A Guide to Inclusive Cycling

2019 (3rd edition)

Wheels for Wellbeing

Credit: WSP

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Credit: photojB/Sustrans

Foreword

About Wheels for Wellbeing

Founded in 2007, Wheels for Wellbeing is an inclusive cycling charity based in Brixton, south London. We are a grassroots disability organisation, running five sessions a week at our three inclusive cycling hubs. Using any of our fleet of over 200 cycles (handcycles, tandems, tricycles, recumbents, wheelchair cycles, side-by-sides and bicycles) Disabled people of all ages discover or rediscover cycling, whilst enjoying its health and wellbeing benefits. Every year around 1,200 Disabled people, aged from 2 to 102, cycle at our hubs.

A few years ago, we became increasingly frustrated by the fact that Disabled cyclists were mostly absent from the cycling debate. We decided we needed to speak up. We began with a presentation at a cycle campaigning seminar in 2014, where some of the ideas discussed in this guide were first developed. In 2016 we launched our *Beyond the Bicycle* manifesto at a parliamentary event, which was attended by MPs, local politicians, cycle traders and the media. Our objective then, as now, was to increase awareness of the fact that Disabled people can and do cycle; and to influence cycle infrastructure, facilities and representation so all of us can reach our full cycling potential.

We are very proud to have become the UK's leading campaigning organisation on behalf of Disabled cyclists.

Our vision

Many Disabled people don't get to enjoy the amazing benefits of cycling because of barriers that are put in their way; be they physical, attitudinal or otherwise. However, we know that significant numbers of Disabled people do already cycle and that many more could do so given the right conditions.

We fight for a world where Disabled people are able to cycle whenever and wherever they wish - whether for transport, leisure or exercise. This will be the case when all cycle routes and facilities are inclusive and accessible. We aim to transform the common perception of what cycles and cyclists look like. We believe our work will lead to a healthier population and will transform attitudes to disability.

Who and what this guide is for

This guide does not claim to be the answer to everything about inclusive cycling. Nor is it a highly technical set of design guidelines. Rather, it is somewhere in between: an accessible but thorough guide on the *basic principles* of inclusive cycling. We hope that it will be a useful tool for local authorities, transport bodies, civil engineers, academics, cycling organisations, disability charities, campaign groups and, of course, Disabled cyclists themselves.

This guide covers a number of topics. It begins by defining what we mean by 'inclusive cycling', providing a context to disability in the UK, dispelling some of the myths around disability and cycling and setting out some key facts and figures. It goes on to look at the benefits of cycling for Disabled people, the types of cycles used by some Disabled people and the barriers faced by Disabled cyclists. The first section finishes with an outline of our current campaigns and how UK equality legislation applies to inclusive cycling. The rest of the handbook is then broken down into four sections - recognition and awareness; inclusive and integrated cycle networks; inclusive infrastructure; and inclusive facilities - exploring the practical ways in which cycling can be made more inclusive in each of these areas. We finish with some concluding thoughts on what a truly inclusive cycling nation might look like in the future.

We hope that our guide provides some useful signposting for anyone designing cycle infrastructure, updating a cycling strategy or who is keen to better understand the needs of Disabled cyclists. Each section features real life stories from Disabled cyclists, case studies and policy recommendations.

This guide updates our previous 2017 version. We are aware that things move quickly in the policy world, and so it remains our intention that this guide continues to be a 'live' online working document that can be continually updated.

If you would like to make a contribution or suggestion please email us at info@wheelsforwellbeing.org.uk using 'Guide to Inclusive Cycling - feedback' as the subject line.

This document is our latest contribution towards reaching the ultimate goal of cycling equality for Disabled people. We hope you enjoy reading it.

Isabelle Clement,
Director of Wheels for Wellbeing

What is inclusive cycling?

Disability in the UK

Under the Equality Act 2010, disability is defined as a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on a person's ability to do normal daily activities. According to the Office for National Statistics (ONS), **one in five** people in England and Wales currently have a disability.

Being a Disabled person you are much more likely to encounter health problems, for instance:

- Disabled people are twice as likely as non-Disabled people to be **physically inactive**, resulting in shorter average life expectancies
- The majority of Disabled people are **elderly** (and therefore at greater risk of developing health conditions), with the number of people aged 65+ expected to increase by 12% between 2015 and 2020
- Disabled people tend to be **more reliant for day-to-day travel on driving or being driven**, either by door-to-door services, such as community transport services, or by taxis and private car hire
- Disabled people are much more likely to be **socially isolated** and have smaller support networks than non-Disabled people

Inactivity and social exclusion are harming Disabled people's physical and mental health, which in turn puts added pressure on the NHS.

Moreover, a growing dependence on private car hire adds to the plight of the environment and does nothing to decrease sedentary living.

Cycling, on the other hand, could dramatically improve the lives of many Disabled and older people. We believe it is in the interests of everyone – Disabled people, government, local authorities, the NHS and society as a whole – that every effort is made to ensure that cycling is made as inclusive as possible.

The social model of disability

The social model of disability says that a person is Disabled *by society*, rather than by their impairment or health condition (in contrast to the **medical model** of disability). It also differs from the **charity model** of disability, which sees Disabled people as unable to do things for themselves.

The **social model** seeks to remove physical and societal barriers to ensure that Disabled people are independent and equal in society. The disability charity Scope has an excellent definition here.

Using the social model gives us a different perspective on why people 'can't cycle'. To give an example:

"I ride a tricycle but 'can't cycle' to my doctor's appointment because there is no secure and accessible parking for my trike at the hospital"

Wheels for Wellbeing works within the social model of disability.

Equality legislation and cycling in the UK

As part of the Equality Act 2010, a legal duty was placed on public bodies and others carrying out public functions to ensure that they consider the needs of all individuals in their day to day work - known as the **Public Sector Equality Duty (PSED)**. It covers a number of protected characteristics such as age, race and disability.

The Equality Duty's purpose is to help public bodies consider how different people will be affected by their activities and to ensure this forms part of their policy and decision-making processes. It applies to all public authorities named in Section 19 of the Equality Act, including government departments, health bodies, local authorities, transport authorities, schools and the police. They must have due regard to the need to:

1. **Eliminate unlawful discrimination**, harassment and victimisation and other conduct prohibited by the Equality Act
2. **Advance equality of opportunity** between people who share a protected characteristic and those who do not
3. **Foster good relations** between people who share a protected characteristic and those who do not

It is enforced by the Equality and Human Rights Commission (EHRC), which has overall responsibility for assessing compliance with the Equality Duty and its enforcement, and the power to issue compliance notices to public bodies.

The PSED and cycling

When developing a cycling or transport strategy, local authorities should always take into account the needs of Disabled people as cyclists. This could mean, for example:

- Ensuring **cycle infrastructure** is designed to accommodate the needs of Disabled cyclists and the dimensions of non-standard cycles (e.g. not installing bollards set too closely together)

- Ensuring the needs of Disabled cyclists are taken into account when considering the installation of **cycling facilities** (e.g. allocating a proportion of cycle parking spaces to users of non-standard cycles)

- Ensuring an adequate **visual representation** of Disabled cyclists in relevant policy documents, guidance and communications (e.g. increasing the number of images and photos of non-standard cycles)

Case study: using the Equality Act

Kay is a handcyclist who lives and works in Liverpool.

On her way home from work, Kay enjoys cycling the 'three parks' route which, despite adding to her commuting time, offers a safer and greener journey. Taking this route also allows her to "unwind after a long day and connect with nature on my way home."

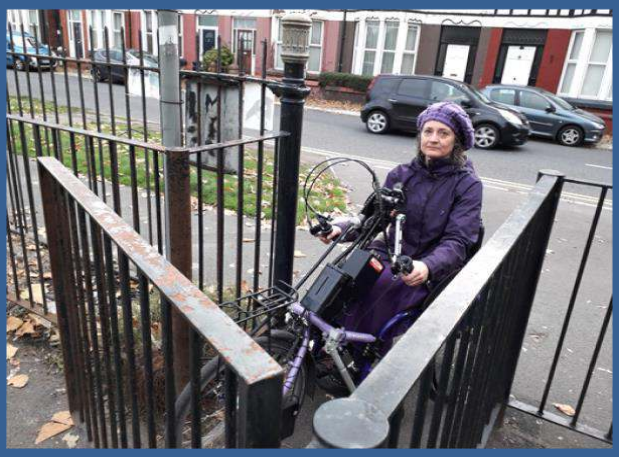
However, when one of the parks had a new gate installed Kay was no longer able to pass through because, like many Disabled cyclists, she is unable to dismount and walk/wheel her cycle. She figured that the gate had been constructed in such a way that would also exclude others who use non-standard cycles, such as those with child carriers or trailers.

Kay contacted Liverpool City Council - the local authority responsible - who issued her with a very quick response. The Council's Head of Parks and Green Spaces arranged to meet Kay at the park the following week to discuss options for changing the gate. During the meeting, Kay explained the obstruction caused by the gate and a commitment was made to remove it. While an alternative gate design was being drawn up, it was agreed that some form of barrier needed to remain in place in order that dogs and children could not run out of the park and straight onto the busy road.

Just over a week later the gate was changed and now Kay, along with other non-standard cycle users, can cycle through the park entrance once more.

This is an example of a local authority responding well to a complaint made by a Disabled cyclist under the Equality Act 2010. It was handled with speed and gravity, with the real life experiences of the Disabled cyclist taken into account. A good line of communication was also maintained between the complainant and complaint handler.

The barrier - **before**



The barrier - **after**

Disabled cyclists - facts and stats

It is a common myth that Disabled people don't or can't cycle. According to Transport for London (TfL), in London alone 12% of Disabled people cycle regularly or occasionally, compared to 17% of non-Disabled people.

Many other myths around Disabled cyclists abound. Below are some key facts and figures, which we hope might provide some clarity about what cycling is and can be for Disabled people. They are taken from a survey we carried out in 2018, which gathered the views and experiences of more than 200 Disabled cyclists from across the UK.

55% of respondents were male

Inaccessible cycle infrastructure was cited as the biggest barrier to cycling

Most cycle on a **weekly basis**

¾ use their cycle as a **mobility aid**, but of these 45% have been asked to dismount and walk/wheel their cycle

Most own a **two-wheeled bicycle**

1 in 2 have worried about having **benefits reduced or withdrawn** because of being physically active

81% cycle for **exercise**

A third have been unable to park or store a non-standard cycle because the **facilities were inadequate**

Types of non-standard cycles

Though large numbers of Disabled cyclists use a standard two-wheeled bicycle to get around, it is important to recognise that many use a variety of non-standard cycles depending on their need. These take many different forms, but when it comes to design criteria we refer you to Highways England's **cycle design vehicle**: an inclusive concept that captures all shapes and sizes of cycles, defined as **2.8m long and 1.2m wide**.

It is also important to remember that there are many non-Disabled users of non-standard cycles, including family, cargo and freight cyclists.

If you're a Disabled cyclist you can find out more about the types of cycle that might be suitable for you, and the forms of financial assistance that are available, by visiting our website and FAQ page.

Tricycle

Tricycles have three wheels and offer good stability. They also exist in tandem and recumbent versions.

Typical cost: £500 - £1,500

Credit: photojB/Sustrans

Tandem

Tandems are designed for two people to ride together and can be configured either with one rider in front of the other, or side-by-side, as shown here.

Typical cost: £1,000 - £3,000

Credit: photojB/Sustrans

Handcycle

Handcycles can come as one piece or as a ‘clip on’ attachment for a wheelchair. Sporty, recumbent versions are also available.

Typical cost: £1,000 - £3,000

Credit: TfL

Recumbent

A recumbent cycling position may put less strain on the rider’s back, knees and hip joints. They exist in two and three-wheeled forms.

Typical cost: £2,000 - £4,000

Credit: photojB/Sustrans

Wheelchair tandem

Wheelchair tandems ensure cycling opportunities are available to absolutely everyone, including those who may not have the required strength or control to move a cycle themselves.

Typical cost: £5,000 - £7,000

E-cycle

Electrical assistance helps Disabled and older people to cycle longer distances and in greater comfort, by reducing the amount of physical effort required. All of the above cycle types are available as 'e-assist' or can be retrofitted as such.

Typical cost: £1,000 - £5,000

Cargo bike

Cargobikes are used by independent traders and small (and increasingly large) businesses for delivering freight and goods.

Typical cost: £1,000 - £4,000

Trailer bike

These are cycles that have been fitted with a trailer, often used by parents to transport their children, but can also be used to move goods.

Typical cost: £100 - £200 (for trailer)

Tag-a-long

These are cycles that allow for a child's bicycle to be fitted to the back of an adult's cycle, forming a tandem.

Typical cost: £100 - £200 (for attachment)

What are the benefits of cycling for Disabled people?

A number of studies have shown cycling to have multiple health benefits, from improving alertness at work to reducing the risk of cancer and heart disease. Cycling has also been linked to improved mental wellbeing. Of course, as a sustainable mode of transport, it is also beneficial for the environment.

With Disabled people more likely to be physically inactive and socially isolated than non-Disabled people, and older, the range of benefits that cycling has to offer is vast:

Health

- Improves physical fitness and strength
- Helps stabilise blood sugar levels
- Helps older people to stay active in life for longer (especially with the use of e-cycles)
- Delays onset of many conditions and reduces reliance on NHS and social care services

Wellbeing

- Improves confidence and skills
- Gives a sense of freedom and empowerment
- Reduces social isolation (especially where Disabled people have access to a local inclusive cycling hub or live close to good quality cycle infrastructure)
- Improves mental wellbeing

Environment

- Reduces reliance on private car hire and taxis
- Reduces congestion and pollution
- Supports measures to improve air quality

What are the barriers to cycling for Disabled people?

Many aren't aware of the fact that Disabled people cycle. Growing numbers do, with some using standard two-wheeled bicycles and others using non-standard cycles, for transport, leisure and sport. However, there are a number of physical, cultural and societal barriers that continue to prevent more Disabled people in the UK from taking up cycling, as outlined below.

Cycle infrastructure

There is a lack of fully inclusive infrastructure across cycle networks. Narrow cycle lanes, steps, speed reduction treatments, physical obstacles, barriers and potholes reduce accessibility for non-standard cycles, which are often wider, longer and heavier than standard bicycles. Accessibility can also be reduced for Disabled cyclists who ride on two wheels but who may not be able to lift, carry or walk their cycle.

Cost

Non-standard cycles (including specially adapted bicycles) are typically more expensive than standard road bikes, with access to hire and loan schemes also limited. Disabled people are more likely to be on lower incomes than non-Disabled people, creating a further financial disadvantage when it comes to purchasing the right cycle.

Cycles not recognised as a mobility aid

Many Disabled people find cycling easier than walking. However, under existing legislation cycles are not listed as a mobility aid unlike wheelchairs and mobility scooters, meaning Disabled cyclists may be asked to dismount in designated non-cycling zones; despite the fact that walking, wheeling or lifting a cycle might be physically impossible for some.

Cycle facilities

The majority of cycle parking and storage facilities fail to cater for the needs of Disabled cyclists. Without reliably available parking facilities at their destination (and fully integrated modes of transport along the way) Disabled cyclists will often be discouraged from venturing out in the first place, thus limiting their options for active travel.

Imagery, language and perception

Representations of non-standard cycles and visibly Disabled cyclists are absent from most cycling literature. Disabled cyclists are further excluded from cycling culture through use of the word 'bicycle' as a bi-word for a cycle; the branding of e-assist as 'cheating'; the perception that cycling is for the fit and athletic; and assumptions that all cyclists are able to carry or wheel their cycle. This leads to many Disabled people assuming, wrongly, that cycling is not an option for them. Misperceptions can also lead to those with hidden disabilities, such as autism, anxiety and dementia, being disregarded as potential cyclists.

Our campaigns

As an inclusive cycling campaigning organisation, we push for the needs and rights of Disabled cyclists to be met. Our campaigns span a range of issues, from improving the inclusivity of cycle infrastructure to seeking legal recognition for cycles as a mobility aid. We hope that our campaigns will not only inspire Disabled cyclists to take action where their rights have been infringed, but will also help to inform policy and practice, leading to a world where cycling by Disabled people is easy and commonplace.

My Cycle, My Mobility Aid

The majority of Disabled cyclists find cycling easier than walking, with many using their cycle as a mobility aid. However, under existing legislation cycles are not recognised in this way. We think this is discriminatory and can discourage many Disabled people from taking up cycling.

We are campaigning to ensure that cycles are recognised as a mobility aid, when used by a Disabled person for this purpose – putting them on a level playing field with wheelchairs and mobility scooters.

Find out more here.

Infrastructure for all

According to our research, inaccessible cycle infrastructure is the biggest difficulty faced by Disabled cyclists. Narrow cycle lanes, steps, bollards and anti-motorcycle barriers are just some of the obstacles that can restrict or deny access to Disabled cyclists, as well as other users of non-standard cycles.

We are campaigning to ensure that all cycle infrastructure is designed with the needs of users of non-standard cycles in mind.

Find out more here.

Invisible cyclists

Too often Disabled cyclists are overlooked by transport bodies and local authorities. In cycling publications and reports, for instance, there are far too few images of non-standard cycles. Disabled people are also most likely to be seen as car drivers or pedestrians when discussed in transport policy. Rarely are they thought of as cyclists.

We are campaigning to improve the representation of Disabled cyclists in cycling policy, imagery and language. In particular we are working with partners to create and make available a photobank of inclusive cycling imagery for use by all who use images of cyclists.

Find out more here.

Recognition and **awareness**

Recognising Disabled people as cyclists

Our research has shown that in transport policy Disabled people are most likely to be seen as a pedestrian, car driver, bus or taxi user. Very seldom is any thought given to the idea that a Disabled person might also be a *cyclist*. The result is that many Disabled people will not consider themselves as cyclists, or potential cyclists, simply because the language used around travel and disability focuses on all modes of transport except cycling.

A similar issue arises in transport imagery, where transport and cycling literature (guidelines, reports, strategies etc.) typically fail to include images of non-standard cycles, but contain plentiful images of standard two-wheeled bicycles. This reinforces the impression that only people able to balance on two wheels can cycle.

This lack of awareness around inclusive cycling spills into the public consciousness and has everyday consequences for Disabled cyclists. For example, many Disabled cyclists use their cycle as a mobility aid and yet this is unbeknown to the public, as well as most policymakers and politicians. It is also a concept little understood by local authorities, transport professionals and the police, which causes problems for Disabled cyclists who may have no option but to cycle on footways, through 'cyclists dismount' zones or in pedestrianised areas.

We strongly believe that cycling language and imagery must become more inclusive - using more images of non-standard cycles and actively acknowledging the fact that cycles are sometimes used as a mobility aid. This will start a true cycling revolution by spreading understanding of the fact that everyone can cycle. Not only will this support Disabled people who are already cycling, but it will lead to many more Disabled people exploring cycling as an option.

This section takes a look at the issue of recognition and how transport imagery and language can be made more inclusive.

Imagery and language

One of the biggest barriers to more Disabled people taking up cycling is the general assumption that Disabled people can't or don't cycle. This is particularly reflected in cycling-for-transport policy, where Disabled people who cycle or could cycle are mostly absent. This is manifested in the lack of inclusive cycling imagery and language.

This problem is particularly pronounced in cycling policy imagery (photos, pictures and diagrams) where there is a severe lack of images of non-standard cycles. To take one example, an audit that we carried out of London Borough cycling strategies in 2016 found that only 2% of all images of cycles were of a non-standard cycle (which included cargobikes). What's more, the two-wheeled bicycle is widely seen and used as the universal symbol of cycling: this is often the case in the media, cycling websites and publications. Where efforts have been made recently to broaden the representation of cyclists away from athletic white males, this has generally led to increased images of women, people from BME backgrounds and young children. Older and Disabled people tend to remain invisible.

Language can also be a barrier. For instance, just like the image of the two-wheeled bicycle, the terms 'bicycle' and 'on two wheels' are used as by-words for a cycle and the activity of cycling. This immediately excludes anyone who doesn't ride a two-wheeled cycle, but also reinforces the societal assumption that cycling can only be done on two wheels. Our research has revealed that when discussing Disabled people in relation to transport policy, local authorities and transport bodies are most likely to refer to Disabled people as pedestrians, car drivers, bus or taxi users. Very rarely do they even consider that a Disabled person might also be a cyclist. Indeed, as we discovered in the same piece of research, only 2% of all references made to Disabled people were of Disabled people as *cyclists*.

It is evident that this could have a negative impact on the ability of local authorities to deliver inclusive cycle infrastructure and raises the question 'just how aware are local authorities of their obligation towards Disabled people who are *cyclists*?' Furthermore, if there is little awareness of Disabled people as cyclists in the first place, how will local authorities be able to ensure that new cycle infrastructure is designed with their needs and interests in mind?

Local authorities should be mindful of these issues when developing policy, guidance and strategies relating to transport and cycling. It is equally important that professional bodies start to refer to the principles in this guide when delivering training and workshops to transport professionals.

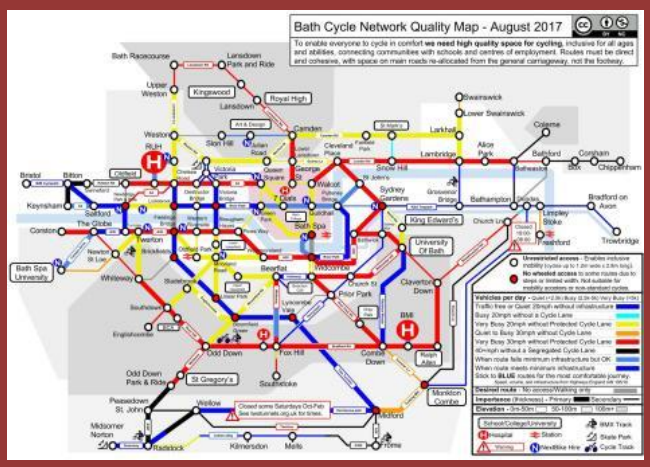
Case study: making imagery inclusive

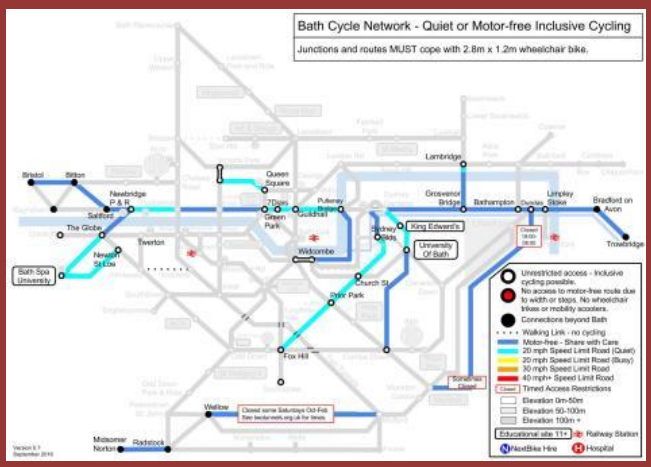
Cycle Bath is a community cycling group that campaigns for better cycle infrastructure in Bath. In recent years, the group has made a conscious effort to improve the visual inclusivity of its website and to incorporate the needs of users of non-standard cycles. It has achieved this in two big ways by:

- Adding an additional layer to its existing cycle network map, which outlines 'quiet or motor-free inclusive cycling' routes that are accessible to a reference 'wheelchair bike' (2.8m x 1.2m)
- Changing the branding on its homepage to feature a variety of non-standard cycles, including handcycles, recumbents and cargobikes

These are two relatively simple, yet highly effective, ways of raising awareness of inclusive cycling.

Cycle Bath's cycle network map (left) with an overlay highlighting inclusive routes (right)





Cycle Bath's new, inclusive website banner featuring non-standard cycles

Cycles as a mobility aid

According to our latest research, 75% of Disabled cyclists find cycling easier than walking, with the same proportion using their cycle as a mobility aid. Often this is because cycling is non-weight bearing, reduces pressure on the joints, aids balance and relieves breathing difficulties. For anyone with impaired mobility, cycling can also save significant energy and time.

However, given the lack of awareness around inclusive cycling, Disabled cyclists frequently encounter problems when using their cycle as a mobility aid. For instance, we have found that amongst those who use their cycle as a mobility aid, 45% have been asked to dismount and walk/wheel their cycle: often in places where wheelchairs and mobility scooters are permitted (and accepted by the public), but cycles and cycling are not. This problem also extends to public transport, such as trains, where the storage of non-standard cycles is almost universally prohibited.

The concept of cycles as a legitimate aid to mobility has failed to find its way into law, with Disabled cyclists continuing to face harassment, penalisation and even the threat of prosecution for using their cycle as a mobility aid – all as a result of opting for a more independent, active and healthy lifestyle. Instead, we see a steady increase in mobility scooter use as people who become unable to walk in comfort see no other option, whereas many could in fact continue to travel actively for many years through cycling. We believe that developing a Disabled cyclists' Blue Badge or similar (see box opposite) could provide one possible policy solution.

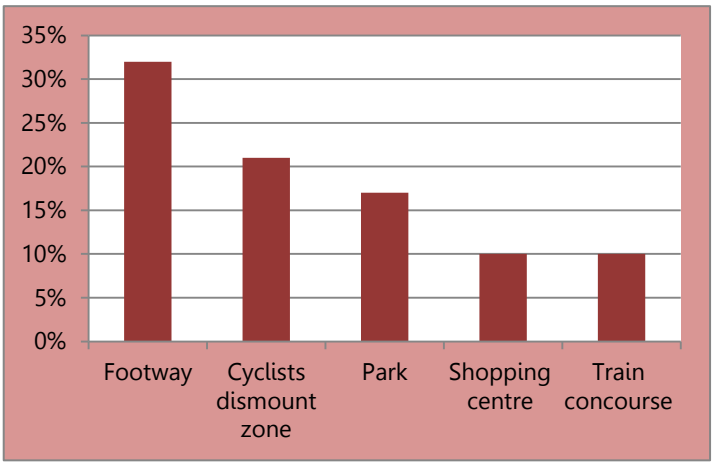
A 'Blue Badge' for Disabled cyclists?

Central government and local authorities should consider designing and piloting a Blue Badge scheme for Disabled cyclists. Put simply, the purpose of such a scheme would be to give Disabled cyclists a valuable form of identification, which could be used to:

- Permit Disabled cyclists to cycle considerately in non-cycling areas (such as 'cyclists dismount' zones) when using their cycle as a mobility aid
- Reserve cycle parking spaces that have been designed and allocated for use by non-standard cycles

Such a scheme could be developed in collaboration with local police forces, community and disability groups.

Places where Disabled cyclists are most commonly asked to dismount
(Wheels for Wellbeing survey, 2018)



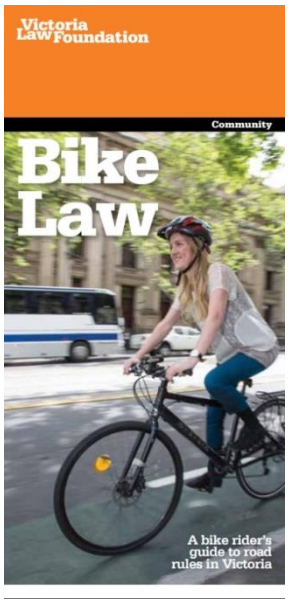
International examples

Britain, like several countries, has a law prohibiting cycling on the footway. This also applies to Disabled cyclists, even though they may be using their cycle as a mobility aid. However, our research has shown that there are some international examples of governments adopting policies that exempt Disabled cyclists from this rule.

Japan

Japan's Traffic Safety Guidelines state that, in principle, cyclists should ride in the street and use the footway "only in exceptional cases." One of these exceptions stipulates that:

"Children under 13, adults 70 and over, and people with physical disabilities are permitted to ride a bicycle on the sidewalk"



Victoria, Australia

In the Australian state of Victoria, laws state that you can cycle on the footway if you are:

- Under the age of 12
- Are an adult supervising a child under 12
- Have a disability that means it's difficult for you to cycle on the road

Disabled cyclists must be able to show police a medical certificate if they are asked.

New Zealand

In 2016, a public petition asked the government to change road rules to allow cycling on the footpath by young children (and parents riding with them), adults over 65, and people with mental or physical disabilities.

The Transport and Industrial Relations Committee has subsequently published a report, in which it recommended that the government change its road rules in order to:

"*Allow cycling on the footpath by children up to and including 12 years of age or year 8 (and accompanying adults), seniors over 65, and vulnerable users (such as those with mental or physical disabilities)"*

Inclusive cycling training

Our research suggests that there is very little awareness amongst transport professionals, including within local authorities, of the fact that Disabled people can and do cycle. This is hugely problematic and suggests that, up and down the country, cycle infrastructure is being designed and built in ways that fail to take account of the needs of Disabled cyclists.

As a remedy to this, it is crucial that any training delivered to transport professionals and engineers includes an element on inclusive cycling and how to cater for the needs of Disabled people who cycle.

Local authorities should also consider working alongside local inclusive cycling hubs to co-design and deliver inclusive cycling workshops and led rides - giving transport officers the opportunity to try out a variety of non-standard cycles and experience first-hand the needs of Disabled cyclists (including turning and handling requirements, positioning on the road etc.) in both on and off road environments.

Policy recommendations

- Local authorities should consider prototyping a **Blue Badge for Disabled cyclists**, which would grant Disabled cyclists certain exemptions (see here). If successful at a local level, this should be extended to become a national scheme, led by the Department for Transport

- Local authority cycling strategies, guidelines and documents should ensure that at least **1 in 5** images of cycles depicted are of a non-standard cycle - proportionate to the number of Disabled people in the UK (20%)

- The term 'bicycle' should be replaced by '**cycle**' wherever possible in cycling-related and transport communications - ensuring that language around cycling is more inclusive

Inclusive and integrated
cycle networks

Designing inclusive cycle networks

Cycle networks have been designed around the two-wheeled bicycle and able-bodied cyclist. This excludes many other types of cyclists. **However, a cycle network that meets the needs of Disabled cyclists - by being step-free, barrier-free and spacious - is, by default, accessible to *everyone*: two-wheeled bicycle users, as well as individuals, families and businesses who use tricycles, tandems, trailers and cargobikes.** Equally, any measures enabling cycling by Disabled people are likely to support a growth in cycling by novice cyclists, including children and young people, as well as older people. It will also improve conditions for those using mobility scooters.

A good indicator of a well-designed inclusive cycle network is the variety of users from under-represented groups using it (including Disabled people, women, children and older people). We believe that the potential for growth in this area is significant and could yield substantial social, health and financial benefits, which as yet remain untapped.

This section takes a look at cycle networks in the round and how they interact with the wider environment - including public transport and the built environment - and the importance of ensuring that each is inclusive and interlinked.

Inclusive cycling hubs

Inclusive cycling hubs are places where Disabled people can go to cycle in a supportive environment, away from traffic - this could be at a sports arena, velodrome, outdoor park or leisure centre. Cycling sessions are usually led by trained instructors and supported by volunteers. They give Disabled individuals and groups an opportunity to try out a variety of cycles, with the support of a friend or carer if needed. They provide a space for Disabled people to gain or regain confidence in cycling, develop social networks and enjoy the health and wellbeing benefits that cycling has to offer. Some hubs also provide additional services to their regular programme, such as private cycling sessions and cycle hire/loan schemes.

Thanks to organisations like Cycling Projects, who help to develop new hubs nationally, the UK boasts a good number of inclusive cycling hubs. However, these are needed in every part of the country in order to ensure that Disabled people are never far from an easily accessible opportunity to discover or rediscover cycling. Local authorities should be encouraged to seek out and develop strategic partnerships with local cycling and disability groups to develop hubs wherever there is an identifiable need.

An inclusive cycling hub based at a velodrome

Case study: inclusive cycling hubs

In 2016 a large-scale bike share scheme was set up in Portland, Oregon (USA) with the support of Nike. However, just weeks before its launch a local politician voiced concerns that the scheme excluded Disabled people, as it did not include any non-standard cycles.

The local transport authority subsequently revised its plans and decided to expand the scheme to cater for Disabled cyclists. One year later, in July 2017, Adaptive Biketown was born.

The scheme rents out cycles for people with a range of disabilities, including tandems, handcycles and tricycles, and aims to increase access to cycling for all Disabled people. It is run by the Portland Bureau of Transportation, in conjunction with a local non-profit disability organisation and a cycle shop specialising in non-standard cycles.

Adaptive Biketown, Oregon, USA

Cycle hire

There is a paucity of inclusive cycle hire provision in the UK. This is true even of London, where cycle hire has expanded exponentially in recent years. Existing cycle hire facilities and schemes almost exclusively provide standard two-wheeled bicycles, which excludes many Disabled cyclists, families cycling with little children and freight cyclists. Given that Disabled people are more likely to be unemployed or work part-time than non-Disabled people (and so less likely to have the funds available to *purchase* a cycle) their need to access cycle hire is even greater.

Added to this, many Disabled cyclists have been denied access to employee cycle hire schemes, such as Cycle to Work (1 in 10 have experienced this, according to our latest survey). This is because non-standard cycles are considerably more expensive than standard bicycles and, as Cycle to Work used to have a £1,000 limit on the cost of cycle that could be hired by an employee, most non-standard cycles fell above this price range. Similarly, the Motability scheme currently enables Disabled people to exchange their mobility benefits (e.g. PIP/DLA) for a car, a mobility scooter or a powered wheelchair, but not a cycle of any kind.

Some good examples of inclusive cycle hire schemes exist, however these tend to be limited to places outside of towns and cities, such as national and country parks. At a minimum, we would recommend that all cycle hire schemes should include at least e-cycles, which would dramatically broaden the demographic of people who can access cycling. We also recommend that cycle hire schemes partner with local inclusive cycling hubs to widen their offer.

Making 'try before you buy' schemes inclusive

In 2018 Wheels for Wellbeing partnered up with Lambeth Council and Peddle My Wheels to launch a ground-breaking extension to a 'try before you bike' scheme, opening it up to Disabled cyclists for whom a standard bicycle wasn't the answer.

Lambeth Council had been running a Try Before You Bike scheme for 5 years, creating hundreds of new and returning cyclists. Partnering with Peddle My Wheels to run the project has given Lambeth the opportunity to extend the project beyond two wheels and make it more inclusive.

Available to people who live, work or study in Lambeth, the scheme works by allowing individuals to book onto a session with Wheels for Wellbeing to initially try out various types of non-standard cycles. If successful, a follow-up session is then arranged to help the individual find the right kind of cycle, and adaptations, for their needs.

The built environment

Unlike other areas (e.g. buildings), the built environment - including the public realm - is very poorly regulated for Disabled people. Though there is frequent due regard for Disabled pedestrians, when it comes to new buildings, premises and facilities, there is often little or no recognition of the needs of Disabled cyclists.

Homes and commercial premises

Hundreds of thousands of new homes are being built across the UK, but whilst there are regulations governing the provision of car parking for new homes (which require 10% of all new homes to have wheelchair accessible parking), there are no equivalent standards for accessible cycle parking – this is despite the fact that such parking takes up significantly less space, promotes active travel and provides healthy, safe and non-polluting travel options for a growing section of Disabled people. For example, an accessible car parking bay requires an area of 3.6m x 6.0m, with a 6.0m roadway width to approach it. By contrast, an equivalent accessible cycling bay is 1.5m wide, 2.8m long and requires a 1.5m approach path. The argument here in favour of more accessible cycle parking is not just an issue about saving space - it is, just as importantly, about providing equity and choice for Disabled people who cycle.

New offices, leisure and commercial spaces are similarly being built with little or no consideration for Disabled cyclists, whether this be inclusive routes, cycle parking for non-standard cycles or accessible showering facilities. To give a common example, there are many sports facilities (gyms, swimming pools etc.) that provide facilities for Disabled people, such as accessible car parking, but no parking provision for non-standard or adapted cycles. Such policies fail to see the linkages in between.

A modern flat in Sweden that has been designed to accommodate all cycle types. Credit: Hauschild-Siegel

Accessible buildings

The Building Regulations Part M have a section on car parking and requirements for accessible car parking in all new developments, including routes from car parking to entrances. However, to our knowledge, there is no equivalent requirement for accessible cycle parking. It is almost always assumed that a Disabled person will be a driver or car passenger, or that they will be travelling by public transport/walking/pushing a wheelchair.

Without proper regulations and enforcement, it is inevitable that developers will be reluctant to provide facilities for Disabled cyclists. Evidence of this can be seen in cycle parking facilities that have incorporated 'double-stacker racks': not only are these difficult to use for people with poor manual strength, dexterity or standing balance, but are also totally unsuitable for non-standard cycles.

'Reasonable adjustments' in delivering accessibility mainly apply to existing buildings, but for new buildings provision for Disabled people needs to be built in from the very start: this would prevent a situation from arising where a Disabled person has to seek adaptations later on, which is not only demeaning, distressing and time-consuming for a Disabled person, but is also costly to the developer. Consideration for the needs of Disabled cyclists should form a key part of any process evaluating the accessibility of a new building, premises or facility.

The role of designers, architects and built environment specialists

The needs of Disabled cyclists are frequently neglected in the design and management of streets, highways, parks and publicly accessible open spaces. Cycle infrastructure must be designed consistently in a way that accommodates the dimensions and requirements of non-standard cycles, such as the provision of step-free routes; sufficiently wide cycle lanes; appropriate speed reduction measures; and appropriate filtered permeability. Other physical barriers such as kissing gates/stiles, along with measures designed to restrict motorbike access, should also be adapted or removed when they restrict access to longer, wider or heavier cycles.

It is imperative that Deaf and Disabled People's Organisations (DDPOs) and local disability groups are consulted during the preliminary stages of any new building development. Organising face-to-face meetings, working groups, webinars, workshops, focus groups, or online surveys and questionnaires must play an important part in this process – steps that will ensure the views and opinions of Disabled residents are captured, including those of Disabled cyclists.

It goes without saying that disability and equalities training should be extended/strengthened for local authority transport and cycling officers (and anyone else involved in the design and delivery of new cycle infrastructure and facilities). Proper inclusive cycling training can ensure councils have a good understanding of the needs of Disabled people as cyclists, as well as an awareness of their obligation to Disabled cyclists as part of the PSED and Equality Act 2010.

Public transport

Providing an attractive, whole-journey experience is crucial to encouraging more Disabled people to cycle, who often rely on multiple modes of transport to get around. What's more, Disabled people are more likely to be adversely affected by a lack of integrated transport modes as they already have to go to considerable lengths to plan a journey. However, accessing public transport is all but impossible for many Disabled cyclists who use their cycle as a mobility aid, be it taking a tricycle on a bus or storing a tandem on a train.

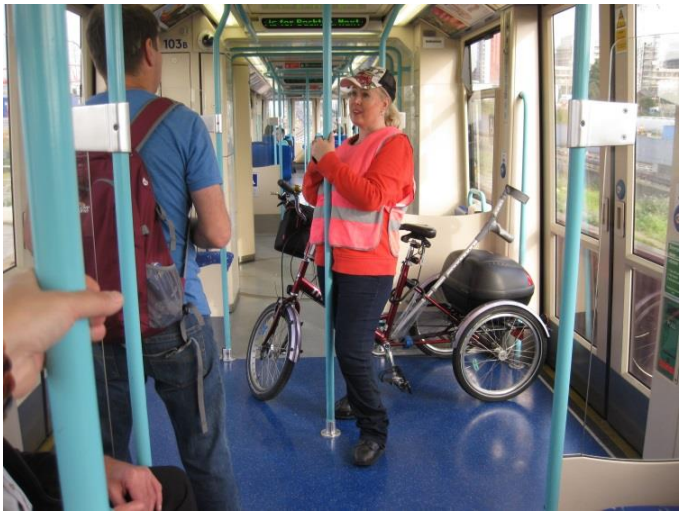
According to our latest survey of Disabled cyclists, of those who use their cycle as a mobility aid 25% said they had been refused from boarding a train, whilst 1 in 10 have been asked to dismount on a train concourse. Furthermore, a recent audit that we conducted found that only one out of twenty-five Train Operating Companies (TOCs) in England and Wales appeared to have a policy permitting the storage of non-standard cycles onboard. This severely limits the type of journey that Disabled cyclists can undertake.

This problem is compounded by the fact that, whilst we know of many Disabled cyclists who have been challenged when attempting to board a train, we also know of some who have successfully managed to do so without any problems - indeed, as this blog illustrates, some Disabled people have even been able to book assistance with getting their non-standard cycle on board via the Passenger Assist scheme. However, in practice, there remains huge variability and inconsistency in the ways in which different train operators approach this issue, which can cause added anxiety for Disabled cyclists.

Such issues are not limited to rail, with our research also showing that 16% of those who use their cycle as a mobility aid have been refused from boarding a bus, 4% from boarding a tram and the same proportion unable to use the London Underground.

Therefore, in order for Disabled cyclists to feel confident in completing a journey by cycle it is essential that all forms of transport are integrated and made accessible. Where rules exist permitting the storage of wheelchairs and mobility scooters onboard public transport, the same rules should apply (where physically possible) to Disabled cyclists who use their cycle as a mobility aid.

It is equally important that routes to and from public transport (and any nearby cycle parking) offer a continuous, step-free journey. Signage should also be clear and accessible.



A Disabled cyclist takes her tricycle on the Docklands Light Railway as part of a one-off trial

Policy recommendations

- Where rules exist permitting the storage of wheelchairs and mobility scooters **onboard trains**, the same rules should apply (where physically and practically possible) to Disabled cyclists using their cycle as a mobility aid

- We encourage **Cycle to Work providers** and **employers** to improve information about the different kinds of specialised cycles available to Disabled people on their schemes

- Publicly-run cycle hire schemes should include **e-cycles** as a minimum, whilst expanding the types of cycles they offer by working with local inclusive cycling hubs

- Local authorities and their health partners should ensure Disabled people have access to cycling opportunities in their area by supporting the sustainable growth of **inclusive cycling hubs**

Inclusive **infrastructure**

Building inclusive infrastructure

According to our research, inaccessible cycle infrastructure is the single biggest difficulty faced by Disabled cyclists in the UK. This is perhaps unsurprising given the kinds of cycles that many Disabled people use (e.g. tight bollards may exclude a tricycle, and kissing gates a handcycle or tandem). These are real, everyday problems that limit Disabled cyclists' ability to cycle where and when they want.

When designing and building cycle infrastructure, transport professionals and engineers should at the very least be asking themselves the question "Would a competent 12 year-old be comfortable cycling here?" This should be the yardstick by which all cycle infrastructure is measured and will go a long way to increasing the numbers and diversity of people cycling.

At the most basic level, inclusive cycle infrastructure should be step-free, offer a continuous and uninterrupted journey, and have clear and accessible wayfinding. It should also be providing a space where people feel safe and comfortable.

This section takes a look at cycle infrastructure and how it can be made inclusive of Disabled cyclists.

Credit: photojB/Sustrans

Access

Access to/from cycle paths, footways and cycle parking

Problem:
Separated cycle contraflows and continuous kerbs lining cycle routes are an important feature of segregated cycle infrastructure, but they can end up excluding wider cycles and trapping disabled cyclists in a cycle track.

Solution:
Access to dropped kerbs needs to be at least 1.5m wide and proportionally wider when the approach creates an oblique angle. Kerbs in general should not prevent Disabled cyclists from pulling over to stop or from getting out of the way of obstacles, other cyclists or traffic. Forms of permeable separation are preferred. All on-street cycle parking should have step-free access.

No access to footway and too narrow for many trikes

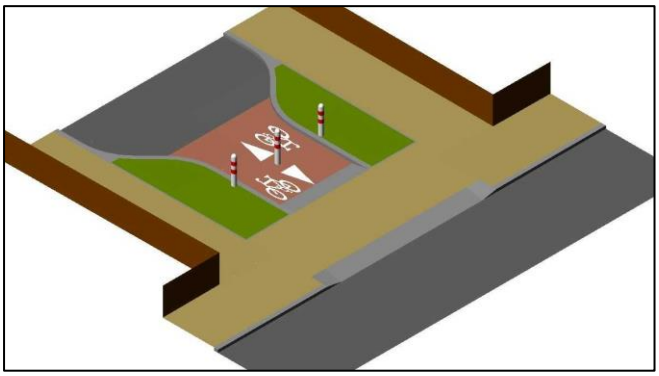
Unlike the above example, this cycle highway offers access to the footway via dropped kerbs and raised tables

Bollards

Problem:
Creating low traffic cycle routes by restricting motor traffic with physical barriers is a common traffic control measure, but this should not restrict cyclists using larger cycles.

Bollards set closely together, making access difficult or impossible for non-standard cycles

Solution:
Where bollards or kerb upstands are used across a pathway to prevent access to motor vehicles the minimum distance between two bollards, or gaps between kerb upstands, should be no less than 1.5m. See CD 195 (E/3.33 and E/3.34)



Here there is an air gap of 1.5m between the bollards. Additionally, they have been set into the side road meaning cyclists can complete their turn before going through

Credit: Mark Philpotts/City Infinity

Access control barriers

Problem:
Many cyclists cannot dismount and push/wheel their cycle. Sections of the road network that are not continuous, or that require the cyclist to make awkward manoeuvres or dismount, pose a significant barrier for Disabled cyclists. This is particularly so for handcyclists, where it is not an option for the rider to get off and walk at a barrier or hazard and also applies to many people who use a cycle as a mobility aid. It is wrongly assumed that a cyclist always rides a bicycle or can lift their cycle over a barrier.

Barriers are difficult and can be impossible for handcyclists to negotiate

Access control measures and barriers that prevent access to motorbikes, mopeds and scooters also prevent access to inclusive cycles (e.g. A-frames, K-frames, York Chicanes and kissing gates). Kissing gates cannot be used by cyclists who cannot dismount.

Solution:
It is not recommended to have any barriers along a path that is used by cycles. If it is necessary to prevent access for livestock, use cycle- and wheelchair-friendly cattle grids. In addition, provide a firm, smooth path section and gate for those who are able to operate gates (it must not be assumed, however, that a Disabled person will always be accompanied by someone who can operate the gate mechanism for them).

Case study: making infrastructure inclusive

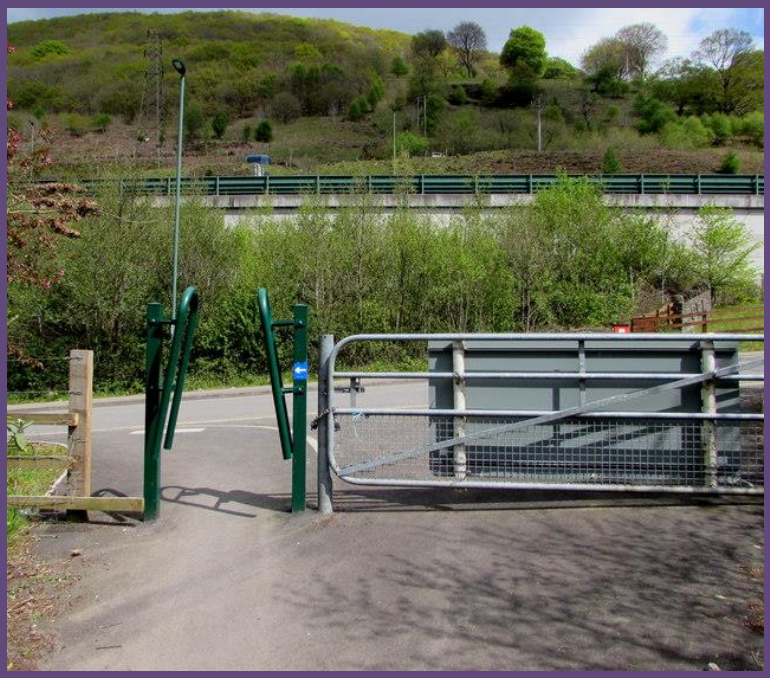
In 2018 Sustrans, the national cycling and walking charity, undertook a review of the UK's National Cycle Network (NCN) - comprising over 16,000 miles of signed routes for walking and cycling - for which the charity is responsible.

As part of the wide-scale review, Sustrans developed a vision of an inclusive 'paths for everyone' network, ensuring that it is accessible for everyone travelling by foot, cycle, wheelchair or mobility scooter. Amongst its 15 recommendations, Sustrans have pledged to remove or redesign all 16,000 barriers on the NCN to make it accessible to everyone and ensuring that no dismounting is required.

Up until now, many Disabled cyclists who use the NCN, whether on bicycles, tandems, handcycles or tricycles, are often limited in the cycling they can do by the inconsistent quality of paths, the presence of stiles, stepped bridges and the like. Transforming the NCN into a reliably safe and accessible network over the next few years, however, will make a huge difference to Disabled people's ability to access the outdoors and travel actively.

The success of the review was undoubtedly in part down to the involvement of a wide range of stakeholder groups from the start, including inclusive cycling and walking organisations.

A barrier on the National Cycle Network



Temporary closures of cycle provision

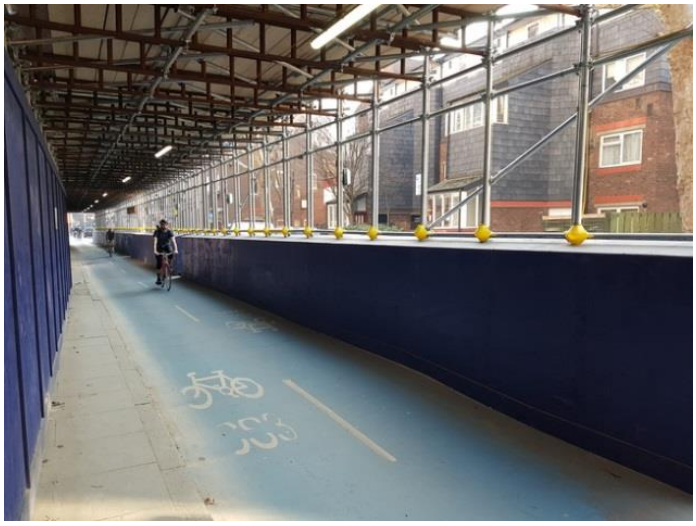
Problem:
Disabled cyclists often have to go to great lengths to plan a journey to ensure it is accessible, so when cycle infrastructure is suddenly closed this can create problems, especially where no alternative accessible route or additional signposting has been provided.

The use of A Boards on cycle paths and footways can create obstructions for cyclists and pedestrians alike.

A temporary closure of a cycle lane, which forces cyclists to dismount and lift their cycle onto the island

Solution:
When a cycle route or general carriageway is temporarily closed, then an alternative route should be signposted that will not involve steps or rely on dismounting and walking. Whenever possible, there should be enough advance notice of a closure for cyclists to decide upon an alternative route. It is not sufficient to rely upon signage for motorists, since a route that is closed to motorists may still be passable for cyclists.

Where the alternative route involves walking up a curb, a ramp should always be provided, with adequate width for non-standard cycles to safely manoeuvre.



A cycle tunnel has been used here to avoid diversions and the need for cyclists to dismount Credit: TB LCC

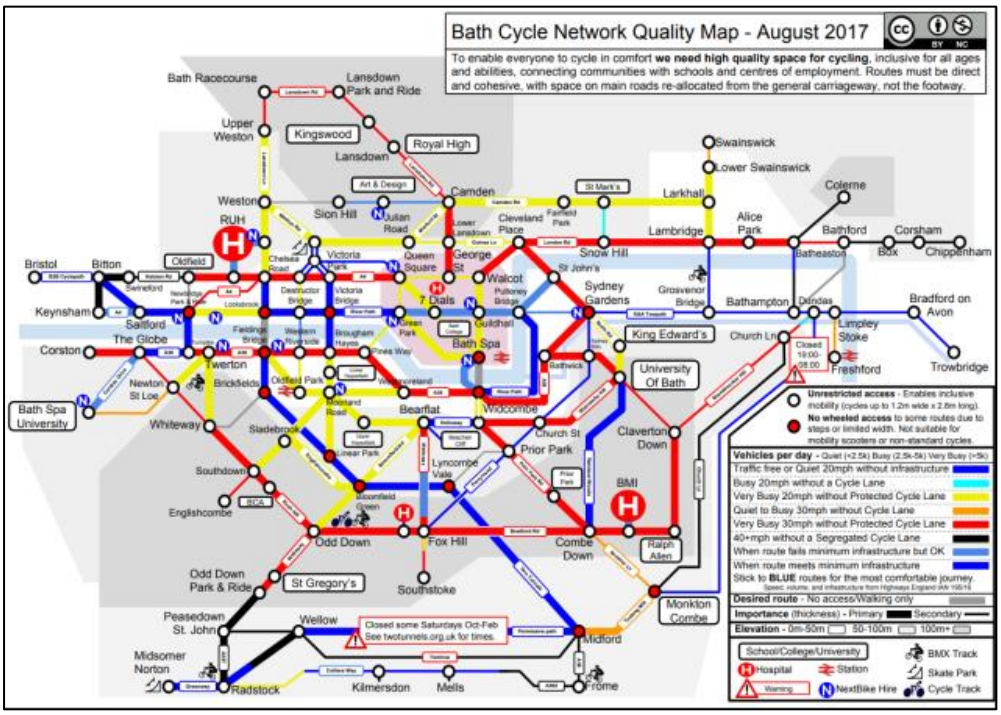
Signage and maps

As well as designing hard infrastructure that is accessible, it is equally important to ensure that any accompanying signage is also inclusive. This means that signage should:

- Be positioned at a height that is legible for all cyclists, including recumbent cyclists who are lower to the ground
- Use Sans Serif and a large font size (min. 36pt)
- Have a good visual (tonal) contrast of font against background (min. 70 points LRV)
- Use logos depicting non-standard cycles, as well as bicycles

Similarly, mapping can be made more inclusive by taking into account the needs of users of non-standard cycles, as the below example shows:

A cycle network map that takes into account the needs of Disabled, family and freight cyclists by highlighting routes that enable 'inclusive mobility' (defined as cycles up to 1.2m wide x 2.8m long). Credit: Cycle Bath



Width requirements for wider cycles

Non-standard cycles are typically much wider, longer and heavier than standard two-wheeled bicycles and so require more space. Below are the minimum requirements that we recommend:

Infrastructure	Minimum width	Ideal width
Access control point	1.5m	2.0m
Cycle lane	1.5m	2.0m
1-way cycle track	1.5m	3.0m
2-way cycle track	2.8m	4.0m

Surface

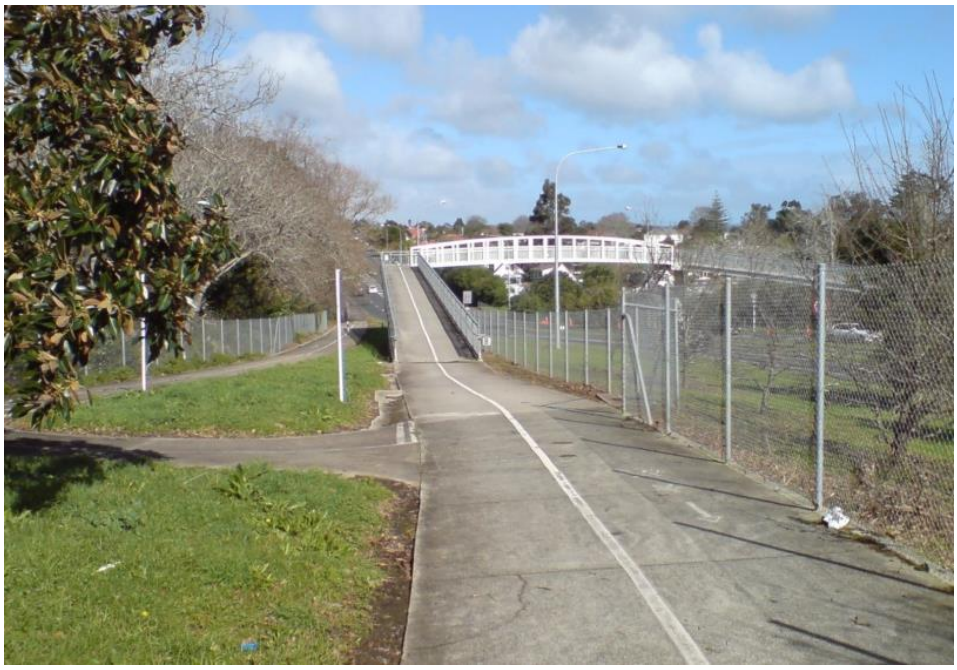
Gradients and cambers

Problem:
The length of climbs, as well as the gradient, are of particular relevance for Disabled and older cyclists. Some will have difficulty with the approach to a river bridge, or exiting an underground subway, for example. Others may not have the option of standing out of their saddle to apply increased force when tackling hills.

Three wheelers are adversely affected by steep cambers and can end up driven into the gutter or even overturn. This can be particularly problematic where a turning movement is required onto or off of a slope.

Solution:
Obviously, steps should never be the only option for bridges that are on cycle or pedestrian routes. Ramp gradients should be minimised wherever possible on general routes intended for all cyclists (a gradient of 1-in-20 is a maximum for short ramps, correspondingly less over longer distances), without assuming that cyclists will push/walk their cycle if the gradient is too steep. Paths used for cycling should have the gentlest camber possible to facilitate comfortable and safe cycling, whilst allowing for drainage.

A maximum cross fall of 1:40 is recommended for paths used for cycles.



Steep bridges can be an issue for Disabled cyclists, who often require more effort to generate speed and momentum

Speed Humps

Problem:
Speed humps/speed tables are problematic due to the inconsistency of design and execution. Where they are excessively high or feature straight edges (often cobbled) they can cause handcycles and recumbent tricycles to 'bottom out' and experience discomfort and pain.

Speed cushions are particularly problematic because they can create unavoidable cambers which can cause three wheelers to tip over. Cycling *between* speed cushions is the most stable solution but can force cyclists into dangerous cycling positions. Traffic islands and chicanes creating pinch points can be difficult for those using wider cycles to negotiate.

Speed cushions can force those using tricycles to veer into the middle of the road

Solution:
The only design used for speed humps should have a sinusoidal profile covering the full width of the carriageway (below).

Sinusoidal humps offer the best solution for users of non-standard cycles

Imperfections

Problem:
Road surfaces are a particular issue for Disabled cyclists, who can suffer severe discomfort from bumps and shocks. Handcyclists in particular do not have the option of lifting off the saddle to avoid shocks to their spines when going over potholes or obstacles. Anyone cycling on more than two wheels is also less likely to be able to avoid a hazard, causing them to swerve and putting them at risk from overtaking vehicles and oncoming traffic.

A Disabled cyclist whose cycle is damaged by a pothole is unlikely to have the option of dismounting and pushing their cycle to safety.

Rumble strips can be painful for cyclists who are unable to stand out of their saddle

Solution:
Road surfaces should be free of potholes, badly laid ironworks or other hazards. General maintenance of road surfaces is also important. These should be regularly cleared of leaves and debris, which can hide potholes and create a slip-hazard. Cobbled surfaces should be avoided as they can cause discomfort.

In conservation areas, measures should be taken to create a smooth surface that is still aesthetically pleasing (e.g. having cobbles or setts cut flat and filling gaps between them).

Using technology to map obstacles

A mobile app called 'Things In The Bike Lane' allows cyclists to report illegal obstructions on cycle infrastructure.

Developed by BikeDenver and Bicycle Colorado (and currently only available in the US), the app allows cyclists to take a photo of problematic/illegal obstacles - tagging these as pins on a map.

The data gathered by the app can then be used by local authorities to address persistent offenders.

More information about the app is available here.

Timing

ASLs

Problem:
Disabled cyclists often need more time and effort when setting off from a stationary/standing position. This is especially the case for those who are unable to ride out of their saddle or who power their cycle by hand.

Cyclists who are lower to the ground often feel vulnerable at ASLs, as they fear they are less likely to be seen by vehicles stationed behind and to the side.

Solution:
Design the junction so that no ASL shared with vehicles is required.

Design solutions should also be developed for a balancing aid at traffic lights, to be used by cyclists who require a physical prompt/assistance when pushing off from a stationary position at a red light.

Early Release

Early releases are preferable to ASLs and allow cyclists to travel beyond a left turn conflict point before other vehicles reach that point. Disabled cyclists often require more time than non-Disabled cyclists to set off and generate momentum.

We recommend that the absolute minimum early release period should be 4 seconds.

Issues of repeated stops and starts

Consideration should be given to the fact that for many Disabled cyclists frequent stopping and starting can be physically exhausting.

Engineers need to take into account whether or not cycles (e.g. at a junction) are being made to stop on a gradient or camber. Adequate green time should also be available for those who require more time due to a lower cycling speed, or who cycle with their arms rather than their legs.

Cycle infrastructure that aims to give greater protection to cyclists often fails to consider the fact that many Disabled cyclists find it hard to generate momentum from a stationary position

Manoeuvres

Two-stage turns

Consideration should be given to the fact that, for many users of non-standard cycles, sharp and precise manoeuvres may not be possible. Thought should also be given to whether all cycles can move easily into the waiting area and if an assumption has been made with regards to timing.

Sufficient space must be given for larger cycles to make the two-stage manoeuvre.

Paths need to be clear to follow

Cycle infrastructure and routes should always be clearly marked and delineated. Consideration should be given to the fact that not all cyclists are able to dismount and, where cycle lanes narrow in width, adequate signage and warning should be provided.

Kerbs can deny access to parking, routes etc.

Many Disabled cyclists require step-free, continuous routes (especially when accessing cycle parking or joining a new cycle track).

To ensure such spaces are accessible, dropped kerb access is needed with a sufficient width.

High kerb with no dropped access

An example of a 'forgiving kerb': a gentle slope allows cyclists to join or leave the track where they like

Crossings

Crossings, junctions, turning and visibility

Problem:
Wider cycles such as handcycles and tricycles require a wider lane and turning circle. Also, as they often have a lower seating position, they may be less visible.

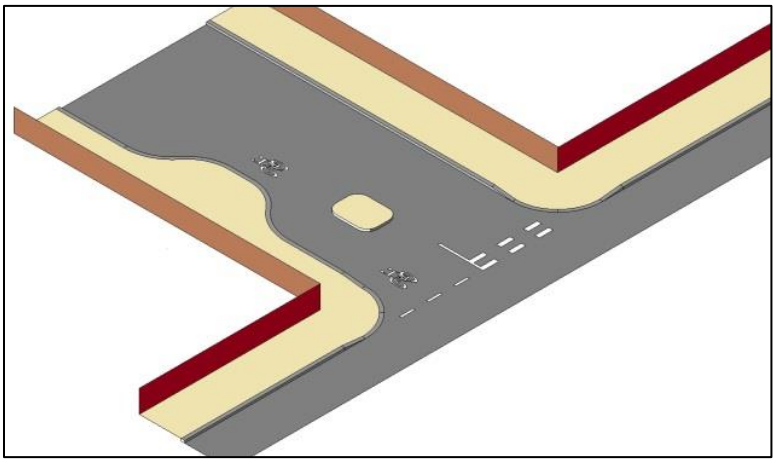
Buttons at pedestrian crossings may be out of the reach of cyclists who are low to the ground (e.g. recumbent cyclists), or positioned so close to the road that a handcyclist will have to put their front wheel into the road to reach the button.

Recumbent cyclists have a lower seating position and reduced visibility envelope Credit: photojB/Sustrans

Solution:
Sufficiently wide cycle lanes are needed to accommodate all types of cycles. See C5 195 (E/3).

Disabled cyclists need more space around them to allow drivers to see them. Approaches to junctions and crossings need to be perpendicular and ensure lower cyclists are visible.

Buttons at pedestrian crossings should be positioned in a way that is reachable by all cyclists and ideally at either side of a crossing.



This diagram depicts a side road that is one way out for all traffic, but allows cyclists to use it in both directions.

This layout can be useful in keeping emerging drivers to their side of the road, whilst the island and kerb build out arrangement stops drivers parking at the bypass. The minimum width between the island and the kerb is 2m.

Credit: Mark Philpotts/City Infinity

Bus stop bypasses

Problem:
A conflict of interest can arise between cyclists and pedestrians (particularly those with visual impairments) at cycle track crossings: bus stop bypasses bring this issue into sharp focus. Our position is that bus stop bypasses are a good thing if they are planned properly for everyone's safety. An entirely satisfactory solution still has to be found for this issue, for the benefit of all cyclists and pedestrians.

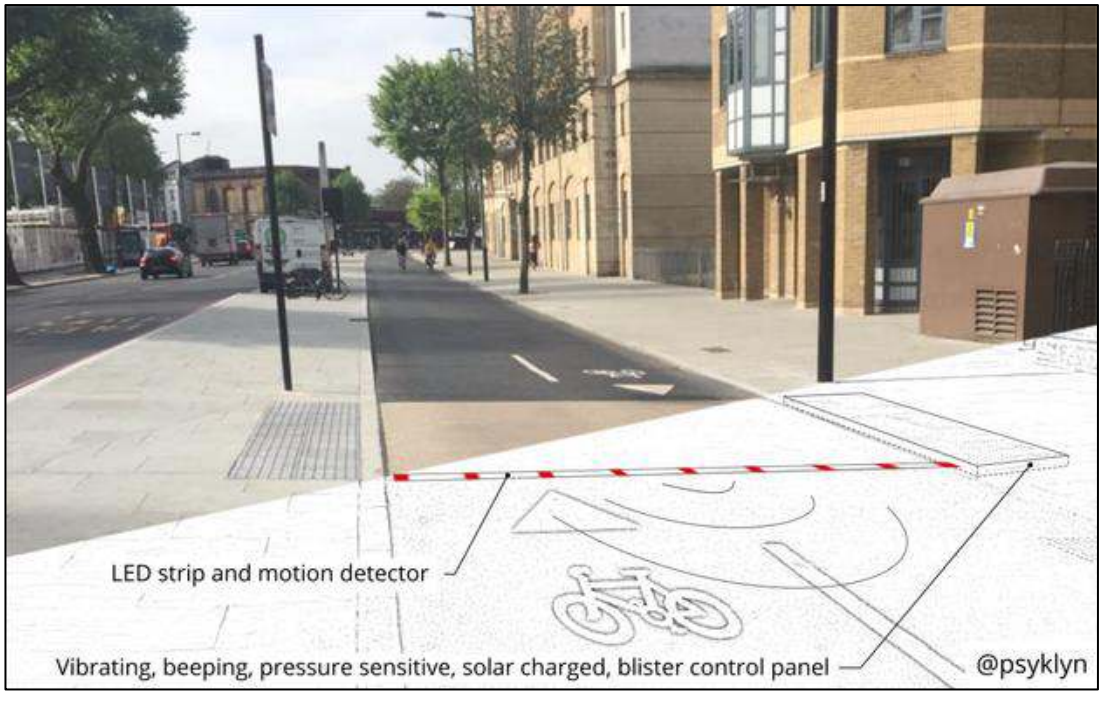
Currently, some cycle lanes with bus stop bypasses can have a narrow width, with high vertical kerbs to slow cyclists on approach to the rear of the bus stop. Care is required during the design to ensure the restricted width and corner radii, and the high kerbs, do not create a barrier to those riding wider cycles.

An example of a bus stop bypass narrowing

Solution:

Bypasses need to be designed with regard to those using wider and heavier cycles with a lower level of manoeuvrability, using a forgiving kerb edge that is chamfered.

We recommend further trials, involving both Disabled cyclists and Disabled pedestrians, in order to develop fully satisfactory solutions to the issue of safety and perceived safety for vulnerable pedestrians. An audio message on buses should alert all passengers to the fact that they are alighting on a bus stop island. Similarly, technical solutions should be developed to alert cyclists to the fact that visually impaired pedestrians are going to be crossing the cycle lane, and to inform them when it is safe to cross (see design suggestion below).



Shared spaces

We are generally opposed to shared space schemes that force a mix of cars, cyclists and pedestrians to interact. Such schemes do not fully take into account the needs of cyclists and we are concerned that visually impaired pedestrians could also encounter difficulties and will be deterred from venturing through such places.

People using wheelchairs and mobility scooters are allowed to ride in pedestrianised areas at a maximum speed of 4mph. Public awareness and acceptance of this is widespread - it is a normal, everyday practice. Many Disabled people, however, use their cycle as a mobility aid, and so we would like to see police use discretion and permit Disabled cyclists to ride on footways, in pedestrianised areas and in 'cyclists dismount' zones where possible; or any other space that would otherwise permit wheelchair or mobility scooter users (e.g. train concourses, shopping centres). A Disabled cyclists' Blue Badge could provide a possible solution to this (see here).

We recognise that there is a potential conflict of interest between cyclists and pedestrians at bus stop bypasses and bus borders (see previous page). However, we maintain that such infrastructure plays an important and necessary part of ensuring the safety and security of all cyclists and that, if designed properly, such infrastructure needn't cause an issue between pedestrians (including people with sight-loss) and cyclists. Clear markings, colouring and delineation are needed, as are appropriate surfaces and auditory signals.

Nevertheless, we would like to see transport bodies make greater efforts to bring together disability and cycling organisations during the initial planning stages, in order to ensure that the needs of both sets of groups are met in a way that is mutually acceptable and achievable. It is key that shared solutions are achieved wherever possible.

Exhibition Road in London: an example of a shared space scheme

Policy recommendations

- We encourage all local authorities to adopt either Highways England's '**cycle design vehicle**' or the London Cycling Design Standards' '**inclusive cycle**' concept when designing cycle infrastructure

- We call on the government to develop **national cycle design standards**, in order that predictably inclusive cycle infrastructure is available nationwide

- Where possible, local authorities should create **inclusive cycle 'tube maps'**, highlighting routes in their area that enable access for users of non-standard cycles

Inclusive **facilities**

Designing inclusive facilities

Our research has shown that a third of Disabled cyclists have been unable to park or store a non-standard cycle due to inadequate facilities. This could be, for instance, insufficiently wide cycle parking bays. But reasons can also extend to public transport (especially trains) where the need for onboard storage of Disabled passengers' non-standard cycles is a policy neither widely understood nor practiced. Both result in Disabled cyclists being denied the opportunity to participate in active travel, not because they can't cycle, but due to inaccessible cycling-related facilities.

Just like all other cyclists, Disabled cyclists need to know that when they leave the house they can be confident of locating adequate cycle parking and storage facilities at their destination.

They may also need to use multiple modes of transport along the way. Without all of these things in place, a Disabled cyclist may decide not to venture out in the first place or may have to use motorised transport options instead.

If we make cycling facilities inclusive of all types of cycles - and ensure transport modes are integrated and made accessible - more Disabled people will make the choice of travelling actively.

This section takes a look at cycling facilities and how they can be made inclusive of Disabled cyclists.

Credit: Trinity

Cycle parking

In the UK there are very few cycle parking facilities designed to accommodate non-standard cycles. Almost all cycle parking stands (e.g. the Sheffield Stand) are intended for use by standard two-wheeled bicycles and are generally placed too close to each other to fit a three-wheeled cycle between them.

This is not the only way that cycle parking facilities can exclude Disabled cyclists. For example, it may be that cycle parking is not located on ground level (and without lift or ramp access), or that accessing a parking stand relies on the user having the strength and dexterity to operate technology whilst standing (e.g. hydraulically-assisted double-stacking racks).

A range of possible design solutions, along with a set of technical recommendations, are outlined in the following pages.

Dedicated disabled cycle parking

It is widely accepted that disabled car drivers and passengers require parking close to their destination, with most on-street and off-street car parking allocating 5% of all spaces for Blue Badge holders.

A similar principle could be applied to cycle parking, with the creation of dedicated spaces for Disabled cyclists, as Trinity College Dublin has done (see photos opposite and above).

Dedicated cycle parking for disabled students and staff at Trinity College, Dublin: these spaces have step-free access, are clearly delineated and signed
Credit: Trinity

Allocated spaces for non-standard cycles

Specially allocated spaces for non-standard cycles could be installed within existing cycle parking facilities. These spaces should be accessible, step-free and wide enough to accommodate all types of non-standard cycle. To increase the likelihood of non-disabled cyclists leaving them free for their intended use, they should be clearly signposted, with signage denoting that these spaces have been reserved for Disabled cyclists and non-standard cycles, and monitored. They should also stand out in some way so as to differentiate from other cycle parking (e.g. with the use of ground markings, symbols and different coloured paint on stands).

Allocated spaces for non-standard cycles at a hub in Finsbury Park, London Credit: Cyclehoop

BS 8300:2018 Part 1: "where a number of cycles stands are provided, some of the cycle stands should be positioned to allow the parking of adapted cycles, which can be considerably larger than other cycles"

Half-height stands

Most non-standard cycles are either self-standing (tricycles) or have a stand (cargobikes). For such cycles a half-height, longer length stand (similar to that pictured opposite), could be used, which is both low enough to prevent a standard two-wheeled bicycle usefully leaning against it, but at the same time is no lower than half-height (as some people will have difficulties bending down). Such cycle parking bays should be built in groups, be well-marked, well-lit and preferably sheltered, in order to reduce misuse and tripping hazard.

Cargobike parking in Malmo, Sweden. Credit: Kevin Hickman

Ground fixings

Some ground fixings in longer, wider spaces could be used in addition to a low stand. The Motu parking bracket design (above opposite) is not a tripping hazard because it retracts into the ground when not in use. However, these will not meet the needs of some people with limited leg/foot control, or who cannot bend to the ground, and so should only be in addition to the above recommended stands.

Other ground fixings, such as the Taurus Bull Ring (below opposite), can offer similar solutions and are very secure, used for anything from high value cycles to horse boxes.

Credit: VelopA

Credit: FALCO

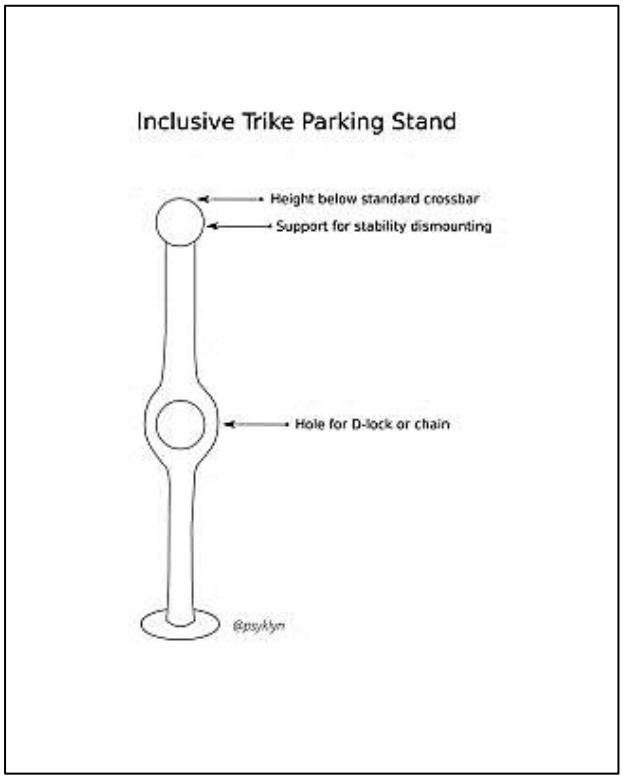
Copenhagenize Bar

Designed for on-street cargobike parking, this innovative system operates by securing a bar to a cargobike without touching it. Newer versions will feature a built-in locking mechanism which can be operated by a swipe card for subscribers.

The Copenhagenize Bar, by Cyclehoop/Copenhagenize Design Company Credit: Cyclehoop

Single pole

Below is a concept featuring a single pole with a hoop in the middle for a cable or D-lock, which could possibly be used in conjunction with a Motu parking bracket (see page above). These stands should be positioned 1.8m to 2m apart.



Credit: Kevin Hickman

(NB: this design idea has not been prototyped. It belongs to Kevin Hickman, Trustee of Wheels for Wellbeing, and is provided with a view to generating further discussion)

Technical recommendations – cycle parking

Dimensions	• The minimum gap between cycle stands/bays should be **1m** • At least one bay for non-standard cycles should be allocated at the end of a row of standard cycle parking stands, with these bays a minimum of **1.5m wide** in order to allow for dismounting
Accessibility	• Parking facilities for non-standard cycles should either be located on **ground level** or have step-free access (e.g. via a shallow ramp or large accessible lift) • Where possible, install cycle parking bays that people on non-standard cycles can **ride into and out of** (meaning no need for reversing, turning or lifting a cycle)
Designation and markings	• **Signage** should be put in place that clearly denotes cycle parking allocated for non-standard cycles (e.g. "*Reserved for cargo and non-standard cycles. Priority to Disabled cyclists*"). Signs should be on a vertical pole • Blue and white paint should be used to **delineate** the area of a non-standard cycle bay (which could also feature a logo that depicts a Disabled cyclist and cargo cycle) • Blue and white paint might also be used on stands/poles to help with differentiation • All signage should be in **large font size** (at least 36pt), with the use of easy read language and symbols for instructions
Further considerations	• **Lighting** in cycle parking bays needs to be at least 100w in order for people with poor vision to be able to read signage • At public facilities a **help point** (similar to those found on tube platforms) should be installed, which includes help for deaf people using British Sign Language (BSL), text and a face so that people can lip-read • Non-standard cycle parking bays should be under **shelter**, not exposed to the elements and nearest to the entrance of any facility it is serving • Thought should be given to the possibility of the **co-location of Disabled car and cycle parking bays**, as well as family car and cycle parking bays • Reserved cycle parking for Disabled cyclists should be monitored and cycles that are wrongly parked should be removed. A Disabled cyclists' **Blue Badge** scheme could help in identifying cycles and cyclists genuinely entitled to park there (see here) • Where no inclusive cycle parking spaces have been provided, a notice should be appended that acknowledges this issue and signposts the user to **alternative provision**, where they can cycle into their destination and store their cycle indoors (e.g. a bookable cycle shed exclusively for use by Disabled cyclists)

Case study: disabled cycle parking

In 2019 Trinity College Dublin installed what are possibly the world's first dedicated cycle parking spaces for Disabled people anywhere.

The spaces were launched as part of Ireland's National Bike Week and on the eve of the international Velo-city conference, which was being held in Dublin at the time. They are located next to Library Square, and are the first of four planned such spots. The move was a result of staff and student initiatives – with around 10% of Trinity's students registered as having a disability – with the university also drawing heavily upon this Guide when designing the unique facility.

The cycle parking spaces, which can accommodate standard and non-standard cycles alike, are clearly signposted, marked with blue paint, and step-free. The new facility could prove to be a watershed moment in moving forward thinking on cycle parking and inclusivity, whilst crucially enabling more of the university's Disabled students and staff to enjoy the physical and mental health benefits that cycling has to offer.

Credit: Trinity

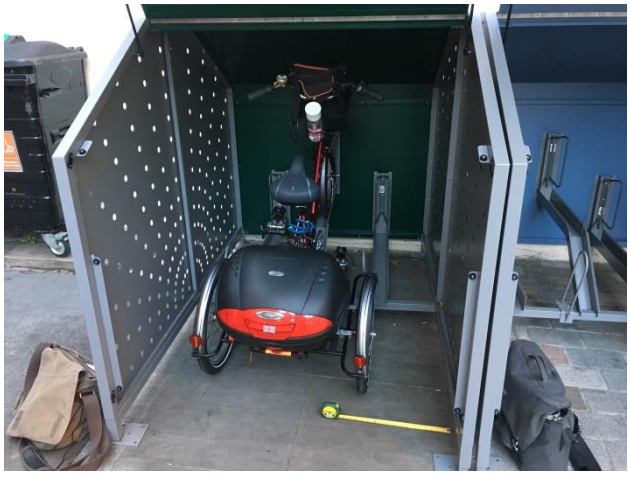
Cycle storage

Cycle storage units, such as lockers and hangers, often exclude Disabled cyclists because they are too small to accommodate the dimensions of larger cycles. Given the expense of non-standard cycles, it is not surprising that many become a particular target for cycle thieves. Having access to step-free, safe, secure storage facilities is vital for Disabled cyclists.

Many existing cycle storage units (like those pictured below) could be adapted or retrofitted to accommodate larger cycles. Buddy schemes, where Disabled and non-Disabled cyclists are paired up to share the same cycle storage space, could also be trialled as part of a wider community initiative.

Providing safer and more secure storage spaces for non-standard cycles not only improves facilities for Disabled cyclists, but other users of non-standard cycles too.

Cycle hanger units in central London, with a tricycle being tried out for size (below right) Credit: Asgard



Policy recommendations

Where new cycle parking facilities are installed, **5%** of all spaces should be allocated for use by Disabled cyclists - matching equivalent provision for Disabled car drivers

Central government, in partnership with local authorities, should consider piloting a **Disabled cyclists' Blue Badge scheme** - granting access to purpose-built cycle parking facilities for Disabled cyclists and helping to identify cycles and cyclists genuinely entitled to park there

The future of inclusive cycling: where next?

Conclusion

Cycling policy has traditionally failed to acknowledge the fact that Disabled people can and do cycle. As a consequence, many cycle networks exclude those who use non-standard cycles to get around, as well as those who use their cycle as a mobility aid.

Together with a public transport system that doesn't accommodate Disabled cyclists, and a built environment that lags behind on accessibility, it is little wonder that many Disabled people chose not to cycle, or can't because the journey they plan to undertake is not fully inclusive.

As a result, many Disabled people are forced to use inactive, polluting and expensive forms of transport. This, in turn, creates an inactivity trap, can increase social isolation and reduce life expectancies - all of which goes against the government's own key policies. But it doesn't have to be like this.

As we have shown throughout this guide, there are a number of steps that central and local government can take to transform the UK into the world's first truly inclusive cycling nation. Three bold steps government could take now would be to:

- **Develop a set of national and inclusive cycle design standards**: in order that predictably inclusive cycle infrastructure is available nationwide

- **Pilot a 'Blue Badge' scheme for Disabled cyclists** : granting Disabled cyclists permission to cycle considerately in non-cycling areas and access to specially allocated cycle parking facilities

- **Support the development of a sustainable national network of inclusive cycling hubs**: ensuring all Disabled people have access to cycling opportunities in their local area

At the same time, it is important that a similar narrative is adopted amongst policymakers, in order to change the way in which transport and health policy is developed. This will lead to a radical re-think about how we design our cycle networks, public transport systems and the built environment. It will also alter our approach to public health and adult social care. Greater training is needed in this regard, whilst inclusive design should form a statutory part of all planning and civil engineering professional qualifications. In R&D, research should be funded to better understand the needs of Disabled cyclists, whilst manufacturers should devise new, innovative and inclusive cycling facilities and cycling-related products.

But aside from policy-level changes, behavioural and cultural change is also needed.

For instance, it is essential that the public begin to see Disabled people not just as pedestrians, bus or mobility scooter users – but also as *cyclists*. This subtle shift in thinking will transform the way in which society perceives disability and cycling. It will also change the way we go about tackling big issues like ageing, physical inactivity and loneliness. This can only happen through education, advocacy and public information campaigns.

As thinking changes, the way in which policies are delivered on the ground will start to change too. **If we all start to think more 'beyond the bicycle' then we will be heading in the right direction towards creating a truly inclusive cycling nation.**

But what might this 'truly inclusive cycling nation' look like?

Cycling in 2050: towards a 'truly inclusive cycling nation'

Below is a description of how a truly inclusive cycling nation might look in future.

Our vision is ambitious, but not impossible. Indeed, many of these ideas are already in existence elsewhere. All that is needed is political will and ambition.

Societal level

It will be commonly understood by policymakers and public that Disabled people can and do cycle - be it for travel, leisure or exercise

Public information campaigns will actively promote and encourage cycling by everyone, including Disabled and older people

Local authorities, employers and businesses will proactively incorporate the needs of Disabled cyclists into their strategies, business and procurement plans

Policy level

Inclusive cycling will form part of a wider government strategy on 'active travel for Disabled people', helping to reverse the physical inactivity and loneliness crises

Transport, environment and health policy will be joined up, with inclusive cycling central to achieving major health and carbon emissions targets

Access to cycling by Disabled people will be facilitated by the NHS, through which cycling is socially prescribed in partnership with a national network of inclusive cycling hubs

Disabled cyclists who use their cycle as a mobility aid will have their own Blue Badge scheme

VAT rules will be harmonised for all mobility aids, including cycles used by Disabled people for this purpose

Infrastructure level

Cycle infrastructure will be replaced by 'mobility lanes', used by Disabled cyclists, non-Disabled cyclists, mobility scooter and wheelchair users alike

It will be commonplace for workplaces and homes to have cycle parking and storage facilities that have specially allocated spaces for Disabled cyclists and non-standard cycles

'Mobility lanes' – the future?

Dutch cycle infrastructure, accessible by bicycles, non-standard cycles and mobility scooters alike.

Developing inclusive cycle networks in this way could improve conditions for those using mobility scooters, which would in turn free up space on the footway and improve the experience of pedestrians, particularly those with sight loss. It would also enable better access for other users of non-standard cycles, including family, freight and cargo cyclists.

Case study: thinking 'beyond the bicycle'

In 2017 a group of people in London got together to form the Beyond the Bicycle Coalition – an alliance representing users of non-standard cycles including Disabled people, those using cargocycles, cycles being used for freight and families.

By meeting on a quarterly basis and maintaining regular contact via an online Slack group, the Coalition has acted as a forum for facilitating discussion and developing ideas that will lead to improved infrastructure, facilities and recognition, along with reduced user costs, for users of non-standard cycles.

To date, the Coalition has been successful in helping to shape the debate around cycling during the 2018 local elections, as well as influence the transport policies of London Borough councils. As well as acting as a forum for users of non-standard cycles, the Coalition works on a case-by-case basis to prevent the installation of access control barriers where they prohibit use by larger cycles.

By working collaboratively with local councils, cycling campaign groups, cycle suppliers and business the Coalition has helped to raise the profile of Disabled, freight and family cyclists in London and promote the common cause of users of non-standard cycles.

The Coalition believes that cycle infrastructure and networks that meet the needs of users of non-standard cycles will, by default, be accessible to *everyone*.

Further reading

Academic papers

"'Invisible cyclists? Disabled people and cycle planning" – A case study of London', *Journal of Transport & Health*, 2018 – link

'Disabled cyclists in England: imagery in policy and design', *Proceedings of the Institution of Civil Engineers*, 2015 – link

Media articles

'Half Of Disabled Cyclists Fear Being Seen On Their Bikes In Case They Lose Benefits', *HuffPost,* 2018 – link

'A rolling walking stick': why do so many Disabled people cycle in Cambridge? *Guardian*, 2018 – link

'How do we build an inclusive culture for Disabled cyclists?' *Guardian,* 2017 – link

'Don't assume Disabled people aren't interested in cycling – or in proper bike lanes', *Guardian*, 2016 – link

Contact us

This guide is a 'live' online working document, which we seek to update as regularly as we can. If you would like to make a comment or suggest a contribution then please email us at info@wheelsforwellbeing.org.uk using 'Guide to Inclusive Cycling – feedback' as the subject line.

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