue Percy



Equality, diversity, and inclusion (EDI), climate action, and professionalism are key to CIHT's overarching strategic themes.

We believe in working to improve EDI across the highways, transportation, and infrastructure sector. There is a significant overlap between social inclusion and our physical and mental health and wellbeing, so ensuring equitable opportunities for everyone to travel is essential.

This report helps transport professionals to recognise and respect people's differences. We must be inclusive – in how we design, build, and maintain the public realm. This report does not have all the answers but will help you ask the right questions.

I hope that the transport professionals reading this report will use it to create a more equitable public realm – we have signposted lots of resources that are available for those who wish to find out more and continue on their professional journey.

Executive summary

This report should be used by transport professionals to help them identify and design the public realm for the everyday challenges faced by some people, such as disabled people (with physical, sensory, cognitive, or intellectual impairments or differences, which may be readily apparent or non-visible), people with temporary conditions such as pregnancy or sports injuries, older people, people with young children, or those encumbered by luggage or equipment.

The report highlights some of the barriers that people face when using the public realm and suggests guidance documents that could be used to help design solutions to the issues experienced. A key feature of the report is the importance of “co-cultivation” (i.e. continuous, meaningful engagement and representation from inception and design through construction, operation, and monitoring to re-evaluation) rather than light-touch consultation on a public realm scheme. This should result in a shared understanding of the issues faced (from both the user and the designer perspective) and increased commitment to finding appropriate solutions.

A list of suggested reading material and some examples of good practice have been included for those who are interested in finding out more.

1. Introduction

CIHT represents and qualifies professionals who plan, design, build, manage, maintain, and operate highways, transport infrastructure, and services. We aim to continually improve the skills and professionalism of the sector.

Celebrating diversity and working towards inclusion should be central to how we design, build, and maintain our infrastructure. In doing so, we will help to create a public realm for all. This report looks at the conflicts and challenges involved in achieving inclusive mobility and access for all using the public realm.

The report summarises the content of several publications, feedback from a stakeholder workshop, and responses to a call for evidence. It is designed to raise awareness of the challenges that people can face, such as disabled people (with physical, sensory, cognitive, or intellectual impairments or differences, which may be readily apparent or non-visible), people with temporary disabilities, older people, people with buggies and luggage, so that transport professionals can produce inclusive designs when planning, designing, or proposing changes to the public realm.

The report focuses on disability and age because an inaccessible public realm can all too easily restrict people rather than simply inconvenience them. This can subsequently exclude them from public spaces and the activities these are supposed to provide. Improvements made to the accessibility of the public realm will benefit everybody. Public bodies have a duty to eliminate discrimination and advance equality of opportunity for people with protected characteristics under the Equality Act 2010. It should be remembered that many people have more than one protected characteristic; for example, a disabled person may also be an older female person. CIHT will develop digital training via the CIHT Learn platform to accompany this report to aid understanding of the issues raised.

2. Development of this report

This report was informed by an initial scoping workshop in January 2024 with men and women from a range of ethnic backgrounds. The workshop included people with lived experience of health conditions or impairments, representatives from disability groups, urban planners, highway engineers, researchers, inclusive design professionals, and other experts in the field. Following this, there was a wider call for evidence. We received 42 responses to the call for evidence and held a workshop session at the CIHT Council meeting in February 2024. A webinar on the draft findings of the report was given in March 2024 so that CIHT members and partners could feed back their comments. The report was then shared with all those individuals who contributed to it for review in April 2024.

3. What is inclusive design and why is it important?

It is important to make neighbourhoods and communities inclusive so that everyone can access the goods, services, and facilities that they need, when they need them. Creating a public realm for all means incorporating the principles of inclusive design, which aim to remove the barriers that create undue effort and separation. This enables everyone to participate equally, confidently, and independently in everyday activities and in society in general.¹ It creates spaces that are accessible, safe, comfortable, and easy to navigate for everyone.

People’s requirements and needs change with age so any design should work for all ages.

Places that feel accessible during daylight hours may become inaccessible during hours of darkness if the public realm does not consider personal safety. Adequate lighting, good visibility, and passive surveillance should therefore be fundamental considerations of inclusive design.

A walkway with lights on – Liverpool One, Liverpool

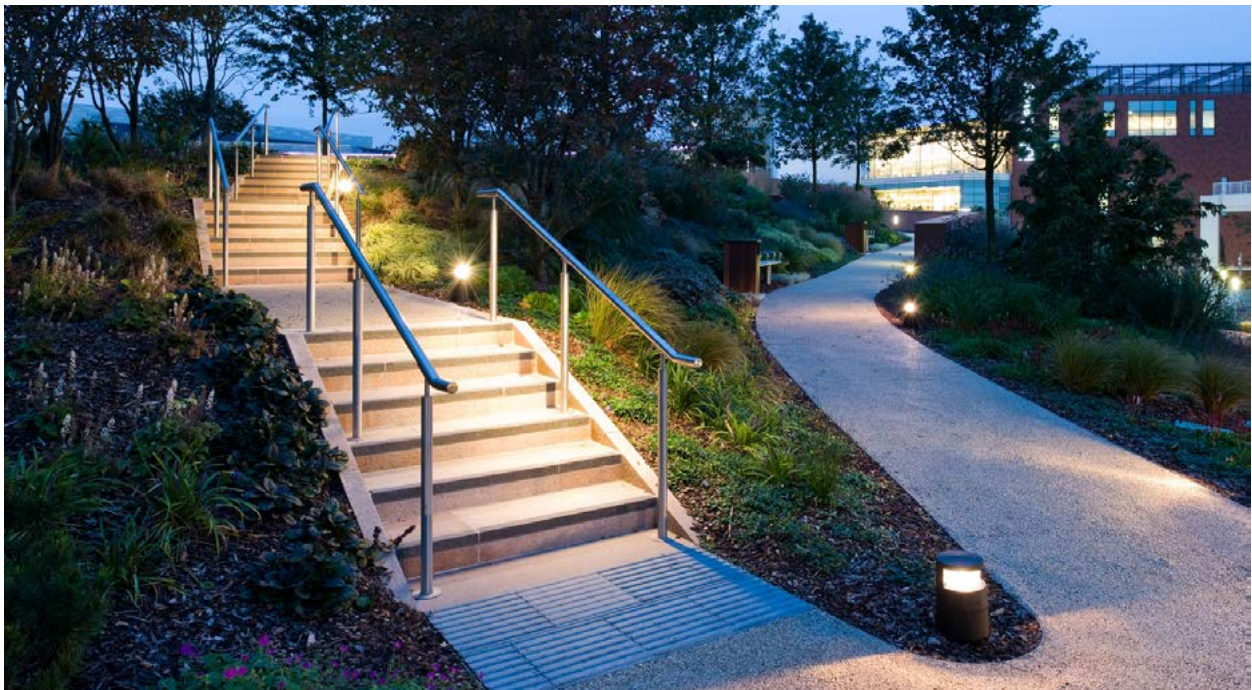


Image: BDP

¹ Department for Business and Trade (2024) [UK capabilities in inclusive design of the built environment](#), Department for Business and Trade

Bad design disables people. On the contrary, good design should work for everyone without discriminating. Everyone should be given the opportunity to make everyday journeys on foot (including those using mobility aids such as rollators), by cycle, or using other wheeled modes, such as wheelchairs, scooters used by children, and mobility scooters, as well as those pushing prams or buggies.

The effects of noise (levels and suddenness or surprise) or lack of noise from cycles and electric vehicles such as e-scooters is a growing issue, and one that needs to be considered in the design process. High decibel levels coupled with “loud” visual stimuli can serve to disorient neurodivergent people with sensory sensitivities and makes navigating the built environment more difficult – increasing risk of injury or harm. It is important to realise that it is not just “loudness”, as represented by sound pressure levels (decibels), that is an issue but also the “composition” of the sound – the range and distribution of frequencies also affect people, so that even if the sound is not particularly loud, its frequency distribution could be a problem. This can be a particular concern for neurodivergent people as well as those with hearing difficulties.

Designers must adhere to the public sector equality duty – outlined in section 149 of the Equality Act 2010 – when developing or changing any measures that impact people. The Department for Transport (DfT) report on inclusive mobility² provides relevant guidance (please see the Guidance section at the end of this document). However, where possible, designers should always aim to go above and beyond the minimum standards.

The Public Services (Social Value) Act 2012 requires public sector organisations to consider “how what is proposed to be procured might improve the economic, social and environmental well-being of the relevant area”.

When preparing the business case for any scheme, the economic benefit from use by people who may not currently be able to use the space, for example to access shops, should be included. The whole-life costs of the scheme, including maintenance costs, should be included in the business case.

The Design Council³ summarises the five principles of inclusive design as:

1. Places people at the heart of the design process.
2. Acknowledges diversity and difference.
3. Offers choice where a single design solution cannot accommodate all users.
4. Provides for flexibility in use.
5. Provides buildings and environments that are convenient and enjoyable to use for everyone.

² DfT (2021) [Inclusive mobility: a guide to best practice on access to pedestrian and transport infrastructure](#), Department for Transport

³ CABE (2006) [The principles of inclusive design. \(They include you.\)](#), Commission for Architecture and the Built Environment

Inclusive design does not stop at the design stage. These factors should be carried through to operational and maintenance considerations of any area of public realm to ensure it remains welcoming and accessible for all.

While accessible and inclusive engagement can incur costs, such as for a British Sign Language interpreter or having materials in Easy Read, achieving the principles of inclusive design does not cost more if it is considered from the outset of a project. With cost-effective materials and appropriate design and planning from the start, ongoing maintenance and adjustment costs can often be less. A crucial point is that incorporation of inclusive thinking from the outset of the design process will be cheaper than trying to address this retrospectively or later during the process. Inclusive design also enables the greatest number of people to partake in the local economy, thereby increasing the economic viability of local businesses.

4. How do we define disability?

Disability can be defined using the medical or social models. From a medical perspective, impairments create differences in mental, physical, and sensory functions, such as seeing, hearing, communication, or mobility.

This report focuses on the social model of disability, which says that disability is caused by the barriers that exist within society and the way society is organised. These barriers discriminate against people with impairments and exclude them from involvement and participation in daily activities. Physical barriers can include the absence of dropped kerbs (or dropped kerbs blocked by parking spaces), footways in poor condition, and a lack of seating or accessible public toilets. Other barriers include sensorial and cognitive barriers, attitudes, and the way things are done.

Another way of looking at disability is via “capabilities”⁴, where the environment required for a person to exercise their capabilities is not matched by the potential capabilities of the person at the time and place they are needed.

⁴ Tyler N. (2015) [Accessibility and the bus system: transforming the world](#), 2nd edition, ICE Publishing

5. Achieving an inclusive design

Designs should be created by a diverse design team. This should include as many individuals with protected characteristics as defined by the Equality Act 2010⁵ as possible. There should be input from the start of the design process from representative groups and potential users of the street, bearing in mind that some people may have been prevented from using the street due to existing accessibility issues.

Early engagement is key. This will ensure feedback can be incorporated in a timely way to avoid wasted effort or delays. This is particularly important for disabled people, as compromises may need to be made. When stakeholders are brought together it is possible to work out acceptable solutions and agreements, rather than have these foisted upon them at a later stage.

The aim should be co-cultivation. This means meaningful engagement and representation from inception and design through construction, operation, monitoring, and evaluation (rather than just consultation on a scheme). This brings a shared understanding of the issues faced, from both the user and the designer perspective. At the time of drafting this report, Transport Scotland⁶ was consulting on how to best engage with communities on inclusive design for town centres and busy streets.

It should be remembered that what looks good on a plan, for example patterns for footways, does not necessarily work in reality as we do not experience the real world from an aerial perspective. Principles can also get lost between design and construction. For instance, if the drainage is not right, pedestrians may not want to use the area because they do not want to get splashed by puddles.

Although equality impact assessments are commonplace, they tend to be completed at the end of the design process. The design process should include an access and inclusive design review, carried out by representatives of all potential users of the scheme. The review should identify issues, similar to a road safety audit, and provide an opportunity for the designer to respond and change the design to address comments. This should be carried out as early in the design process as reasonably possible.

Use of existing data will not capture the potential use by currently excluded groups, as people who are not able to use spaces are not present to be counted in road user data. Similarly, surveys can exclude people with certain impairments, so engagement activities should encompass a range of methods, including direct interviews – but keeping to the aim of co-cultivation of ideas and design from the beginning of the project through to completion,

⁵ [Equality Act 2010](#)

⁶ Transport Scotland (2024) [Guidance on inclusive design for town centres and busy streets](#), Transport Scotland

monitoring, and evaluation. Consideration should be given to the times, places, and formats that are used for engagement to avoid excluding any user group.

While ideally there would be consistency of design across the UK, in practice this will be difficult to achieve. However, there should be consistency of design principles, meaning that what the designs are trying to achieve should be consistent. If there are sufficiently different ways of achieving a design principle in different places, these should be well advertised and explained. This could apply in places with particular circumstances, such as steep hills, water crossings, or temporary markets. Local authorities should strive for consistency of design within their own administrative boundaries.

Changes to the design of streets and public spaces require everyone who is sensitive to the environment to relearn how to use the space. For example, a visually impaired person may not expect a lighting column to be relocated from the edge to the back of a footway. Consideration should be given to providing appropriate support mechanisms, such as orientation sessions, when the streetscape has been changed for people who will find changes difficult, such as neurodivergent people and visually impaired people.

6. Reducing barriers in the design stage

6.1 Use of space

Consideration should be given to how the space is used. Events, commercial activities, peoples' movements, and external factors all influence how the space is used. Delivering a resilient design is central to an inclusive design. Weather (rain, heat, snow, high winds, flood, etc.), under-occupancy or overcrowding, emergency incidents, and other external factors may disrupt the operational models or scenarios used in design.

It is essential that the differential speeds of different users is considered. Pedestrians walk at around 4km/h (older people and some disabled people more slowly) whereas vehicles (including cycles and e-scooters) could be travelling in excess of 15km/h. Good safety practice⁷ would suggest that if the users cannot be suitably separated, then the speeds must be brought into line with the slowest. Designers need to take this into account, as drivers and riders are unlikely to slow down without encouragement by suitable design or enforcement.

⁷ <https://swov.nl/en/fact/speed-what-are-safe-speeds>

Reducing the amount of potential conflict between vehicles and pedestrians, by reducing access for vehicles, will also reduce the need for some street furniture, such as bollards and guard railing. However, it should be noted that many of the alternatives to car use are currently not accessible to disabled people. This means that accessible parking, drop-off and pick-up will have to be a major consideration in any scheme for the foreseeable future.

Excessive traffic, lack of green infrastructure such as trees and plants, rapid change, and noise from traffic can make spaces particularly problematic for neurodivergent people.

Simple, clear, easy to understand designs work for everyone – the more complexity there is, the more distraction it causes.

Building in more interaction between modes creates more potential clashes and safety issues – all of which indicates a potential flaw or failure in the design process. Shared-space schemes may rely on users to behave in a certain way. This can include drivers, cyclists, (mobility) scooter riders, and pedestrians being able to see or hear each other and react to behaviours. Such schemes may be unusable by some disabled people who may not be able to adhere to the assumed design principles.

The CIHT publication [Creating better streets: inclusive and accessible places](#)⁸ looks at the issue of shared space and makes clear recommendations about the changes of approach that are needed. Building on some of the early contentious schemes, the report makes a simple but all-important recommendation: “It must be made clear that the built environment should be accessible for all.”

6.2 Footways

Most journeys start with walking or wheeling, even if that stage is from the front door to a car. This encompasses travel modes such as mobility scooters, wheelchairs, pushchairs, and children using scooters that use footway space at a similar speed to walking.

It should be remembered that the footway is very different from the carriageway in terms of its use. Carriageways are principally about the flow of vehicles. There is an element of flow to be considered on footways, but they also need to accommodate abrupt changes of direction, stopping, being stationary, and so on. Such activities are part of the normal social activity that we want and need to happen. This means that typical pedestrian flow models tend not to give adequate space for pedestrian activity. Footways also accommodate utilities cabinets, electric vehicle charging units, and street furniture (bins, benches, planters, and trees).

Footways should be wide, as level as possible allowing for drainage (whether the route is flat, uphill, or downhill), firm, slip resistant, reasonably smooth, uncluttered, well maintained, and predictable.

⁸ CIHT (2018) [Creating better streets: inclusive and accessible places](#), Chartered Institution of Highways & Transportation

The effective width⁹ should be used when calculating the available footway width, as this provides a more accurate representation of the usable space. Unless physical features make it impossible, designers should subtract the space occupied by street furniture, street traders, queues at bus stops, people waiting to cross roads, and people accessing shops. A street food stall could be quite small but will still attract people and create queues on the footway.

Figure 1 helps illustrate visually how a wider footway improves the accessibility of its use.¹⁰

Figure 1. Basic human requirements for ease of movement from Greater Manchester's Streets for All Design Guide¹¹

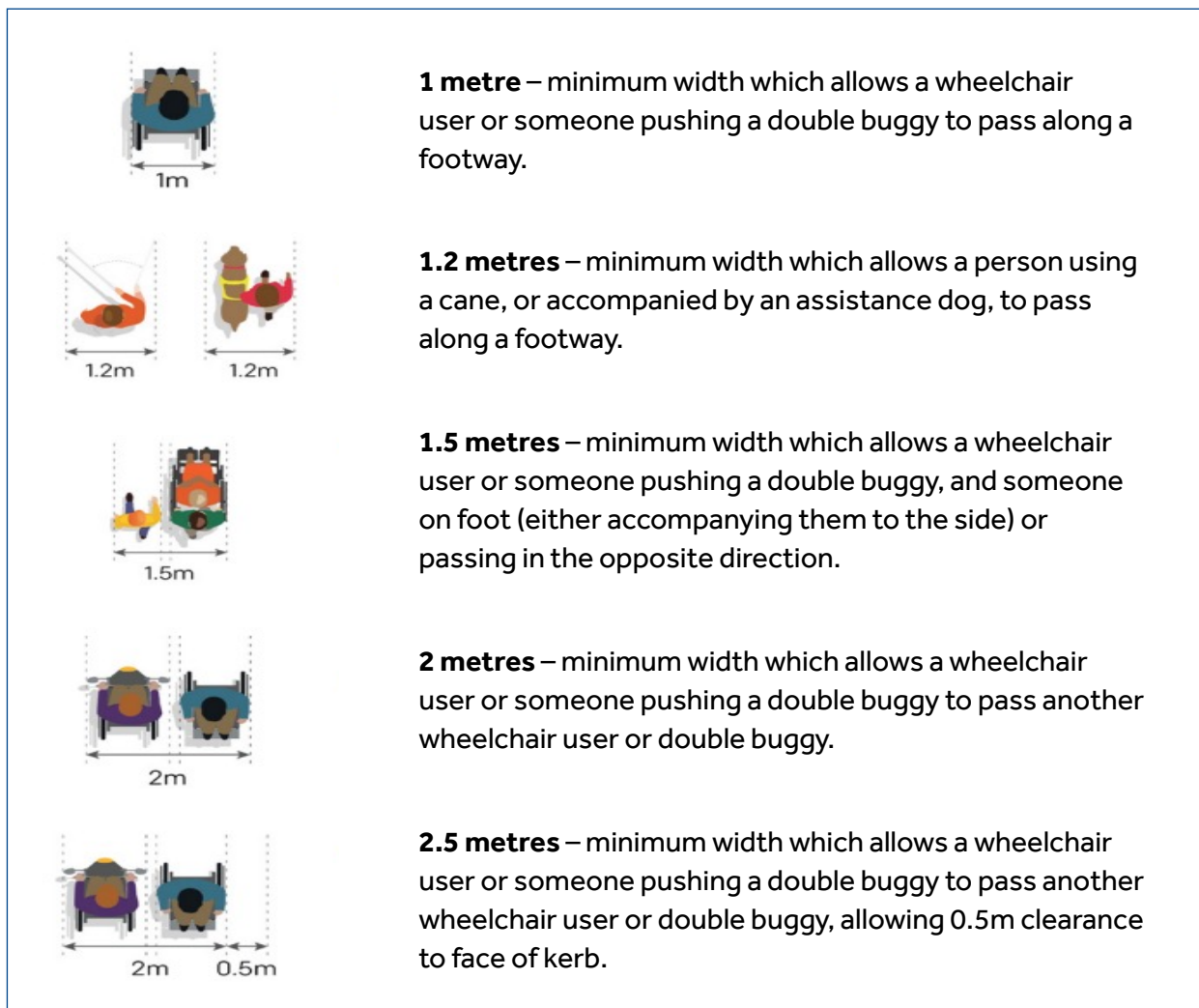


Image: Transport for Greater Manchester

⁹ CIHT (2015) [Designing for walking](#), Chartered Institution of Highways & Transportation

¹⁰ Please note that some of these measurements are greater than those recommended by DfT's Inclusive mobility guide

¹¹ TfGM (2023) [Greater Manchester's Streets for All design guide](#), Transport for Greater Manchester

Where a narrow footway cannot be widened, consideration should be given to removing or slowing vehicle traffic (in case pedestrians need to step into the carriageway to avoid an obstruction on the footway) or creating a shared space. If this is not possible, passing places should be provided for wheelchair users.

Footways should not be slippery when wet or cause reflections. Pedestrian areas and routes can never be absolutely level because surface water drainage must be possible. Crossfall causes difficulties for wheelchair users and people pushing wheelchairs, people pushing buggies, and many older people. Footways need to be redesigned if extended into the carriageway (e.g. for bus boarders) to avoid drainage channels on the footway with their attendant opposing crossfalls.

Stone or concrete flagstones, while aesthetically pleasing, do not stay level if poorly laid or maintained or if inappropriately used by vehicles parking and so can be particularly hazardous. Uneven surfaces lead to a fear of falling, which can offset the attraction of accessible environments.

Heritage is often used as an excuse for inaccessibility. Raised stone setts (cobble) are not accessible, as they are difficult to walk on for people with mobility issues and almost impossible to cross in a self-propelled wheelchair. Side road entry treatments and access to driveways using cobble can make progressing along a non-cobbled road difficult for some.

If there is a compelling conservation or historic reason to use uneven materials, then an appropriate accessible route should be provided and made clear by signage.

Natural stone is much more hardwearing and more visually pleasing than concrete paving, but some stones can be bumpy and become slippery from leaf residue. CIHT recommends more research into which natural stone performs best in all conditions and how best to treat surfaces that have become slippery.

Footways should be firm, as this minimises effort to wheel or walk, which is particularly important for people with balance difficulties. Footways should not be shiny, as shiny surfaces can cause glare or look slippery. This can be confusing or frightening for neurodivergent people or those with some types of dementia.

Pavements and kerbs should be visually contrasting to the carriageway, and sufficient contrast needs to be maintained when wet. This is because a lack of contrast makes it more difficult for some people with visual impairments to navigate a space or identify hazards. Footways will get dirty over time, so regular cleaning is important to maintain contrasts.

Different textures or colours can be used to indicate changes in the environment, such as the edge of a path or a change in gradient, if done with care – advice should be sought from local access groups on the choice of colours and materials used. However, abrupt transitions

between different types of surfaces should be avoided, as they can be perceived as a step or obstacle for neurodivergent people, visually impaired people, and people with some types of dementia.

Artworks on footway surfaces can cause distress and confusion and should be avoided. This is particularly the case for neurodivergent people, visually impaired people, people with learning difficulties, and people with some types of dementia.

Metalwork on footway surfaces can be slippery.

Stepped kerbs are where the height from the footway to the carriageway is so great that there is a step embedded into the kerbstones to bridge the gap. These should be avoided because they are dangerous for all pedestrians, especially at night.

6.3 Drainage

Utility covers, drains, and gratings should be positioned outside of the pedestrian pathway, as they can be dangerous for people who use wheelchairs, canes, and crutches, and people wearing high heels. Recessed chamber covers should be used where possible. Metal drainage channels in pedestrian areas can be slippery and lead to slips and falls.

6.4 Crossings

Pedestrians have priority, except on high-speed roads where the speed limit is 40mph or higher. The design and operation of schemes should reflect this in terms of the frequency and location of crossings, including the time allowed for people to cross. The Highway Code¹² specifies that vehicles should give way to pedestrians crossing or waiting to cross a road into which, or from which, they are turning, and any pedestrians who have started to cross have priority.

Focus groups, whose participants were disabled people with a range of learning, mobility, and visual impairments, conducted by Living Streets,¹³ found that the most common physical barrier to walking was crossing the road. Crossings connect pedestrian routes and intersect with vehicular traffic, and they are the point at which pedestrians are most vulnerable when walking. Not having enough time to cross the road, not finding a safe place to cross, signalised crossings that do not work, the Puffin design with a low-level "green man", and the absence of dropped kerbs were all mentioned as barriers to using crossings by the focus groups.

¹² <https://www.gov.uk/guidance/the-highway-code/using-the-road-159-to-203#rule170>

¹³ Living Streets (May 2016) [Overcoming barriers and identifying opportunities for everyday walking for disabled people](#), Living Streets

Dropped kerbs must be constructed flush with the carriageway, be available on both sides of the crossing point (and not misaligned on opposite sides of the road), and have correctly installed¹⁴ visually contrasting tactile paving. Even a small lip can bring a wheelchair or mobility scooter to an abrupt stop and can be a trip hazard for other people. Drainage should be carefully considered around crossings, as this is often an area of ponding water.

Inadequate tactile paving



Image: Antony Clewes

Continuous footways are where the road has been raised to the same level as the footway and uses the same material as the footway. These should have tactile paving, on both sides of the road, to warn blind and partially sighted users of the potential presence of cars. Caution should be exercised before introducing continuous footways on side roads without considering vehicle volumes and speed. Living Streets research¹⁵ on continuous footways concluded that ramped entry should slow vehicles to a walking speed (4mph) and no more than one vehicle should be able to cross at a time.

Fully controlled crossings are seen as the most accessible, as they give the greatest priority to people walking and wheeling and do not require people with visual impairments to be able to hear approaching traffic. The increasing use of electric vehicles, which make much less noise than petrol or diesel vehicles, means that it can be more difficult for people with hearing impairments and visually impaired people who rely on hearing approaching vehicles to know when it is safe to cross.

¹⁴ DfT (2021) [Guidance on the use of tactile paving surfaces](#), Department for Transport

¹⁵ Living Streets (2023) [Inclusive design at continuous footways](#), Living Streets

There should be sufficient green man signal time to cross at signal-controlled crossings. Section 18.6.2 in Chapter 6 of the Traffic Signs Manual¹⁶ allows for signalised crossings to have an adjusted walking speed of 1m/s (instead of 1.2m/s) where there are larger numbers of slower pedestrians. The use of on-crossing detection can also help by automatically extending crossing times where needed.

It is important to consider the position of the push buttons, especially when thinking about how these are reached by wheelchair users and how they must position themselves to use them, in relation to where they need to be, when crossing the road. Tactile paving should be provided to allow visually impaired pedestrians to locate the call unit.

At-grade crossings should be the norm, except where separating vehicle and pedestrian movements by space is the safest way to design a crossing.

Subways are less than ideal because of perceptions of personal safety and the challenge for some people of going up and down ramps. Where subways are required, designers should make every effort to design out any places of concealment in the interests of personal security. Subway alignments with good through visibility, good lighting, and good surveillance networks will improve the users' perceptions of personal safety.

Bridges are inherently difficult to make accessible. Even where ramps are used, the length of ramping needed to meet acceptable gradients makes this type of infrastructure difficult or impossible for many people to use.

The provision of at-grade crossing facilities on high-speed roads (speed limits of 40mph or higher) is a challenge, especially if there is a strong desire line. If being considered, it is likely that local speed reduction measures will be required.

It should be borne in mind that disabled cyclists and users of adapted cycles may not be able to dismount at crossings on cycle routes where this is required.

Colourful crossings should always be avoided, as they cause sensory overload, distress, and confusion to some neurodivergent people, visually impaired people, people with learning difficulties, and people with some types of dementia. They add more uncertainty to an already complex street environment, are less identifiable for all users, and can be distracting to motorists.

¹⁶ DfT (2019) [Traffic signs manual, chapter 6](#), Traffic Control, Department for Transport

6.5 Permanent street furniture

Street furniture should be outside the main access route and should be clearly identifiable and contrast visually with the surroundings.

All street furniture used by people (e.g. bins and benches) should be made accessible to as many people as possible. Street furniture can be an obstacle, or it can be an aid. For example, a lighting column could be something useful to hold on to while catching one's breath, and a bench could be useful for people to hold to gain stability, as well as a place to sit. What is needed is a consistent approach and to think about how people might need to use it.

Guard railing should be avoided where possible, as it can pose hazards for cyclists, who can become trapped between a car and the guard railing.

The use of staggered barriers or kissing gates is widespread to prevent vehicle, motorcycle, or bicycle access to alleyways or short footpath links. While they may deal with restricting unauthorised access, they exclude people using wheelchairs, mobility scooters, and pushchairs from footpaths. The pragmatic solution is to use a single bollard or line of carefully placed bollards to prevent car access. Unauthorised access by motorcycles will need to be dealt with by enforcement, and, if there is space, cyclists should be provided with their own segregated path.

6.6 Lighting

Street lighting is usually designed for illuminating the carriageway for motorised vehicles and is not as good, or as helpful, as it might be for pedestrians. Pedestrians require lighting that enables them to see people, facial expressions, uneven surfaces, and trip hazards. These needs are unlikely to be adequately served by lighting designed for motorised traffic.

Bright lighting can give a false sense of security, as it reduces the capability of seeing beyond the brightly lit area, and it can make the person being lit very visible to others. Lighting should avoid creating glare, confusing reflections, pools of bright light, and strong shadows. It is important to remember that what matters is what the eye can distinguish between foreground and background, not what the lighting measurement is at that point, so testing with people who are sensitive to such differences is crucial.

The Institution of Lighting Professionals provides guidance¹⁷ on lighting the public realm.

¹⁷ <https://theilp.org.uk/resources/#general-publications>

PAS 6463¹⁸ notes that people who experience sensory overload often have significantly heightened sensitivity to light (photophobia). They can be adversely affected by lighting flicker, illumination level, colour, positioning, and number of light sources, all of which can impact on comfort levels and glare.

6.7 Trees and planters

Street trees¹⁹ provide shade and shelter, absorb pollution, improve biodiversity and drainage, reduce noise, have a cooling effect, generally improve the streetscape, and can have a calming presence.

Trees and planters should not obstruct the pedestrian desire line.

Trees and footway materials require planning to ensure roots do not become trip hazards or lift to create uneven footways, making it difficult for wheelchair users and buggies to pass. Tree roots that start to lift the footway need to be properly addressed. The footway should be realigned with a ramp up to and from the obstructing root so wheelchair users can pass.

It is important that the right tree is planted in the right place. Leaf fall can make footways and cycle paths slippery. While poorly maintained trees can cause uneven surfaces with roots lifting the footway, modern tree pits are far more robust. Careful tree selection can be a welcome addition to the streetscape, especially when located on build-outs in the carriageway, as they do not reduce the footway width.

¹⁸ BSI (2022) [PAS 6463:2022 Design for the mind: neurodiversity and the built environment guide](#), British Standards Institute

¹⁹ CIHT (2023) [Green and blue infrastructure: a transport sector perspective](#), Chartered Institution of Highways & Transportation

Tree pits – Eastgate Square, Chichester



Image: BDP

Planters should not have sharp corners or sides and should contrast with the footway so they can be seen by people with visual impairments. They should not be situated on access routes.

6.8 Comfort facilities (benches, green spaces, drinking fountains, shelter and shade, and toilets)

Benches or parklets should be provided where possible to offer places to rest for people who tire easily, find standing difficult, are neurodivergent, or have some types of dementia and need a quiet space to rest. Drinking fountains and shade or shelter can provide comfort in all weather conditions.

Seating needs to reflect the different requirements of users by being of varied height levels, such as benches and perch seats.

Feedback from people with lived experience²⁰ has suggested that seating should have back rests and arm rests and that back rests should be straight rather than inclined, as this makes it easier to get up from the seat.

²⁰ Action Disability Kensington and Chelsea, see <https://www.adkc.org.uk/>

Seating – Oldham Town Hall



Image: BDP

The siting of benches is important, as this can cause groups to gather and be noisy or anti-social, or can attract litter, and so nearby residents may be opposed to them. Benches should be sited so that they are illuminated during the hours of darkness; this is important from a visual perspective (being able to locate and physically use the bench) but also from a comfort perspective for those who need rest points.

Benches and individual seats should be sited so that when people are seated there is space for pedestrians, wheelchair users, and buggies to pass. There should be space around the seats to accommodate a wheelchair user or assistance dog, and there should be a tapping bar beneath the seat level so a long cane user can detect the bench and not trip over it. Also, people sitting on a bench may extend their legs into the space in front of it, which can cause a trip hazard for long cane users, so it is necessary to ensure that there is sufficient space and indication for the swept path of a long cane to avoid them. The seats should be located in a pleasant environment conducive to rest and social contact.

The material used for seating should be comfortable in all weather conditions and should be resistant to the elements. For example, paint should retain its colour over the years to ensure visually impaired people can still identify the bench. Any metal furniture or handrails in areas exposed to the weather would benefit from a suitable coating to prevent them getting too hot or too cold.

Toilets should be signposted, regularly maintained, and available at all times. The lack of appropriate or accessible toilets (e.g. gender neutral, baby change, and family toilets) can inhibit the ability of many people to go out, especially some disabled people. In addition, service providers need access to toilet facilities, such as bus drivers, enforcement officers, and street sweepers.

Where possible, Changing Places toilets²¹ (large toilets for changing adults rather than babies) should be provided.

6.9 Cycle and e-scooter infrastructure

When designing cycle paths, the needs of the most vulnerable users should be considered, such as unaccompanied children who have just started cycling.

It is recommended that people who do not regularly cycle are involved in designing cycling infrastructure schemes so that there are more diverse views provided, especially in relation to the perception of safety.

Bidirectional cycle lanes should be avoided where possible, as some people find these difficult to cross. If unavoidable, they should be clearly marked.

Cycle lanes and cycle parking must be available to all types of cyclists, including users of adapted cycles and cargo bikes.

Cycle hire docking stations should be located away from pedestrian desire lines and preferably be located on the carriageway.

Dockless bikes and e-scooters should have dedicated bays provided for them, preferably on the carriageway (or with tactile delineation if provided on the footway). They should be removed if not left in dedicated bays, as they cause obstructions for pedestrians.

6.10 Shared use cycle paths

As cyclists tend to make no noise and travel much faster than pedestrians, they can be perceived to be dangerous by many people, particularly people with sight or hearing loss and people with mobility issues or those who are neurodivergent. Particular attention is therefore needed where interaction between cyclists and pedestrians is unavoidable.

Where cyclists and pedestrians need to use the same surface, there should be a clear segregation between them that is suitably dimensioned.²² Pedestrians need to be aware of cyclists and scooters to reduce surprise when they suddenly appear.

²¹ <https://www.changing-places.org/>

²² Sustrans (2019) [Traffic free routes and greenways design guide](#), Sustrans

Shared use by cyclists and pedestrians with no segregation is highly undesirable and should only ever be used where pedestrian footfall and cyclist flow is so low that conflict is minimal and a suitably dimensioned²³ segregation between pedestrians and cyclists cannot be provided (as both pedestrians and cyclists may not adhere to the signage and be in conflict).

6.11 Bus stop infrastructure

Buses are often the only accessible mode of transport available to many disabled people.

Bus stops are the most common transport interchange and require as much thought about their location, design, and operation as other interchanges, such as tram stops and railway stations.

Bus stops should be located close to the streets and places where people want to go, to reduce the amount of walking required by those with mobility impairments.

Raised kerbs at bus stops mean the access benefits of low-floor buses are maximised.

Shelters are an important part of accessible public transport infrastructure. They should be well lit with seating in a different colour to the shelter, at different heights where possible, some with arm rests. Access for wheelchair users needs to be incorporated into the design, both in relation to space in shelters but also for easy boarding of and alighting from buses.

In addition to providing shade and protection from the elements, shelters also present opportunities for advertising revenue. Modern digital display panels can be updated remotely and can provide public information messages. It is important to avoid displays that flash or pixelate, which may trigger seizures or cause confusion.

Associated bus stop furniture should not obstruct safe movement along the footway. In order to maintain both a safe, accessible footway and an accessible bus stop, it may be necessary to construct additional infrastructure at bus stops, such as a bus boarder (an extension of the footway into the carriageway) in the vicinity of the bus stop.

Bus stops need to include information designed to be accessible to the widest possible number of passengers. This includes a mix of audio, visual, and printed information and smartphone-based solutions such as QR codes. All information, including printed timetables, needs to be kept up to date.

²³ Sustrans (2019) [Traffic free routes and greenways design guide](#), Sustrans

Visual information should be in large print and have good contrast between text and background. Displays should be placed at a height where they can be viewed by wheelchair users. Realtime displays should be located where they can be seen by all and not affected by bright sunlight.

Audio information should be provided where possible, and updated when there is a bus stop closure.

6.12 Bus stop bypasses (floating island and boarder bypass bus stops)

These bus stop types are becoming more common as the provision of segregated cycle lanes is increased.

Floating island bus stops are sometimes used where a cycle lane runs behind the bus stop shelter or waiting area and adjacent to the footway. A boarder bypass bus stop is where the cycle lane is between the bus stop waiting area and the carriageway, so passengers have to cross the cycle lane to board and alight from the bus.

Many disabled people have issues using bus stop bypasses (of all types), particularly if the cycle lane is bidirectional or is heavily used. Cyclists do not always give way to those wishing to cross, and visually impaired people may have difficulty knowing when there is a safe time to cross, as cycles do not make significant noise on approach.²⁴

Bus stop bypasses can deter many disabled people from using buses, often the only accessible mode of transport available to them.

Bus stop islands need to be wide enough to accommodate all the waiting passengers and allow wheelchair users to navigate their way through a crowd to board the bus.

University College London²⁵ is currently researching the design of bus stop bypasses in relation to their use by disabled people, and the results are expected later in 2024.

6.13 Wayfinding

Effective signage can significantly improve the navigability of public spaces for everyone. Signs should be clear, consistent, concise, and placed at regular intervals along routes.

²⁴ Living Streets (2024) [Inclusive design at bus stops with cycle tracks](#), Living Streets

²⁵ Visibility Scotland (2024) [Guide dogs and UCL Pearl recruiting for focus groups on bus stop design for disabled people](#), Visibility Scotland

Use of appropriately sized sans serif fonts with high contrast to the background can enhance visibility. Symbols can be more effective than words, as they can be more accessible, for example by people with certain learning difficulties or people with cognitive impairments and those who struggle to read English. It is crucial that signs, whether in text or using symbols (or preferably both), should be discussed and co-designed with relevant user groups to make sure that they work for them. Scrolling digital signs should be avoided. Important information should not be placed on the outer edges of signs, as people with some types of dementia can have a narrowed field of vision.

Where possible there should be a mix of different options, including signage in different formats and the use of smartphone and other related technology. The use of QR codes can be helpful, because that allows a much wider range of delivery – if people have smartphones (and not everyone does).

6.14 Access

Emergency vehicles need access to all properties and this should be designed into any changes to highway layouts, new developments, and restrictions on other vehicle use, such as pedestrianised areas and low-traffic neighbourhoods. When designing new schemes, access for emergency vehicles should not require a key, as not all emergency vehicles carry the keys required.

Access by public transport, especially accessible public transport such as buses, and for delivery and waste collection vehicles needs to be considered in any scheme design.

Regardless of improvements to wider travel and transport options, many disabled people will still have to rely on private vehicles to get around. For some disabled people, not being able to access or in some cases park in areas close to their home or destination can mean they are not able to access that space at all.

Accessible parking, drop-off, and pick-up needs to be a key feature of any public realm scheme. Consideration should be given to the presence of a raised kerb for taxi drop-off and pick-up.

Accessible parking, including Blue Badge parking, should be provided in areas that attract visitors, such as shopping streets or other attractions. Blue Badge parking should not be more than 50 metres away²⁶ from the attraction it is intending to serve, and there should be provision for larger wheelchair-accessible vehicles, which may have different parking needs, such as rear opening with ramp and additional height.

²⁶ DfT (2022) [Blue Badge scheme local authority guidance \(England\)](#), Department for Transport

Accessible parking facilities should be accompanied by a dropped kerb, or level access to the footway, to allow vehicle occupants to easily access the footway.

In residential areas, there should be parking provision for car-dependent disabled residents near their home and for other essential users, such as visitors who care for residents who require access to a car.

7. Conflicts

It should be noted that a barrier to one group of disabled people may be an enabler for another group of disabled people. Some examples of these are provided below.

- ✔ Level surface crossings and spaces are favoured by wheelchair users but can cause problems for people with visual impairments who prefer a kerb.
- ✔ Replacing setts with tarmac helps to create a smoother surface for pedestrians to walk on but is offset by the lack of visual contrast when the tarmac is wet, which makes it harder for visually impaired people to notice where the footway is uneven.
- ✔ Smooth surfaces, such as asphalt footways, make it easier to wheel over but get slippery in frosty and icy conditions compared with rougher surfaces.
- ✔ Footway crossfall, while aiding drainage, requires wheelchair users to continuously adjust the direction of travel, so as not to tip over to the side or lose control of their vehicle, and can be difficult for some people with arthritis or other conditions affecting lower limbs.
- ✔ Tactile paving helps some blind and partially sighted people to navigate but is a trip hazard for some stroke survivors, some people with Parkinson's, and some people with acquired brain injuries who have problems lifting their feet, and it can cause discomfort for people with arthritis and wheelchair users.
- ✔ Sighted pedestrians prefer crossings on the desire line, but this is often very near junctions, and for visually impaired people who rely on the sound of traffic to warn them of oncoming vehicles, there is not enough time to listen out before they cross. In an ideal world, vehicles would give way to pedestrians on side roads, as per the Highway Code, but unfortunately this does not happen in practice.
- ✔ Street features can be useful to visually impaired people and many others, and while clutter-free environments are generally desirable, care should be taken to ensure that large open spaces can still be navigated by all.

- ✔ Wayfinding on the ground using coloured paint or symbols or tactile delineation can be useful for people with visual impairments and neurodivergent people (but if used should be complemented with other signage, as the signage on the ground may be obscured by people standing on it). However, coloured paint or symbols on the ground may cause problems for neurodivergent people, and tactile paving can be uncomfortable for others.
- ✔ Neurodivergent people may suffer discomfort or be overwhelmed by the use of certain visual designs or bright colours, whereas visually impaired people may welcome it.

Many people have more than one impairment, so it is important not to compartmentalise design decisions along the lines of individual impairments. There is no one-size-fits-all solution to designing public realm infrastructure. Engagement with and representation from the whole spectrum of society who will be using the space is therefore essential when making design choices.

8. Reducing barriers after implementation

Consideration should be given to the safety of people during construction, maintenance, and operation of a scheme, as how the space is used also affects its accessibility.

8.1 Pavement café infrastructure

Outdoor dining has become more popular, but often at the expense of pedestrian movement. Tables and chairs are often placed at the edge of the footway, which can cover tactile delineators, or are placed along the building line, which can be used to help guide movement.

Tables and chairs placed on footways should be fully enclosed using a continuous barrier, such as a solid panel or other screening, in visual contrast to the footway, to ensure that moveable furniture does not spread across pedestrian routes causing an obstruction. Post bases should not protrude beyond the outer edge of the enclosure.

When considering whether to approve table and chair licences, local authorities should anticipate that users will not always behave as expected and make extra allowance for chairs being further into the footway than would be the case under normal circumstances. Licence conditions for pavement café infrastructure should take account of retaining the minimum widths for pedestrian movement and be regularly enforced.

8.2 Additional permanent street furniture

Sometimes additional permanent street furniture needs to be installed after scheme implementation. Street furniture such as bins, benches, and bollards should not obstruct the pedestrian desire line or become a barrier or obstacle for visually impaired people. This is generally best achieved by locating street furniture in a consistent and coherent furniture line, to maintain a clear pedestrian access route.²⁷ Contrasting colours should be used to make furniture more identifiable to visually impaired people. Other things to consider include where to position furniture legs to be detectable at their edges.

Use of furniture such as bollards, traffic signs, and pillars should be minimised, with the rationale for their use tackled first. For example, bollards are often installed to deter footway parking, but footway parking can also be tackled by enforcement in some areas or by adding useful street furniture such as seats, planters, and Sheffield stands. When there is a need for incorporating hostile vehicle mitigation (HVM) into the public realm to manage the threat from terrorist attacks, it is important that surrounding areas remain open and inclusive.²⁸

8.3 Temporary obstructions

Temporary obstructions can make walking and wheeling difficult, and in some cases impossible, and should be enforced against where possible. Such obstructions include advertising boards, wheelie bins, rubbish bags, overhanging foliage, fly tipping, trailing cables for charging electric vehicles, and parked cars on the footway.

Some people need reliable landmarks when navigating a space. When items are moved throughout the day or week – such as boards, bins, and signs – this can make it much more difficult for people to get around.

Household waste collection days cause issues, as access can often be significantly worsened by bins left in the middle of footways. Business waste collection can also be problematic if there is an accumulation of loose or bagged waste left on the kerbside to await collection. The Welsh Government has recently (April 2024) introduced a law requiring all businesses, charities, and public sector organisations to sort their waste for recycling.²⁹ This has led to many more recycling points outside commercial buildings.

Pop-up bollards should have an audible warning to alert visually impaired people of the forthcoming movement.

²⁷ CIHT (2010) [Manual for streets 2: wider application of the principles](#), Chartered Institution of Highways & Transportation

²⁸ NPSA (2023) [Public realm design guide for hostile vehicle mitigation](#), National Protective Security Authority

²⁹ <https://www.gov.wales/workplace-recycling>

9. Maintenance and reinstatement

Maintenance is a key component of making the public realm accessible for all. There is little point in investing in making streets and places more accessible if there is no commitment to maintain this accessibility in the future.

New schemes are usually built from capital expenditure but maintained through revenue funding. It is vital to ensure that funding is available to maintain the scheme properly when completed. If there is not enough revenue funding to maintain expensive materials, it would be better to construct a scheme using more cost-effective materials that can be maintained.

Trees improve the public realm and are appreciated by many people, including neurodivergent people. However, if not managed properly, trees can make a once-accessible space inaccessible to many people and cause trip hazards, so root control through containment is important. Green infrastructure should be regularly maintained to avoid reducing the usable footway width or obscuring signs. If the wrong type of tree has been planted in a location, it should be replaced by a more appropriate tree in a modern tree pit.

Tree roots creating an uneven footway



Image: Antoneta Horbury

Bumpy and uneven surfaces can cause significant physical pain for wheelchair users. Visually impaired people find that lots of bumps can cause pain at the wrist from the continuous impact on their cane and are trip hazards.

When maintenance works are being undertaken, alternative accessible routes should be clearly identified, monitored, and maintained.

The inconsistency in footway surfaces following roadworks can cause discomfort and unpredictability when navigating a streetscape. It is essential to ensure that reinstatement works take accessibility fully into account, with final reinstatement, fully restoring the correct surface, made as quickly as possible.

Poorly maintained drainage can cause localised flooding, which can turn an accessible area into an inaccessible area. Depressions in the footway can cause a serious hazard when holding rainwater, as this water can freeze and provide a very slippery surface. Wet leaves also cause slips and falls if not dealt with promptly.

Winter maintenance of footways, especially in residential areas, is key to enabling access to local facilities, such as schools, doctors' surgeries, and shops.

Streetlights that are not working, or not working as they should be, make it more difficult to see trip hazards on the footway.

10. Construction and roadworks

There need to be safe and accessible alternative walking and wheeling routes during construction and other highway works, especially as these can continue for significant periods of time and be a barrier to people accessing the local neighbourhood. Transport for London has produced some useful guidance³⁰ on this issue.

People who are visually impaired may not see the signs notifying them that a footpath is closed during construction. Roadworks and the signs themselves may become an obstruction or trip hazard.

³⁰ TfL (2018) [Temporary traffic management handbook](#), Transport for London

No alternative route provided near works



Image: Michael Barratt

Temporary access routes should follow the same accessibility standards as permanent routes. This should, where practicable, include providing firm and level surfaces; well-lit, well-signed warnings of changes in level; appropriate ramps for use by self-propelled wheelchair users (not too steep to get up or down and not bumpy); and access to crossings and controls. Diversion routes should be treated with the same winter maintenance applications as footways.

Supervision during and monitoring after construction are very important to ensure that the original objectives of the scheme design do not get changed during the build phase (e.g. dropped kerbs that are not flush).

Temporary push-button signalised crossings should have the same cones and audible cues as permanent signalised crossings.

Roadworks should be accompanied by a sign naming the organisation responsible for the roadworks and contact information, such as email and phone number, where members of the public can report any problems. Roadwork signage should not cause an obstruction to wheelchair users, people with buggies, or visually impaired people. Checks should be

undertaken regularly to ensure that the fencing used to delineate pedestrian paths does not move over time, reducing the amount of footway available to pedestrians.

Reinstatement after roadworks should be of the same quality and material as the original scheme, and checks should be made that the reinstatement has been carried out properly to avoid bumpy surfaces.

11. General issues to consider when designing or making changes to the public realm

Transport professionals who design and make changes to the public realm may want to ask themselves the following questions.

1. What is the outcome that the scheme is trying to achieve, and how will I know if that outcome has been achieved post completion?
2. Is this design compliant with accessibility standards?
3. Has an equality impact assessment been conducted? Are there any negative impacts on any users? What is being done to mitigate any negative impacts?
4. If I am changing an existing situation, what is the problem I am trying to fix? Am I introducing other problems with the fix? When I am trying to improve the user experience of a particular user group, do I impact other user groups adversely?
5. Do I understand who will potentially be using the public realm and what their requirements are for accessibility and use of the space? Do potential users understand what the vision for the scheme is?
6. Have I at an early stage engaged with and obtained representation of all users and potential users who may be deterred by the existing public realm design?
7. How do I enable all users and potential users to participate in co-cultivating the scheme?
8. Are there competing or conflicting requirements and, if so, have I engaged with those who will be affected to reach the best solution?

9. Is my design the best it can be? Have I followed all relevant guidance and tried to build on it with the help of stakeholders?
10. Is there political backing for the proposed solution?
11. Do the changes have the buy-in of the local community?
12. Are the changes intuitive and easily understood?
13. Does the data I am using to make decisions allow for people who may not currently be able to use the space and so may not have been captured in existing data?
14. Would the changes encourage intimidatory or anti-social behaviour, such as gatherings of groups consuming alcohol or drugs?
15. Is there sufficient visual contrast and tactile difference between materials, especially between the carriageway and footway surfaces, and elements that could cause injury if not seen, such as armrests of benches, bollards, or steps?
16. Where practicable, are Blue Badge and accessible bays situated within 50 metres of where a disabled person may want to get to? Is there a facility to drop off disabled people if it is not possible to park near the area?
17. Is there sufficient space for a wheelchair user or buggy to pass unhindered by temporary street furniture, such as A-boards or planters, which may be added after the scheme is implemented?
18. Is the ramp I have provided too steep – can someone in a wheelchair push themselves up that ramp or safely descend it?
19. How much maintenance is required to ensure that obstructions or trip hazards will not be created if the environment is not maintained, and is this level of maintenance realistic?
20. Are the materials used sustainable? If the carriageway or footway gets dug up, can it be put back as it was?
21. Has the work actually been implemented as requested (e.g. a problem on site preventing one of the two dropped kerbs from being installed)?

12. Potential solutions

During discussion of the content of this report, the following potential solutions to identified problems were suggested.

12.1 Bins out on collection day

The issue of bins causing an obstruction on collection day could be solved by providing defined locations for households or businesses to leave their bins and rubbish bags so that they do not obstruct or reduce footway width. Using large communal bins rather than individual household bins or commercial waste bags may be an option, but separate arrangements would need to be made for people who are unable to use the communal bins.

12.2 Better monitoring of where problems are

Local authorities are required to record road traffic casualties (injuries on the carriageway), but the same does not apply on the footway. Local authorities should keep records of where trips and falls occur and encourage reporting of such events.

12.3 Closed bus stops

When bus stops are temporarily closed, often the stop sign is covered up. There should be a sign at the stop that indicates where the nearest open stop is located. However, people with visual impairments may not see this information or the bus stop closure sign and continue to wait for the bus. It would be useful if there was detection of waiting passengers and an audio announcement regarding the bus stop closure was made and where the replacement bus stop is located. The announcement should not be too loud, as otherwise it would disturb nearby residents. Considerable effort should be made to alert all known stakeholders and charities that can disseminate information about changes. Social media helps makes it possible for some people to stay informed.

13. Accessibility training

CIHT values continuing professional development and it is essential that those designing and changing the public realm are aware of issues faced to avoid wasting public money on schemes that need to be altered later as they have excluded part of the community. It is therefore recommended that disability equality awareness training should be undertaken by anyone who purchases items for use in the public realm or designs schemes.

The UK government should fund disability equality awareness training for all local authority personnel who are designing and changing the public realm, and incentivise disability training by making some of the funding for transport schemes only available to local authorities that have trained staff. Accessibility training should also be provided for housing and retail developers.

Awareness of EDI issues is a requirement for accreditation of civil engineering degrees, but the quality of this training could be improved in relation to disability awareness. CIHT will raise this with the Joint Board of Moderators, which assesses university degrees in relation to transport engineering for accreditation by the Engineering Council.

CIHT has the following resources that can help educate transport professionals.

Transport talks – top ten global podcasts on transport [freely available]

- ✔ [Making transport inclusive globally](#) (26 February 2019)
- ✔ [Improving the lives of people with disabilities](#) (18 June 2019)
- ✔ [How the UN delivers inclusive social development](#) (2 December 2019)
- ✔ [Mobility rights: the voice of older and disabled persons](#) (19 October 2023)
- ✔ [Inclusive Transport National Inclusion Week – designing highways and transportation for people with dementia](#) (17 May 2024)

CIHT webinars [available to CIHT members only]

- ✔ [Future of Transport – The importance of equality, diversity and inclusion](#) (19 May 2021)
- ✔ [CIHT Masterclass – Equality, diversity and inclusion](#) (15 June 2023)
- ✔ [CIHT EDI awareness webinar](#) (4 October 2023)
- ✔ [EDI panel discussion \(Leeds\)](#) (27 October 2023)
- ✔ [Disadvantage caused by temporary design](#) (1 May 2024)
- ✔ [CIHT Masterclass – designing highways and transportation for people with dementia](#) (16 May 2024)

EDI CIHT Learn courses [free to CIHT members and free to non-members after registration for CIHT Learn]

- ✔ [EDI in the workplace](#)
- ✔ [The diversity challenge](#)
- ✔ [Inclusion essentials](#)
- ✔ [Allyship \(0.5 hours CPD\)](#)
- ✔ [Tackling age bias \(0.5 hours CPD\)](#)
- ✔ [Equality, diversity and inclusion \(1 hour CPD\)](#)
- ✔ [Banter in the workplace \(0.5 hours CPD\)](#)

CIHT Learn courses – inclusive mobility [free to CIHT paying members and charge for non-members]

- ✔ [Stakeholder and public engagement](#)
- ✔ [Understanding disability \(1.5 hours CPD\)](#)
- ✔ [Designing highways and transportation for people with dementia](#)

CIHT publications

- ✔ [Designing for walking \(2015\)](#)
- ✔ [Buses in urban developments \(2016\)](#)
- ✔ [Creating better streets: inclusive and accessible places \(2018\)](#)
- ✔ [Better planning, better transport, better places \(2019\)](#)

The web page for this project www.ciht.org.uk/publicrealm will be continually updated with additional resources as they become available.

14. Conclusions

It is important to get the basics right – everyone should be able to walk or wheel to the local shops, schools, and services.

Good access is not only about physical accessibility; it is also an ethos of inclusion for everyone.

There is no one-size-fits-all solution to designing public realm infrastructure. Apart from every scheme having different physical features and serving a variety of functions, how the public realm is used and designed must accommodate the requirements of a very wide spectrum of society's accessibility, sensory, and mobility needs. The demographic of all potential users needs to be understood and their requirements determined through appropriate participation before any proposals get set in stone.

There are some potential conflicting issues when considering inclusive design, so engagement should be as wide and as early as possible, especially with disabled users of the scheme who could be excluded from the space in the worst-case scenario.

Early engagement is key to ensure all feedback can be incorporated without wasted effort. This is particularly important for disabled people, as sometimes compromises will need to be made. When stakeholders are brought together, it is possible for them to work out acceptable compromises and agreements.

Engagement should continue throughout the whole design, build, and operation of a space to foster a culture of co-cultivation of the scheme. Commercial organisations should consider paying people who provide lived experience for their time and expertise, especially if the organisation will benefit financially from use of that expertise.

It is important that aesthetic considerations are not allowed to compromise accessibility. Accessible schemes encourage use, whereas inaccessible schemes prevent use. There is no need to think that accessibility means losing aesthetic appeal: the public realm can be aesthetically pleasing, accessible, and inclusive.

Small changes can have a big impact on a wide range of people. For example, having drop kerbs in the right place could positively impact a lot of people with accessibility issues.

It is not just the provision of the feature that counts but how easy and comfortable that feature is to use. For example, a good proportion of seating needs to have straight backs and arm rests and not solely be granite slabs.

The challenge for scheme designers is not just thinking about all of the separate issues highlighted in this report but how they put them together in the best possible way. For example,

build-outs at crossing points help to slow oncoming vehicles, shorten the crossing distance, and create a wider footway space at the point where people often stop and interact.

Allowance needs to be made for things that should not happen but inevitably do, such as people putting out flowerpots or rubbish bags, or chaining a bike to a lamppost. It would be prudent to make footways wider than the minimum specified to allow for items that will reduce the width during use.

Principles can get lost in the transition from design to construction – what looks good on a plan does not necessarily work in reality, or it may be interpreted differently by the installer. For example, patterns for footways may be confusing, as we do not experience the real world from an aerial perspective. Early user input on a test area is therefore helpful

Details matter, so supervision during and monitoring after construction are very important to ensure that the original scheme objectives and design do not get changed during the build phase, or installed incorrectly. For example, a dropped kerb that is not flush with the carriageway will not be fit for purpose and could become a trip hazard.

While accessible and inclusive engagement can incur costs, such as for a British Sign Language interpreter or having materials in Easy Read, achieving the principles of inclusive design does not cost more if it is considered from the outset of a project. Inclusive design can be achieved with cost-effective materials, and with appropriate design and planning at the start, ongoing maintenance and adjustment costs can often be less. A crucial point is that incorporation of inclusive thinking from the outset of the design process will be cheaper than trying to address this retrospectively or later during the process. Inclusive design also enables the greatest number of people to partake in the local economy, thereby increasing the economic viability of local businesses.

If it is assessed that the scheme cannot be maintained, either because of cost or availability of materials, then it should be built with materials that can be maintained, as a lack of maintenance may mean an area becomes unserviceable and unusable.

It is essential that those designing and changing the public realm receive appropriate training, so they are aware of issues faced, to avoid wasting public money on schemes that need to be altered later because they have excluded part of the community.

It is important to ensure that, when new schemes are being designed, there is a process for some level of monitoring and feedback on the effectiveness of the design. This can be used to improve the design (where feasible) and incorporate lessons learned into other schemes.

15. Recommendations

This work has led to the following 15 recommendations.

1. The aim should be co-cultivation (continuous, meaningful engagement from inception and design through to construction, operation, and monitoring) rather than high-level consultation on a scheme. This brings understanding of all of the issues faced (from both the user and the designer perspective).
2. Those with lived experience are best placed to advise on how infrastructure can negatively impact them and how things can be improved. Engagement with, and representation from, a range of disabled people and other representative groups of users of the space early on in scheme design is essential. This should involve using a range of methods to ensure all disabled people can participate. Commercial organisations should consider paying people who provide lived experience for their time and expertise, especially if the organisation will benefit financially from use of that expertise.
3. Anyone who purchases items for use in the public realm or designs schemes, and housing and retail developers should have received appropriate disability equality awareness training.
4. The UK government should fund disability equality awareness training for all local authority personnel who are designing and changing the public realm. This training should be incentivised by making some of the funding for transport schemes only available to local authorities that have trained staff.
5. Guidance should be regarded not as a ceiling on what is provided but rather the floor on which a better offering is built.
6. Local authorities should strive for consistency of design within their own administrative boundaries.
7. The design process should include an access and inclusive design review. This will identify issues, similar to a road safety audit, and provide an opportunity for the designer to respond and change the design to address comments. This should not simply be a tick-box exercise, but a detailed assessment based on the principles contained in this document. This should be carried out as early in the design process as reasonably possible.
8. Non-cyclists should be involved in designing cycling infrastructure schemes, so that diverse views are provided, especially in relation to the perception of safety.

9. When preparing the business case for any scheme, the economic benefit from use by people who may not currently be able to use the space (e.g. to access shops) should be included. The whole-life costs of the scheme, including maintenance costs, should be included in the business case.
10. If there is a compelling conservation or historic reason to use uneven materials, then an alternative accessible route should be provided and highlighted by signage.
11. Crossings controlled by traffic lights should be installed instead of zebra crossings, where feasible, as these are easier and safer for people with visual impairments to use.
12. Schemes that include trees should include consultation with arboriculturists so that the right tree is chosen for the right place, with future maintenance considerations factored into the design process.
13. Stepped kerbs (where the height between the footway and the carriageway is so great that there is a step embedded into the kerbstones to bridge the gap) should be avoided, because they are dangerous for all pedestrians, especially at night.
14. When considering whether to approve licence applications for exterior tables and chairs, local authorities should consider that users will not always behave as expected and make an extra allowance for chairs being further into the footway than would be the case under normal circumstances. This should take into account how access may be impacted by providing guarding around the seated area. Licence conditions for pavement café infrastructure should be enforced where there is evidence of conditions not being adhered to.
15. More research is needed into which natural stone performs best in all conditions and how best to treat surfaces that have become slippery.

16. Guidance

This report has highlighted some of the barriers that people face when using the public realm but has not offered specific design solutions to the issues raised.

From the earliest proposal and design stages through to post-construction, infrastructure schemes should meet, or surpass, existing national good practice guidance and standards, including:

- ✔ [Designing for walking](#)³¹ (CIHT, March 2015)
- ✔ [BS 8300-1 Design of an accessible and inclusive built environment](#)³² (British Standards Institution, 2018)
- ✔ [LTN 1/20 Cycle infrastructure design](#)³³ (DfT, 2020)
- ✔ [PAS 6463 Design for the mind: neurodiversity and the built environment](#)³⁴ (British Standards Institution, 2021)
- ✔ [Inclusive mobility](#)³⁵ (DfT, 2021)
- ✔ [Guidance on the use of tactile paving surfaces](#)³⁶ (DfT, 2021)
- ✔ [Inclusive design overlay for the RIBA plan of work](#)³⁷ (RIBA, 2023)

However, guidance should be regarded not as a ceiling on what is provided but rather the floor on which a better offering is built.

In the absence of national guidance on accessible bus stops, the guidance from Transport for London³⁸ on accessible bus stops is useful.

³¹ CIHT (2015) [Designing for walking](#), Chartered Institution of Highways & Transportation

³² [BSI \(2018\) BS 8300-1 Design of accessible and inclusive built environment](#), British Standards Institute

³³ DfT (2020) [Local transport note 1/20: Cycle infrastructure design](#), Department for Transport

³⁴ BSI (2022) [PAS 6463:2022 Design for the mind: neurodiversity and the built environment](#) guide

³⁵ DfT (2021) [Inclusive mobility: a guide to best practice on access to pedestrian and transport infrastructure](#), Department for Transport

³⁶ DfT (2021) [Guidance on the use of tactile paving surfaces](#), Department for Transport

³⁷ RIBA (2023) [Inclusive design overlay to the RIBA plan of work](#), Royal Institute of British Architects

³⁸ TfL (2017) [Accessible bus stop design guidance](#), Transport for London

17. Good practice

17.1 Engagement with users of the public realm

17.1.1 Royal Borough of Kensington and Chelsea, London, and Action Disability Kensington and Chelsea

Action Disability Kensington and Chelsea's (ADKC) Access Group has a positive collaboration and experience with the local council, the Royal Borough of Kensington and Chelsea (RBKC). ADKC Access Group's members have been working closely with RBKC's Network Management team since 2021, helping them to try to understand more about some of the challenges disabled people encounter when trying to negotiate work sites while going about their daily business. It has involved the ADKC Access Group carrying out several joint audits of live work sites where the group's members are asked various questions about how the site has been set up and how it could be improved. This initiative brings together ADKC Access Group members, RBKC contractors, and utility companies who carry out the majority of work throughout the borough every year. The knowledge and experience shared has been invaluable, as it has opened the eyes of those carrying out works on the highway and will hopefully help drive a better performance, making sure that the site set-up is both safe and user-friendly for everyone.

Even though there are national standards that work promoters are required to follow, some disabled people can still encounter difficulties on sites that are compliant with these standards. The aim of the joint inspections is to fully understand the difficulties certain people are faced with and to promote a better understanding of everyone's needs and requirements. With this insight, the council can try to influence changes to the national code of practice, which is periodically updated.

17.1.2 Inclusive Design Review Panel (London Borough of Hammersmith and Fulham)

The Inclusive Design Review Panel³⁹ in Hammersmith and Fulham is a great example of an agile panel with lived and learned experience of disability and neurodivergence working on assessing and reviewing schemes (at various levels in the process) and on-site visits.

17.1.3 Islington Council, London

A good-practice case study from the Local Government Association (LGA) is [The path to inclusive footways](#)⁴⁰, which involved accessibility audits and a citizen science project. Islington Council commissioned AccessAble, an organisation employing both disabled and non-disabled staff, to conduct accessibility audits of the borough's public realm using its standardised methodology.

³⁹ <https://www.lbhf.gov.uk/councillors-and-democracy/resident-led-commissions/inclusive-design-review-panel>

⁴⁰ LGA (2024) [The path to inclusive footways](#), LGA, Sustrans and Transport for All

17.1.4 Suffolk County Council

Suffolk County Council provides a good example of reporting defects in the footway through an [interactive map](#) that allows users to pinpoint the location of the defect, provide descriptions, and upload images. Reports from users are an excellent way for local authorities to find out about issues with the footway, outside of scheduled inspections, and to organise repairs where needed.

17.2 Strategies and policies

17.2.1 Lambeth Council, London – Lambeth Kerbside Strategy

Good practice “pledges” in [Lambeth’s Kerbside Strategy](#)⁴¹ (2023) regarding street space and accessibility include:

- ✔ places to stop and rest on every street
- ✔ dropped kerbs at all junctions
- ✔ minimisation of crossovers on footways
- ✔ continued prioritisation of Blue Badge parking bays
- ✔ providing a fair and easy way for businesses to apply to use sections of the carriageway (avoiding encroachment onto the footway)
- ✔ using the kerbside to place a tree every 25m on Lambeth streets, and ensuring a 2-metre-wide footway is preserved where mature trees already exist
- ✔ introducing permeable surfaces on 10% of Lambeth’s carriageway, to support drainage and reduce the risk of flooding
- ✔ siting electric vehicle charging points in a way that maintains 2 metres of footway and keeps all footways clear and accessible
- ✔ introducing parking restrictions to ensure sightlines at all junctions, and implementing parking controls across the entire borough
- ✔ placing cycle and e-scooter parking spaces on the carriageway
- ✔ creating specific spaces for electric delivery vehicles and cargo bikes, to support safe and sustainable home delivery.

⁴¹ Lambeth Council (2023) [Kerbside Strategy](#), Lambeth Council

17.2.2 Transport for Greater Manchester – Streets for All

The [Streets for All](#)⁴² approach aims to achieve:

- ✔ green, vibrant streets that are welcoming and safe places to spend time in
- ✔ an attractive and inclusive walking and wheeling environment
- ✔ a safe and connected cycling experience
- ✔ a reliable, integrated, and accessible public transport network
- ✔ a network where goods are delivered on time with minimal impacts on local communities
- ✔ streets that enable people to drive less
- ✔ a future-proofed street network.

17.2.3 Edinburgh waste management policy

The City of Edinburgh Council is taking action to target areas where domestic waste can cause obstruction of the footway. The rollout and impact of this are collectively known as the [Communal Bin Review Project](#). In target areas on street bin hubs, a collection of large refuse containers that serve several dwellings are permanently placed predominantly on the carriageway to [prevent the need for several individual bins](#). The [creation of hubs in Edinburgh was based on the following considerations](#):

- ✔ safety – ensuring the bin hubs are safe for people recycling, pedestrians, cyclists, and drivers
- ✔ walking distance to the bins
- ✔ neighbourhood sizes – ensuring there are enough bins
- ✔ placing bins on the road rather than the footway where possible
- ✔ reducing street clutter.

Bin hubs are commonly used for tenements and back-to-back terraces, and when installed they can significantly reduce obstructions caused by domestic waste where residents do not have space to store it on their property.

17.3 Schemes

17.3.1 East Bank (Stratford Waterfront) in the Queen Elizabeth Olympic Park

With the [East Bank development](#), there were challenges such as a large level change, but the scheme adopted key features such as a gently graded route in the centre of the site, paired with additional external passenger lifts in the external environment, to provide step-free access.

⁴² Gransport for Greater Manchester (2024) [Streets for all](#), Transport for Greater Manchester

Other features included seating and resting places at intervals of around 50m, seating designed to be inclusive and accessible, and the whole site being designed to consider the London Legacy Development Corporation's own Inclusive Design Standards,⁴³ which it created for all developments within the Olympic Park.

17.3.2 Mayor Kalea and Areetako Geltokiko Plaza in Getxo (suburb of Bilbao), Spain (2023)

This area has a high level of older people and children, The public square in the town centre and the high street have recently been upgraded to improve the experience for everybody. The playground next to the town square was upgraded and given shelter, so now children can play rain or shine. There are cafés and bars all around the square so visitors to the area can grab a coffee or drink or some food to take with them to sit in the square or while watching children play.

The public realm has seating and shelter (important for both sunny and rainy days) and a water feature.

The high street has been one way for cars for some time, and priority is given to pedestrians crossing along the whole carriageway. This means people wanting to cross the road have priority over oncoming traffic, and drivers therefore drive very slowly along this street. Zebra crossings are provided for those who prefer to cross at a more formal crossing point. The high street has recently been given a facelift and upgrades, with a new cycle lane that connects to a pre-existing one past the square. Traffic is very calm in this area, making it safer for children and older people.

⁴³ LLDC (2019) [Inclusive design standards](#), London Legacy Development Corporation

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