Walk Wheel Cycle Trust

Accessible journey planning: learnings and recommendations

November 2026



Funded by Motability Foundation

Partners

Walk Wheel Cycle Trust

We're the charity making it possible for everyone to walk, wheel and cycle. We work directly with communities to make change happen. Then we evidence the impact to influence policies to push those changes further. Because people powered movement changes everything. Our health. Our wellbeing. Our world. Let's do this!

www.walkwheelcycletrust.org.uk

Walk Wheel Cycle Trust is a registered charity in the UK no. 326550 (England and Cymru), SC039263 (Scotland) and 20206824 (Republic of Ireland).

Transport for All

Transport for All is the disabled-led group breaking down barriers and transforming the transport system so disabled people can make the journeys we want, with freedom, dignity, ease and confidence. We work with our members to campaign for change, influencing governments, industry and the public.

www.transportforall.org.uk

Transport for All is a registered charity, no. 1063733.

The Motability Foundation

The Motability Foundation is an independent charity that invests in support, transport programmes and research which are critical to giving disabled people in the UK the ability to get around. It oversees the delivery of the Motability Scheme and helps those most in need to access it. It also works with the public and private sectors, and disabled people and groups to create and advocate for inclusive mobility.

www.motabilityfoundation.org.uk

Motability is a Registered Charity, no. 299745 (England and Wales) SC050642 (Scotland).

AbilityNet

AbilityNet is a UK charity that helps disabled people use digital technology. AbilityNet is a UK charity that helps disabled people use digital technology. They specialise in digital accessibility, offering assessments, training, and guidance to help organisations make their websites and services more inclusive.

www.abilitynet.org.uk

AbilityNet is a charity registered in England and Wales, (No. 1067673), and in Scotland registration number SC039866, and a Company Limited by Guarantee in England and Wales (No. 3469653)

Yoyo Design

Yoyo Design is an award-winning digital agency based in Kent, UK. They specialise in web design, development, and branding, with a focus on purpose-led and charitable organisations and are one of the first B Corp certified digital agencies in the UK.

www.yoyodesign.com

Yoyo Design is a is Private Limited Company (No. 4502096)

Advisors

Wheels for Wellbeing

Wheels for Wellbeing is a Disabled People's Organisation and charity who work for equal access to cycling, active travel and multi-modal journeys for Disabled people on a pan-impairment, pan-mode basis informed by principles of equity, mobility justice and The Social Model of Disability.

www.wheelsforwellbeing.org.uk

Wheels for Wellbeing is a charity registered in England and Wales (No. 1120905) and a UK Company Limited by Guarantee (No. 06288610)

Language

Disabled people

For brevity, we use the term ‘disabled people’ to include people living with a physical or mental health condition, which has a long-term, substantial effect on their ability to carry out normal day-today activities. By long-term we mean 12 months or more. This is the definition used within the Equality Act 2010; however, it’s not necessarily how all disabled people identify.

Walking and wheeling

We recognise that some people who use wheeled mobility aids, for example a wheelchair or a mobility scooter, may not identify with the term walking and may prefer to use the term wheeling. We use the terms walking and wheeling together to ensure we are as inclusive as possible.

Digital journey planning and mapping

Digital journey planning and mapping refers to the use of digital tools, like apps or websites, to record and visualise the physical routes people take in the real world. These tools usually use GPS data to track movement, identify obstacles and suggest alternative routes in real time.

Prototype

For the project this document describes, the team used software for designing app and website screens. A prototype created using this software links those screens together with clickable connections so you can click through them like a real product, even though it’s just a simulation. A prototype is not actual software. There’s no real code running behind it, no database, no saved user data, and no logic beyond what has been manually drawn.

Contents

Foreword 7

Executive summary 10

The problem 10
What this project set out to do 10
What are we asking? 11

The case for change: Why this matters 13

Disabled people's organisations 15
Government and decision-makers 15
Digital journey planning and mapping sector 15

The approach: How we got here 16

The approach 17
Why we started this work 17
Building on Phase One 18
Building robust foundations 18
Building trust in the approach 19
What we learnt 19

What disabled users need: Thematic findings 21

1. A reduced cognitive load. 22
2. Personalisation based on individual access needs 23
3. The value of crowd-sourced, lived-experience content 25
4. Contextual delivery of information 26
5. Independence, confidence and emotional wellbeing 28
6. Accessibility is not universal, but it is attainable 30

How these findings should shape the future 32

1. Clearly communicate what the tool is and what it can do for them 33
2. Make interfaces fully compatible with assistive technologies 33
3. Reveal information at the right time, not all at once 35
4. Features send powerful signals 35
5. Refine route content to support decision-making 35
6. Don’t underestimate community comments as a trust signal 35

The shared agenda 38

1. Collect and share accessibility data. 39
2. Make data work with assistive technology, not around it 40
3. Treat co-creation with disabled people as a design method, not a checkbox 42
4. Engage with this project, and kick-start collaboration 43

Appendix: methodology, research and technical insight 44

Research and design stages 45
Participant diversity 45
Issues identified in our research 45
Items deferred from the final phase 46
Data mapping 46
WCAG 2.2 AA considerations 46
Prototype limitations 46

Foreword



At Walk Wheel Cycle Trust, our purpose is to make it possible for everyone to walk, wheel and cycle. For disabled people, that means being able to plan a journey with confidence, with information that reflects their needs and the choices available to them. Accessible journey planning is about more than finding a route. It is about independence, inclusion and the freedom to take part in everyday life.

The Accessible Journey Planning project is a practical step towards that purpose. It asks what it would take to design and build a digital journey planning tool prototype with disabled people's needs and experiences at its heart. Technology alone is not enough. The information behind it must reflect real journeys and real barriers, and the tools themselves must be genuinely usable, not just nominally compliant. Listening to disabled people and bringing together the organisations that influence, fund and build these tools are central to making progress.

This report shares what we learned across two phases of research and design: what worked, what did not, and what still needs to change. This is a foundation for shared action, bringing together disabled people's organisations, government and decision-makers, and the digital journey planning and mapping sector. Each has a role in turning learning into better information, more inclusive tools and greater confidence to travel. Together, we can help ensure that "everyone" is not simply an ambition, but the starting point for how journeys are planned.

Paul Twocock
Executive Director, Strategy and Engagement
Walk Wheel Cycle Trust



Case study

Hussein



I'm Hussein, I live in Aberdeen. I'm registered blind from birth, but it's a progressively deteriorating eye condition, so my access needs are always changing.

Because my condition is degenerative, the amount of information I need to make decisions about navigating the world keeps increasing, proportional to what I can still see for myself. Right now that mostly affects way-finding, discovering routes, identifying obstacles, and even just knowing what's around me.

I don't cycle any more, my vision's below the level where I could do that safely, but I enjoy tandem cycling. I can get out with my long cane on routes I know well, but for anywhere new I need a huge amount of information for safety and general orientation.

What matters most to me is trust that what the map tells me is what's on the ground.

If I'm told to turn right, I will immediately, I won't know that the directions mean the next turning right, which could be in a few meters. Where it gets hard is wide open spaces, or places with multiple turnings close together.

If the directions aren't precise it can be a safety issue.

If I were designing the perfect tool, it would give me proper turn-by-turn detail, and relative directions like "in 30 metres, at your 10 o'clock".

It would tell me what's around me, too, since I need to rest fairly often. It's not only about getting from A to B. Most people go exploring the countryside to take in what's around them, a tool should reflect it.

I think the team did the best they could, given they were trying to make something a wide range of disabled people could take part in.

Being involved was a good experience overall.

I appreciated being able to comment on the descriptiveness of the text and being able to put myself in a user's shoes and ask whether I'd use this in real life.

If I could say one thing to people investing in tools like this, it's that the value of involving people with a wide range of disabilities can't be overstated. It's easy to assume a blind person would never be out walking a rural route alone, but that's false logic, and it holds accessibility and inclusion back.

Executive summary

The problem

Disabled people who walk, wheel, or cycle often cannot rely on existing digital maps, where critical information is frequently missing, inconsistent, or incomplete.

Disabled people cannot rely on digital maps or journey planning tools to walk, wheel or cycle because critical information is frequently missing, inconsistent, or incomplete.

Most tools do not incorporate barriers disabled people face, including physical barriers such as width-restricted barriers or steps, difficult surfaces such as gravel or grass, sensory environments like busy areas and traffic, and amenities including toilets and car parks.

What this project set out to do

Funded by the Motability Foundation, Walk Wheel Cycle Trust and Yoyo Design set out to understand what a genuinely accessible digital journey planning tool would require, not just in terms of data, but in terms of design, language, and lived experience.

The project ran across two phases. The first established an initial proof of concept, tested with eight disabled participants, which confirmed both the potential of the prototype and the scale of work still needed. The second phase took those findings as its foundation and subjected the design to four iterative rounds of scrutiny: a formal accessibility audit against WCAG 2.2 standards conducted by AbilityNet, a focus group with disabled users, and two structured rounds of user testing. This second phase ultimately produced a prototype alongside this final public report sharing what we learnt and what we recommend to ensure digital journey planning tools can better meet the needs of all disabled people in the future.

Throughout, disabled people's lived experience was not a consultation exercise. It was the driving force behind every design decision.

What are we asking?

Within this project, we have surfaced clear evidence of what needs to change when it comes to designing an accessible journey planning tool. Designing for accessibility means designing for everyone, and we are calling on key stakeholders across the following areas to act on these findings.

Disabled people's organisations

Use this evidence to hold others accountable, push for co-design as standard practice, and ensure disabled people are resourced to participate rather than simply consulted.

Government and decision-makers

Invest in innovation around digital and real-world accessibility solutions, set standards and guidance for digital journey planning and way-finding in line with the Equality Act, and continue funding the removal of barriers as standard practice within active travel schemes and transport more broadly.

Digital journey planning and mapping sector

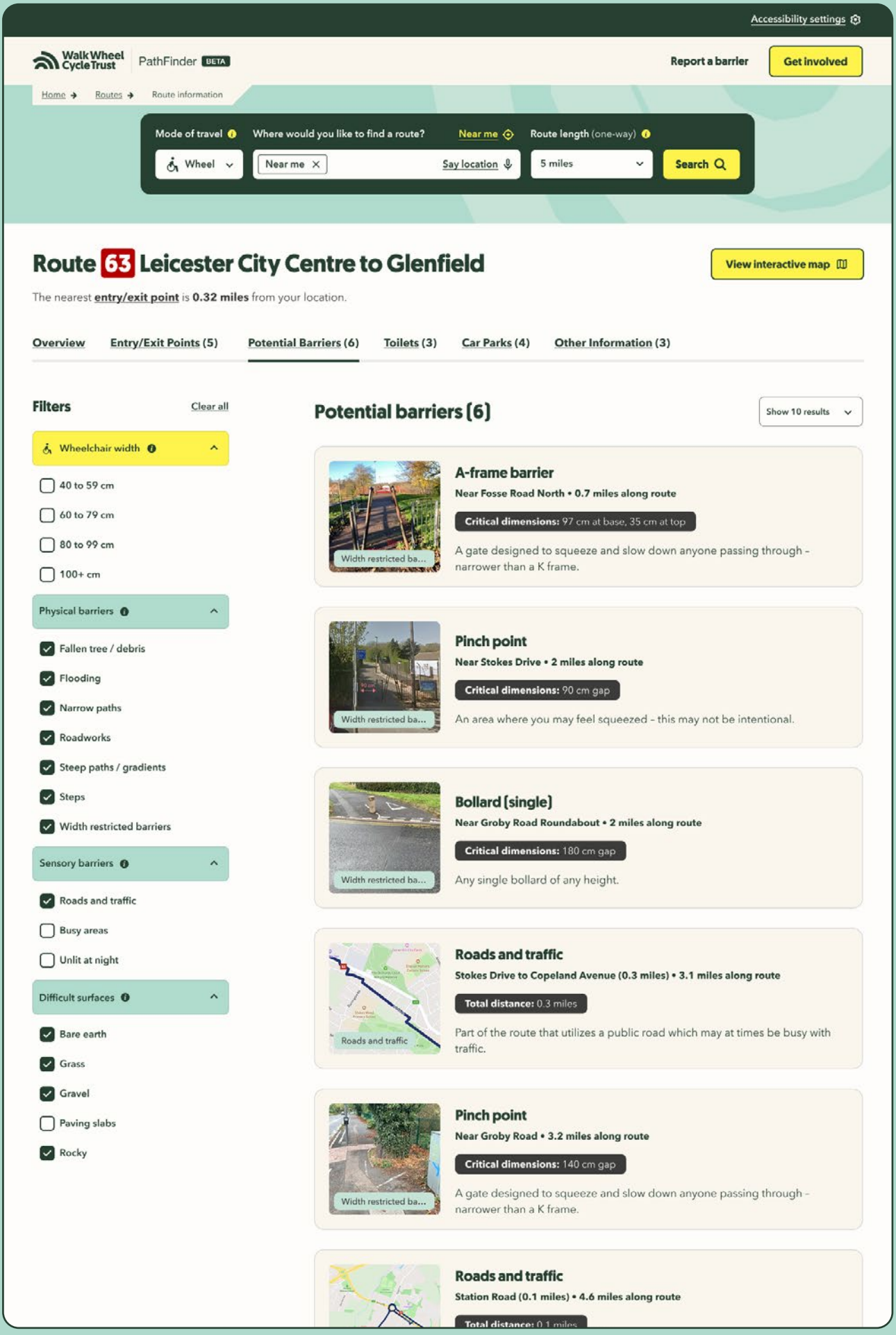
Embed lived experience into your design process, build for assistive technology from the start, and pursue the data partnerships that make inclusive and accessible tools possible.

User feedback

Maps are not built with visually impaired people in mind. They're built with people who are able to spot landmarks... The value of involving people with a wide range of disabilities can't be overstated

– Participant 1

Photo: The tool has been designed to enable users to search and find routes on the National Cycle Network, according to their proximity and mode of transport.



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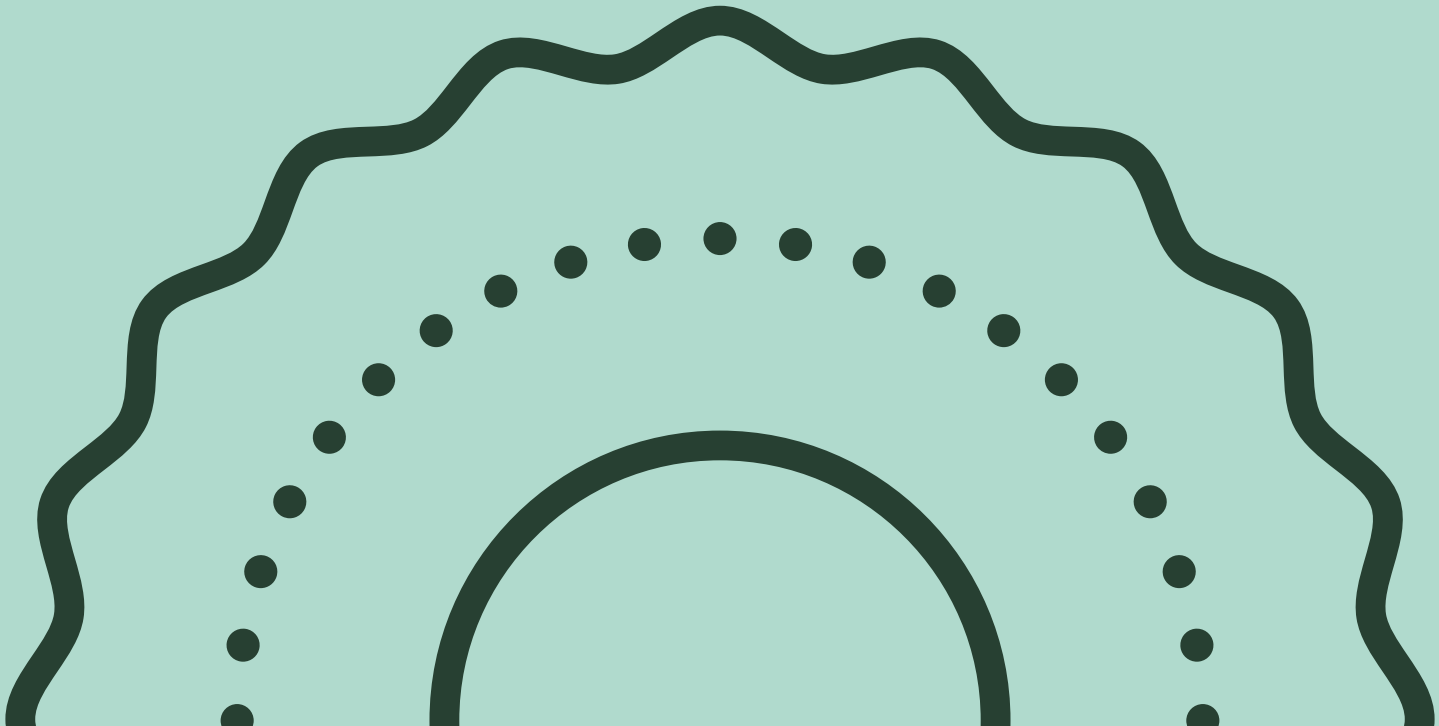
Section 1

The case for change: Why this matters



Why this matters

Developing a tool that provides accessible digital journey planning is not a niche concern. It is a question of rights, independence, and opportunity, and the consequences of getting it wrong are felt every day.

When people cannot rely on journey information, they face a choice between taking risks with unknown routes or not travelling at all. That shapes whether someone can get to work, attend a medical appointment, or simply move through their community with confidence. The barriers are not just physical, they are informational, and fixing them requires the same commitment we would apply to any other equality challenge.

It is also worth remembering that accessibility benefits are not just felt purely by disabled people, but felt by everyone. Better surface information helps a parent with a pushchair. Clearer gradient data helps an older person planning a walk. Accurate route information helps a tourist navigating an unfamiliar area.

User feedback

"I don't really want to be left alone in an area I don't know, worrying about how to get back."

– Participant 2

"It's a huge barrier and a huge concern to me and a lot of other disabled people... there's a lot of stress, a lot of anxiety about new places... You do end up very isolated."

– Participant 3

Disabled people's organisations

For disabled people, unreliable journey information is a barrier to everyday life. The inability to plan a route with confidence affects access to employment, education, healthcare, shopping, and community. For many, it is the difference between participating and staying home. This is at its core an issue impacting their human right to move freely and independently to access the same spaces and opportunities as everyone else.

Government and decision-makers

The **Equality Act 2010**[1] places a duty on public bodies and service providers to make reasonable adjustments. Inaccessible journey information is not a neutral omission, it is a failure to meet that standard. Beyond the legal case, the economic argument is compelling. Disabled people and their households represent a spending power estimated at **over £274 billion annually in the UK**.[2] Removing barriers to participation is not just the right thing to do; it grows local economies, reduces isolation, and supports Government priorities across the UK relation to transport, the economy and the cost of living.

Digital journey planning and mapping sector

The market for genuinely inclusive journey planning and mapping tools is largely unmet. The disability community is not a small or peripheral audience, it represents millions of users whose needs are currently underserved. Getting this right first creates a significant commercial and reputational opportunity, as well as setting a standard that will increasingly be expected by regulators, commissioners, and users alike.

[1] **Equality Act 2010**, c. 15. Her Majesty's Stationery Office.

[2] House of Commons Women and Equalities Committee, **The Disability Pay Gap** (HC 605, 2024)

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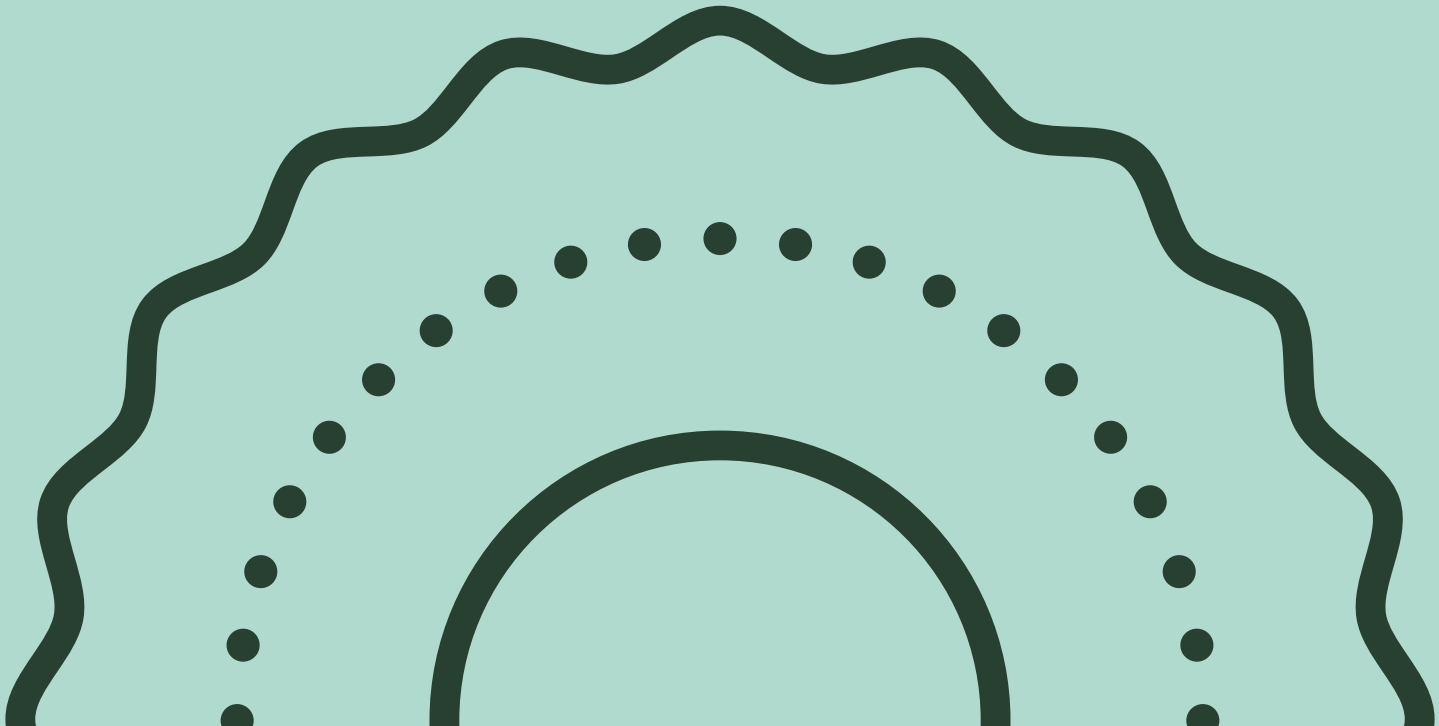
Section 2

The approach: How we got here



The approach

The Accessible Journey Planning project started from a straightforward position: disabled people have a right to the same quality of journey planning information as anyone else to walk, wheel or cycle. What followed was a two-phase programme of research and design with disabled people's lived experience at the centre of every decision.

Why we started this work

Many widely used journey planning and mapping services offer convenience but lack information that many disabled users need before they can feel confident undertaking a journey. Information about accessibility is either absent or presented in ways that are not fully accessible. Walk Wheel Cycle Trust are custodians of the National Cycle Network and in 2018 we asked our amazing volunteers to audit the Network across the UK. They collected information about surface types, steps, chicanes, gates, toilet facilities, and other features that could prevent or hinder disabled travellers. This work culminated in a valuable public report, the Disabled Citizens' Inquiry.[1]

At the same time we found that 80% of disabled people would find online information about the accessibility of off-road walking routes useful to walk or wheel more. The Accessible Journey Planning project, generously funded by the Mobility Foundation, set out to create a digital journey planning and mapping tool prototype to provide information for disabled people to understand and plan journeys in an easier, safer way and to capture and share all our learnings.



[1] Walk Wheel Cycle Trust, 2023. '**Disabled Citizens' Inquiry**'

Building on Phase One

A Phase One proof of concept prototype was designed in a separate workstream in 2024/2025. AbilityNet tested it with eight participants with diverse access needs. Users saw potential in what had been built, but the tool had significant shortcomings that shaped Phase Two. The most prevalent issue for users across the board was the inoperability of the traditional map interface for disabled users - for those that rely on all types of assistive technologies and those who have difficulty with cognition, memory or spatial reasoning.

Other notable issues included:

- An unclear purpose.
- Over-reliance on colour and icons to convey meaning.
- A 'Report a Barrier' feature that was difficult to find and use.

Building robust foundations

Phase Two was structured around four design versions, each shaped by real user input. AbilityNet, a UK digital accessibility charity served as both the accessibility consultancy and the facilitator of user research. Walk Wheel Cycle Trust provided domain expertise and stakeholder direction. Yoyo Design led user experience and technical data consultation throughout. The project was further strengthened by the involvement of Wheels for Wellbeing and Transport for All, whose expertise helped ensure that disability-led thinking shaped both the governance and design of the project.

Web Content Accessibility Guidelines (WCAG) 2.2 were treated as a baseline throughout, not a benchmark to stop at. WCAG provides an internationally recognised framework for making digital content accessible to disabled people, organised around four core principles: Perceivable, Operable, Understandable, and Robust. Level AA is the most widely adopted standard for legal compliance. The project aimed to meet and go beyond it, with AbilityNet's knowledge of digital accessibility shaping a process that prioritised genuine usability over formal compliance.

A Data Mapping Exercise was conducted alongside the design work to test whether proposed features could actually be built using existing datasets, and to assess how spatial mapping data could be turned into structured, accessible outputs that matched what users said they needed.

Building trust in the approach

Lived experience was central at every stage. Participants were recruited across a diverse range of access needs, including wheelchair users, people with sight loss, neurodivergent people, people with mobility impairments, and people using screen readers, screen magnification, and voice recognition software.

The Phase Two research programme included an initial AbilityNet accessibility design review of Prototype V1, a focus group with seven disabled participants on Prototype V2, a first round of usability testing with six participants on Prototype V3, and a second round with six participants on Prototype V4. Each round produced specific, actionable feedback that shaped the next version.

What we learnt

When participants understood what the prototype was for, they trusted it faster, even if usability issues surfaced later. WCAG compliance mattered, but it was never going to be enough on its own. Designing for real people in real contexts requires more than meeting a checklist. And the research confirmed that the iterative, participant-led approach was working, and the change in tone between rounds one and two of usability testing was direct evidence of that.



"Accessible travel is an essential part of life, to keep people safe, to maintain quality of life, and independence. It's absolutely critical that technology catch up to the needs of our communities"

- Ellie Barrett, Yoyo Design

Case study

Jenna



I'm Jenna, and I live in rural North Wales. There's no public transport, so any trip beyond the village means going out in my wheelchair or with my rollator.

I have chronic fatigue and POTS (postural orthostatic tachycardia syndrome) which means I have to exercise for my heart, but I pay for it because I get so worn out.

I mostly stick to routes I know and rely on my parents (my mum is my carer) judgement as to whether somewhere is manageable.

When I'm planning, what matters most to me is accessible parking, surface and the path width.

I was excited about the project, especially the idea of routes being kept up to date by the people using them. Knowing that the information is up-to-date is incredibly useful and important.

I liked the bullet-point summaries, but for me they work best alongside a short descriptive paragraph. Different people are going to prefer different formats depending on their needs.

Being part of the research felt nice, and I said yes as soon as I was invited. It felt worthwhile; a chance to give input on something built for disabled people, by involving disabled people, rather than being designed around us.

This is something where I can give my opinions and be involved in something that could help a lot of people.

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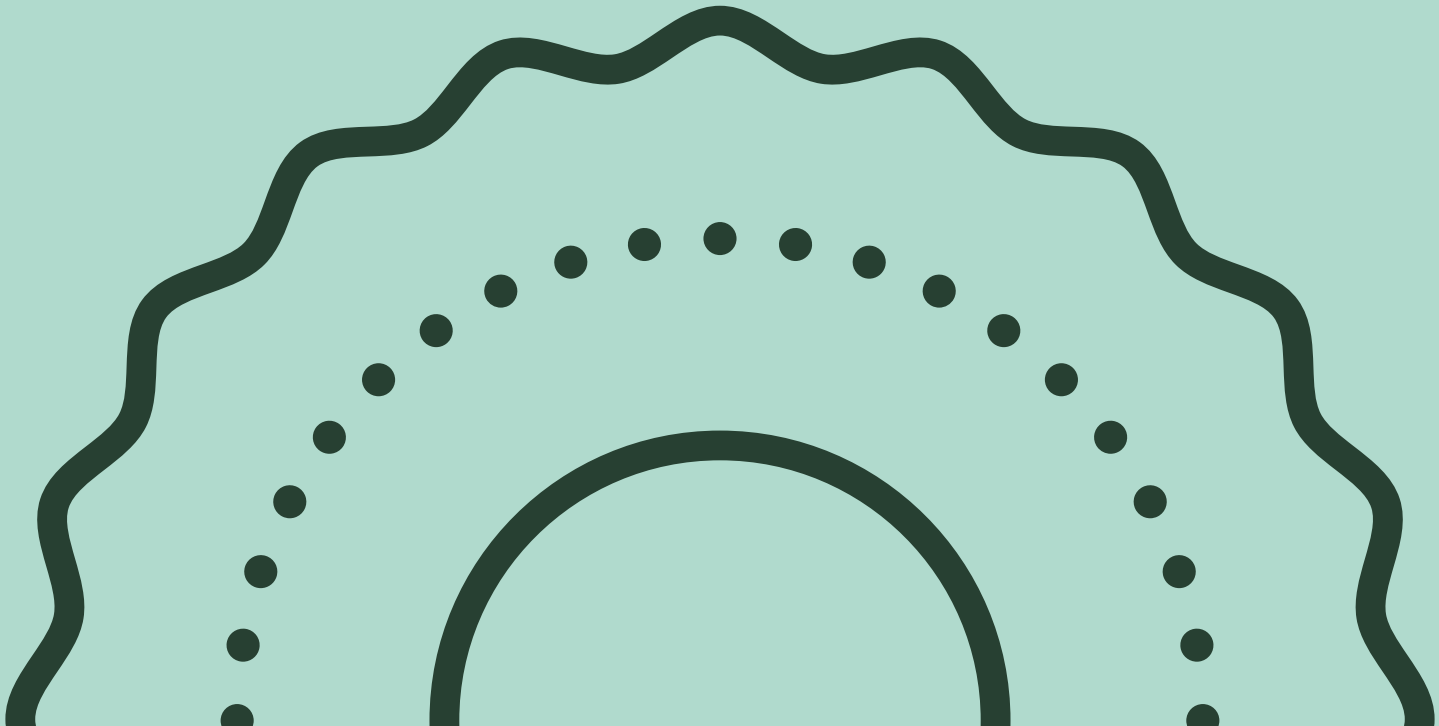
Section 3

What disabled users need: Thematic findings



What we found

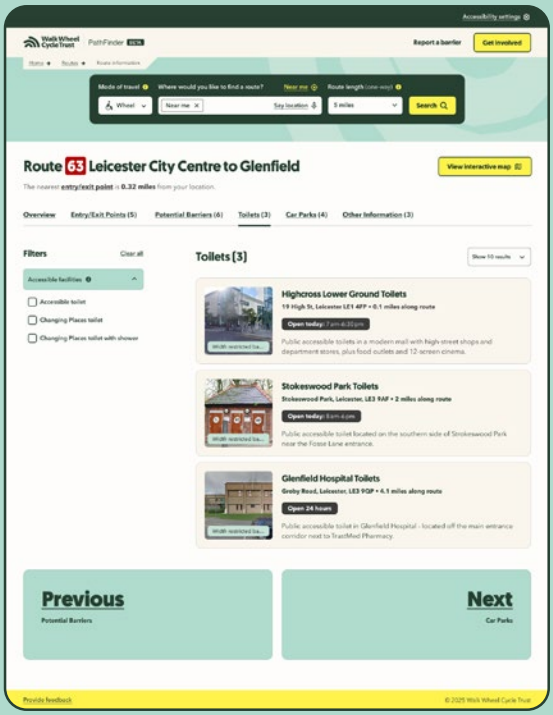
The research built a clear evidence base. Disabled participants told us consistently that the prototype's value lay in reducing uncertainty and expanding their sense of what was possible. The change in user sentiment between the first and second rounds of testing was marked: from raising concerns to expressing genuine delight. By the final round, participants understood the prototype's purpose, trusted its direction, and could see themselves in the design, and accessing places they previously wouldn't have.

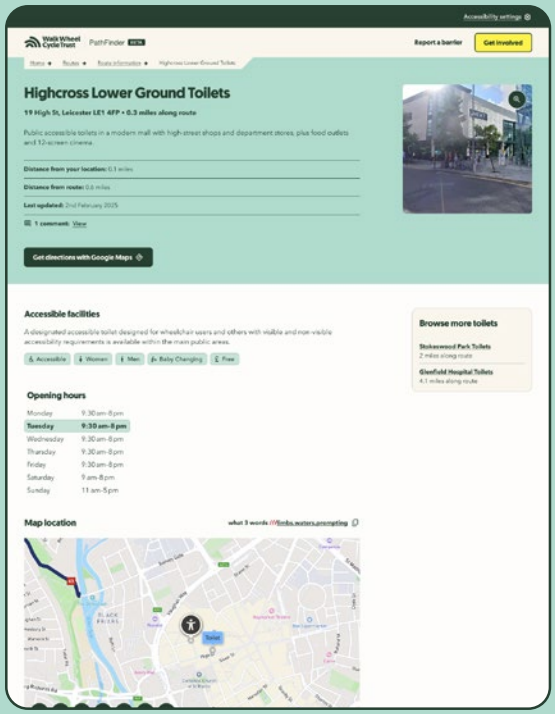
1. A reduced cognitive load

Participants raised concerns about how much information was presented at once throughout focus groups and user testing. Content that worked well for some users created cognitive overload for others. The research made clear that accessible design cannot be built around a single assumed user. Different conditions create genuinely different needs when it comes to how information is presented.

The updated prototype incorporated simplified language, restructured content hierarchies, and progressive disclosure, ensuring detail was available to those who needed it without overwhelming others. Ultimately, systems should empower individuals to adapt their own experience, achieved here through expanded user controls while avoiding visual clutter or a steep learning curve for new users. Striking this balance remains a key design challenge going forward.

Photo: A listing of toilets located along the selected path with their own detail pages to surface information as and when the user needed it. This reduced cognitive load allowing the user to digest information easier.





2. Personalisation based on individual access needs

Disabled users needed the tool to reflect their specific situation, not a generic notion of what accessibility means. A one-size-fits-all approach inevitably leaves gaps, failing the users whose needs fall outside whatever assumptions were built in.

Within the prototype, personalisation was introduced through filters allowing users to select their mode of travel and receive tailored options based on that selection, such as wheelchair width. These were among the most positively received features in testing, with participants responding strongly to the sense that the tool had been designed with genuine knowledge of their needs rather than a one-size-fits-all approach to accessibility.

User feedback

Despite none of the participants knowing the width of their wheelchair, some of the strongest feedback in our user testing was in reference to the wheelchair width selector, which participants found both empowering and novel:

"Really impressed by wheelchair width as an option"

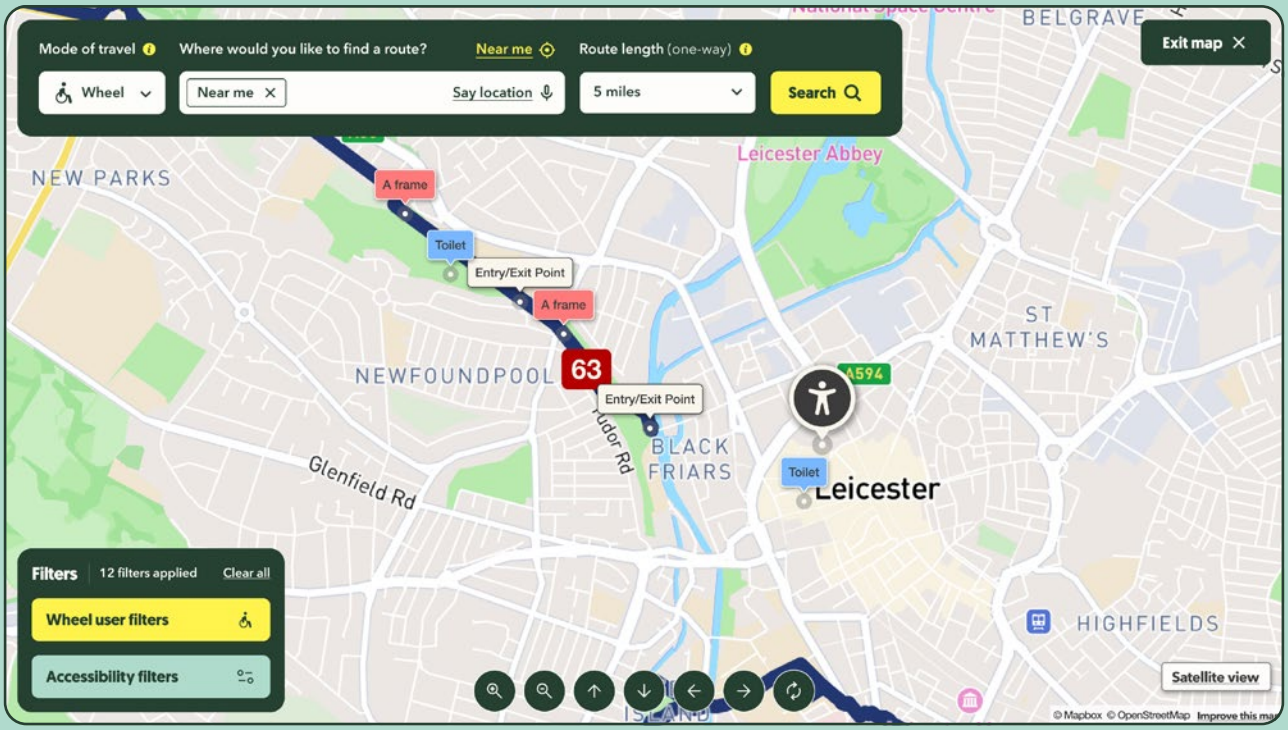
- Participant 6

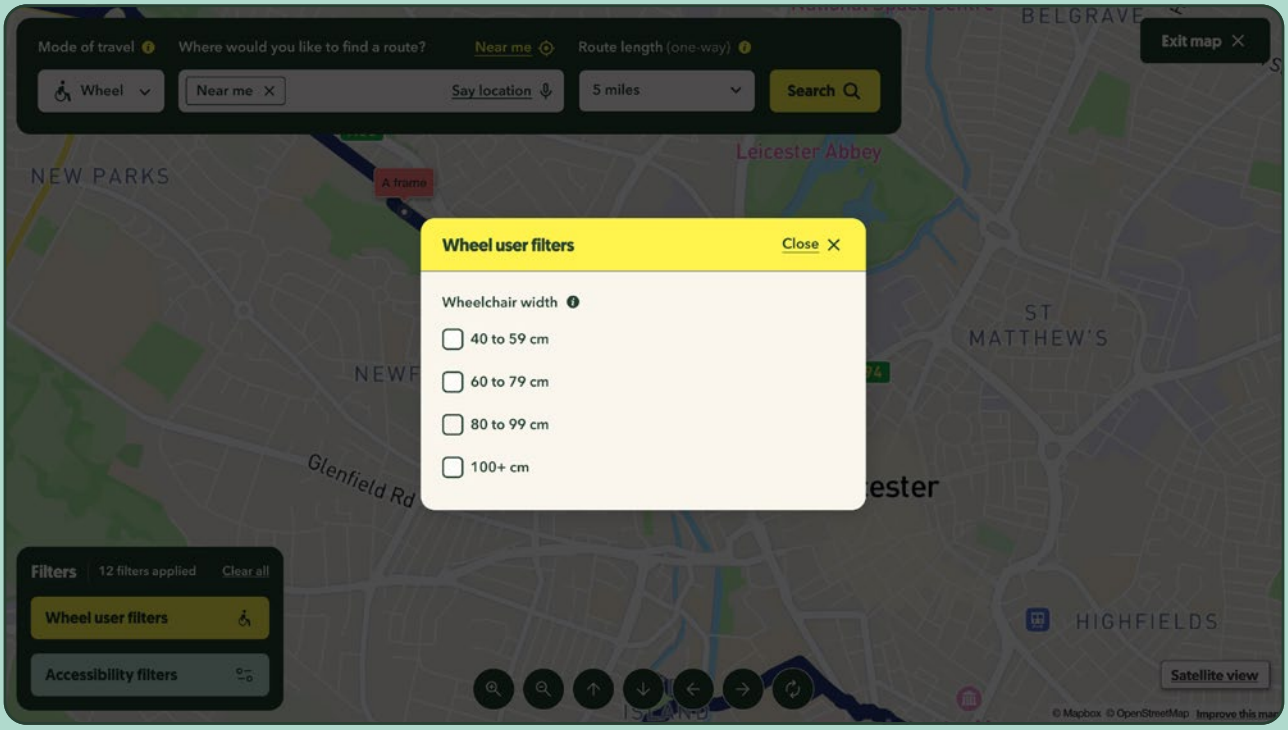
Beyond delight, this feature subtly encourages self-knowledge and agency among disabled users, which is a powerful outcome rarely noted in mapping tools.

"I don't know the width of my chair...I am glad to see street maps so I can make my own decision on whether my wheelchair will fit"

- Participant 7

Photo: The wheelchair width selector. Beyond its functional value, the filter's presence told participants something about how the tool had been built. Features that signal inclusion build trust.





3. The value of crowd-sourced, lived-experience content

Participants responded quickly and positively to the idea of other users contributing real-world knowledge. Two features emerged from this: a ‘Report a Barrier’ flow for flagging accessibility problems on routes, and a community comments section for adding peer-to-peer context about barriers and facilities.

The principle behind both was immediately understood, because participants already rely on lived-experience sharing in their own lives. One participant described watching videos of a disabled person wearing a camera while navigating journeys, because it gave them the confidence to know a route was genuinely passable.

Within the prototype, both features were introduced as two distinct flows: a structured reporting mechanism for barriers and a freeform comments section for peer context. Alongside this, design decisions addressed the risk of duplication and unclear barrier submissions, such as prompting users to check whether a barrier in the same area had already been reported and required fields for essential data on the barrier.

The underlying point held: the ongoing collection of disabled users’ lived experience is worth more than interface changes alone. Whilst technically simple, this functionality also increases the need for moderation, comment reporting, and the other safety features we see across popular apps and websites that rely on user-generated data.

Photo: The community comments section in Prototype V4. Participants valued it, and the implication that the tool and the data it holds are community-built and community-led.



4. Contextual delivery of information

For way-finding to be safe and efficient, users described a need for richer detail. Traditional journey planning and mapping tools detail key landmarks but lack barrier data, users don't want to have to switch between multiple solutions to plan their journeys.

No tool can provide exhaustive data, and so context rich route descriptions enable users to glean what they need to make risk assessments. One user described how places likely to be crowded with young children can present a barrier to them, and therefore that information for them could be key to journey planning.

Within the prototype, richer route descriptions were introduced to provide contextual detail beyond standard mapping information. This was one of the most positively received changes in user testing, with participants responding well to the additional context that helped them make more informed decisions about whether a route was right for them.

User feedback

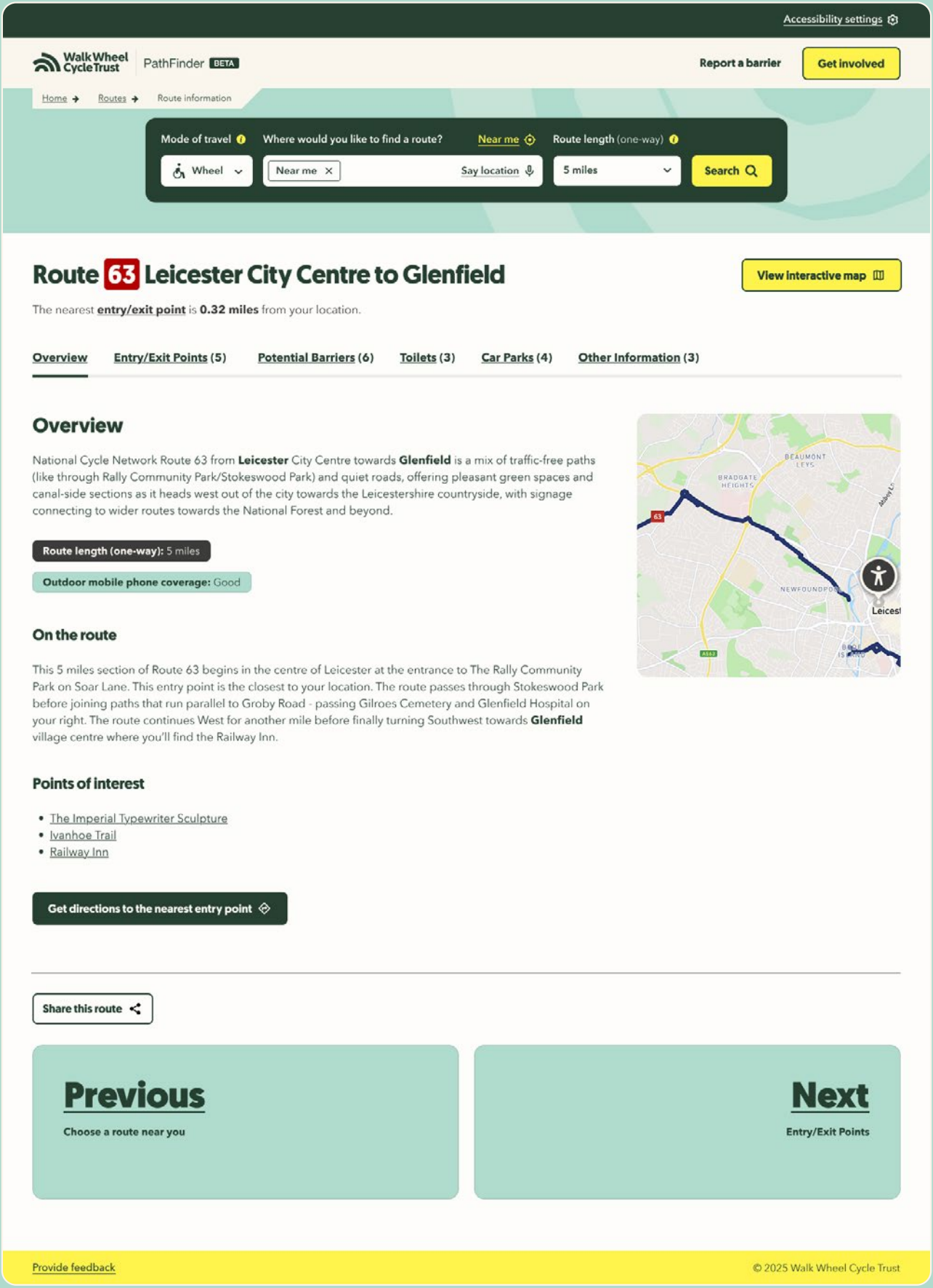
Screen reader users in particular found route descriptions too sparse. A route length and an endpoint were not enough. They needed to know what the route passed through, and what landmarks they would encounter.

"It tells you lots but not about the area...does it pass shops, cafés, towns?"

- Participant 6

Route descriptions were rewritten to include a narrative 'On the route' section covering key landmarks, settlements, and waypoints. Cardinal directions were replaced with place-name phrasing, so orientation did not require a compass. It was clear that to many users the data that came from other disabled users was by far the richest - with one user citing that he regularly watched long form footage of other disabled users navigating routes to determine whether or not it would be accessible for him.

Photo: The path information screen, showcasing overview details alongside additional information such as mobile phone coverage and points of interest, helping users make more informed decisions.



5. Independence, confidence and emotional wellbeing

Across every round of research, participants returned to the same theme: the emotional value of planning a journey with confidence. If the project delivered on this outcome alone, it would still have a huge impact. By the final round of testing, participants weren't just describing a useful tool, they were articulating the wider ways it could improve their quality of life. What's striking is that this was true even in round one, before many user-led improvements had been made, when participants were already expressing excitement about the potential for greater independence.

Within the prototype, screen reader compatibility and content structured for assistive technology were built in throughout, alongside additional accessibility settings to support users with sight and sensory challenges. This was a conscious design decision based on user feedback requesting greater independence when planning and navigating routes.

User feedback

Users were nearly unanimous that an accessible route-finding tool would give them greater agency over their journeys.

"Having an app that tells you about walks that are accessible... would be incredibly useful."

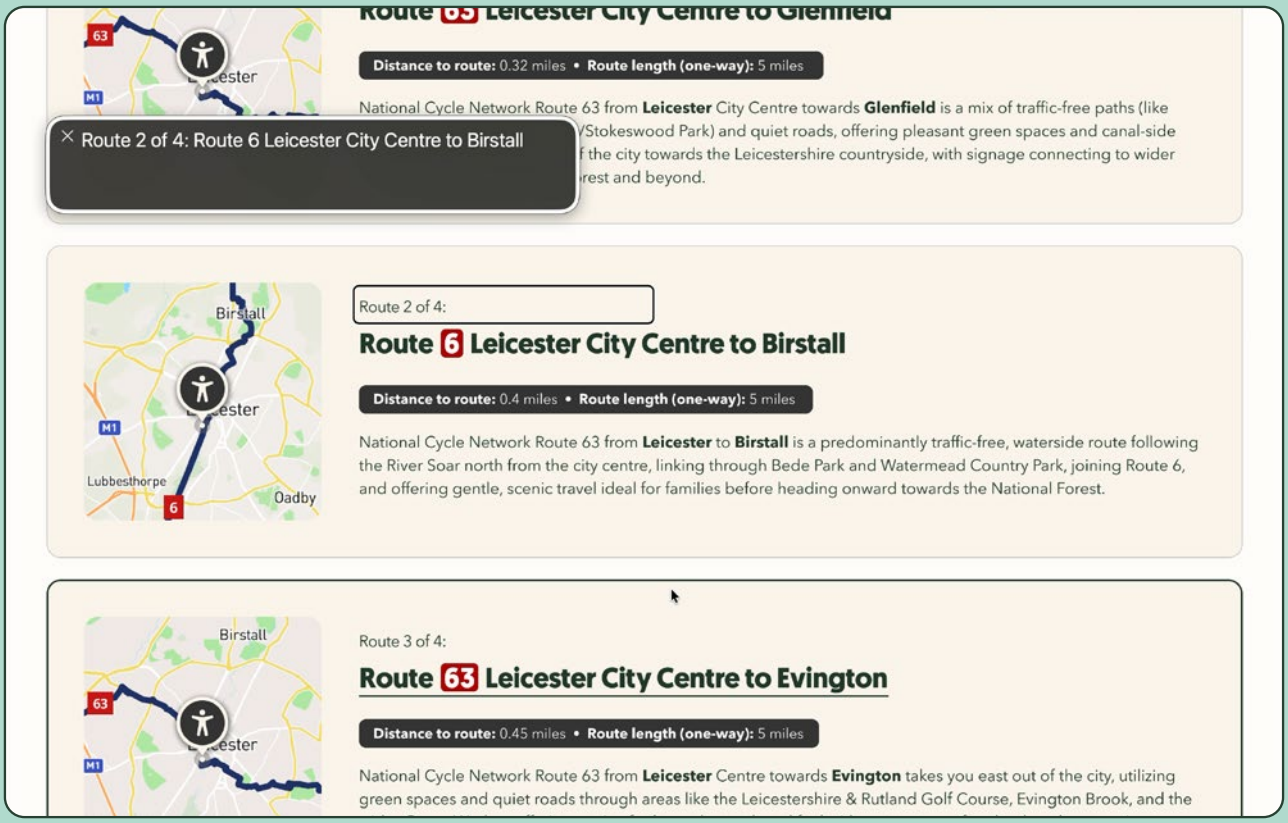
- Participant 4

Users also discussed a disparity between the need for entirely accessible routes with no barriers, and the need for the information necessary to plan around existing barriers.

"I would love to be able to go on a new walk independently. It would be great for my mental health as well."

- Participant 6

Photo: The VoiceOver assistive technology on Mac, testing the information read out for each path option presented in a list, in this case the route number (2 of 4) and title (Route 6 Leicester City Centre to Birstall).



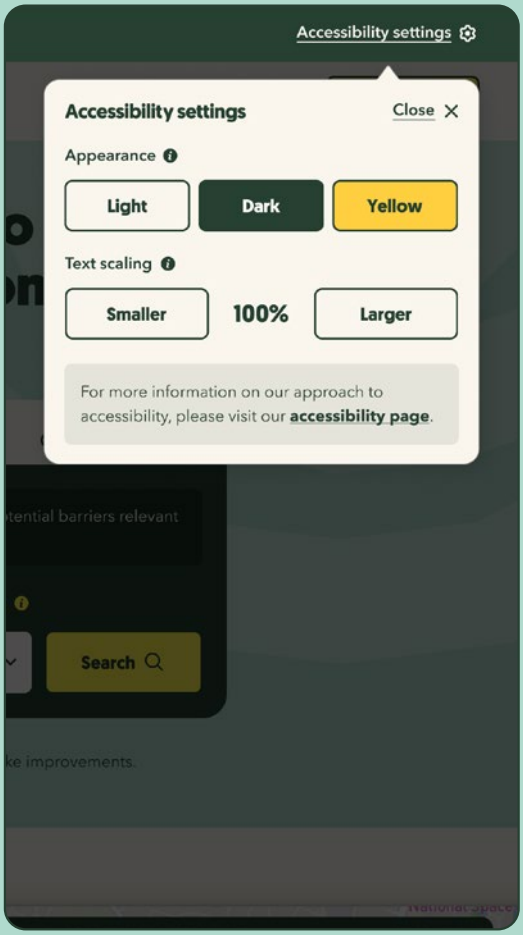
6. Accessibility is not universal, but it is attainable

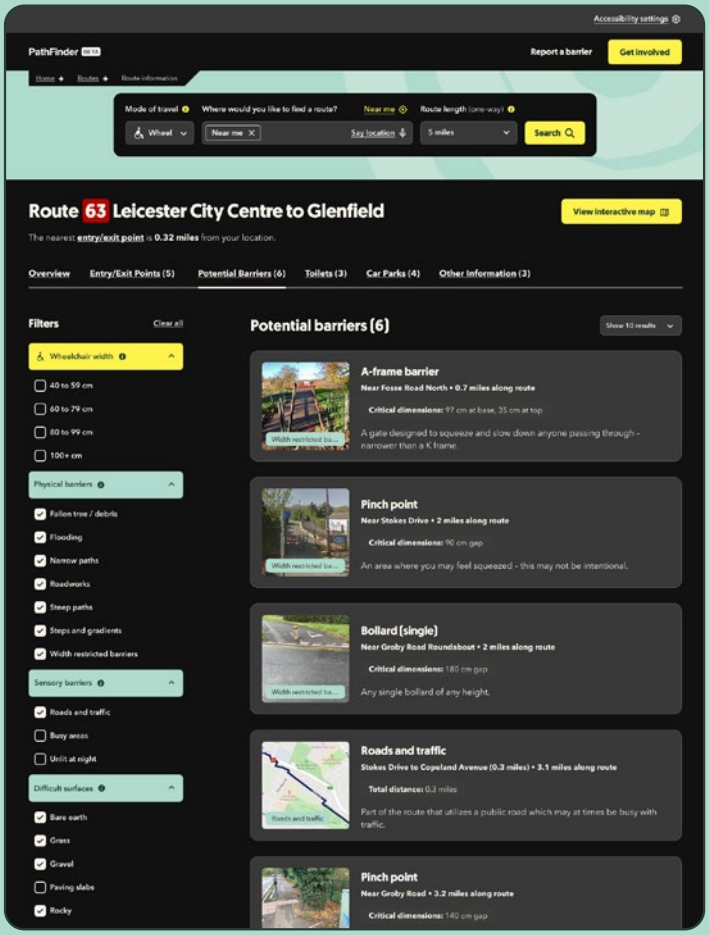
One of the most consistent findings across the research was that the same feature meant different things to different users. A diverse participant group stress-tested the tool across a wide range of access needs, and what came back was a more honest, more textured picture of what accessible design demands.

Within the prototype, whilst the personalisation filters helped users find their ideal journey, the accessibility settings such as light, dark, and yellow colour modes helped ensure they could use the tool comfortably and confidently. Both emerged from the diversity of the participant group, and neither would have been as well developed without it.

It's a common pitfall in digital design globally, to find professional teams that are so worried about not designing accessible content perfectly, that they decide to abandon the idea of doing more than any competitor. However, it was more important to represent a detailed respect for lived experiences, than to attempt to over-simplify user needs into abstraction.

Photo: The global accessibility settings feature, showcasing the appearance options and text scaling options to tailor the web application experience to the user.





User feedback

Throughout the research process, participants expressed that just knowing that they were being consulted on the design of a tool made them feel good. Users didn't always agree on functionality details, but the notion that co-design was a positive approach was never contested.

"Simply by the tool being developed I felt more included."

- Participant 6

A respectful, receptive non-reductive approach to design for disabled users also helped to build trust between users and the new tool.

"(The tool is) informative without being patronising."

- Participant 2

In some instances, just the presence of particular filters signalled to users that a lived experience had been included in the design process, further improving trust in the tool.

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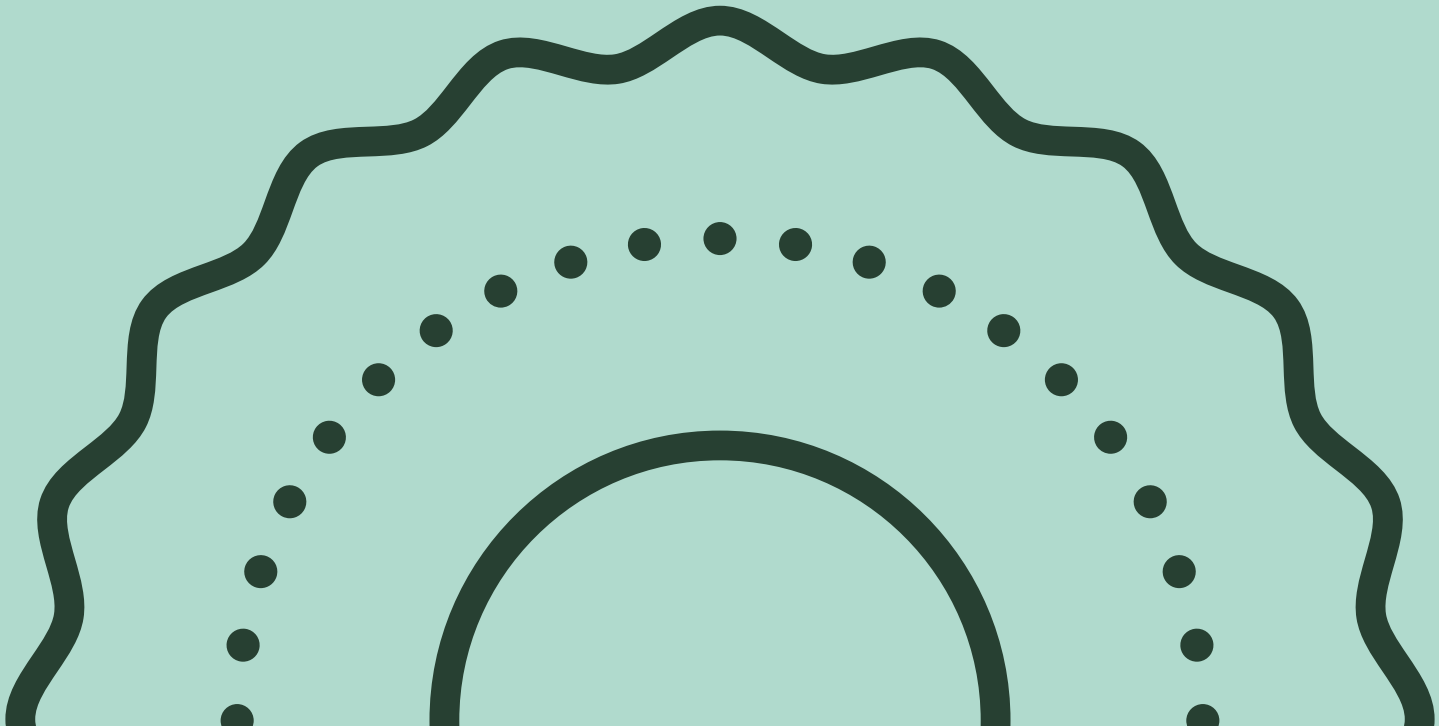
Section 4

How these findings should shape the future



How findings from this project should shape future tools

The research produced design decisions, not just insights. What follows are the principles that came from translating participant feedback into the prototype. They are framed as principles rather than product features because the intent is for them to be useful beyond this project.

1. Clearly communicate what the tool is and what it can do for them

The tool's opening experience was redesigned to state its purpose immediately and how it can assist users through personalisation. Participants who understood what the tool was for trusted it faster, even when specific usability problems came up later.

A key principle underpinning this is that the needs of disabled people are not uniform. They vary widely across impairments, health conditions, and personal circumstances, extending well beyond physical mobility.

The tool therefore needed to communicate from the outset that it could be tailored to individual needs, presenting information that helps users make informed choices based on their own situation. Inclusivity should be stated, not left for users to infer, and that starts with how the tool introduces itself.

2. Make interfaces fully compatible with assistive technologies

Translating Geographic Information System (GIS) data into descriptions that work with screen readers was one of the most significant technical challenges in the project. Map-based interfaces are poorly suited to assistive technology, and the project invested in finding ways to convey spatial information through language datasets rather than written by hand each time.

Route descriptions were written to support what participants called 'scene construction': building a mental picture of a route before setting out. The work also showed that accessible route content can be generated consistently from existing datasets rather than written by hand each time.

Photo: The redesigned opening screen of Prototype V4. Stating the tool's purpose immediately helped participants trust it faster.

Accessibility settings

Walk Wheel Cycle Trust | PathFinder BETA

Report a barrier | Get involved

Find accessible routes to walk, wheel, and cycle on

Learn more about this tool

Walk | Wheel | Cycle

We'll help you find suitable facilities on or near the routes and alert you to any potential barriers relevant for people who **walk with or without mobility aids**.

Where would you like to find a route? Near me

Route length (one-way)

Type postcode, town, or city | Say location | 5 miles | Search

This tool is in **BETA** – features may change as we gather feedback and make improvements.

About this tool

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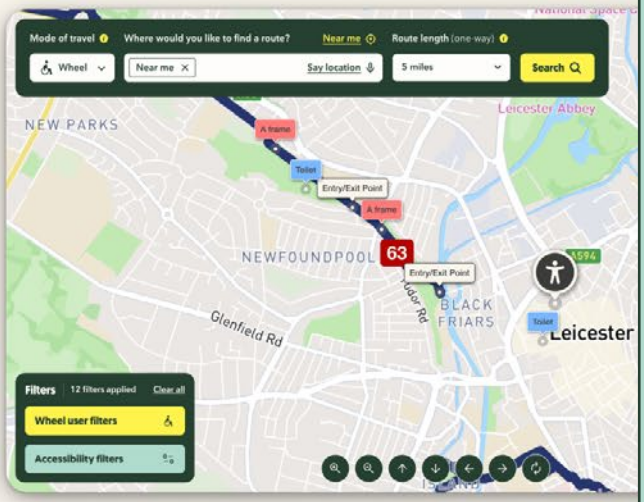



The National Cycle Network

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Our long term goals

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3. Reveal information at the right time, not all at once

The research confirmed that no single layout or information hierarchy works for everyone. The prototype used tabbed navigation to separate information types and filters to surface only what was relevant to a users specific access needs, and progressive disclosure to keep the default view clean while making deeper detail available. With many data types a balance has to be found between a clean interface and creating a maze for users to navigate to find what they need.

4. Features send powerful signals

Every feature in a tool communicates something about who it was built for. When participants encountered features that reflected the reality of their journeys, the response went beyond usefulness, it built trust.

The inclusion of toilets and car parking information was among the features that generated strong positive responses in testing. Their value was practical, but it also sent a clear signal that the tool had been built with a genuine understanding of what a journey involves for disabled people, beyond the route itself.

Features that signal inclusion build trust in everything the tool provides. That is critical for adoption, but also for encouraging users to contribute to data in the future.

5. Refine route content to support decision-making

Participants need to be able to make decisions before they set out, not during the journey. That meant route content had to be written for someone at home planning a trip, not someone already on the ground. Landmark references, place names, descriptions of what routes pass through: all of these contributed to participants feeling genuinely prepared rather than theoretically informed.

6. Don’t underestimate community comments as a trust signal

The community comments feature was valued not only for the information it contained, but for what its existence implied: that the tool respected the knowledge of the people using it. Lived-experience content builds trust in a way that official data does not.

Case study

Abi



I'm Abi. I live in Farnborough.

I have a severe fatigue condition that affects my energy levels. When I do go out, I have to be really careful about the repercussions for my energy levels. I also have a mobility condition, so I use a wheelchair.

Every journey involves working out whether I'll be too tired by the time I get somewhere, and whether I'll enjoy what I'm doing once I arrive.

Barriers for me, mean poor information; a route turning out not to be wheelchair accessible despite claims that it is. Things like a gate I can't get through, steps I wasn't expecting, or a path that's suddenly closed.

When I'm planning a walk, I want to know how flat it is, and even if it is flat, I need to know whether there's gravel, which is a nightmare for a wheelchair. I need to know how wide the path is, and whether there are obstacles like cattle grids.

If I could design the perfect journey-planning tool, I'd want to put in A to B and see different route options, with the ability to view each potential obstacle along the way. I'd want to be able to say I can't overcome an obstacle and have it route me around it.

To feel confident using a route, I need assurance that it's wheelchair accessible and reasonably flat, I'm happy to venture out on that basis.

I really liked the different barrier types shown in the tool. I liked being able to report an obstacle, I'd never seen that feature before. And the comments underneath each barrier added to it; I liked the idea of a fallen branch being reported, and then a later comment confirming it had been cleared.

Being asked to be part of the project was genuinely exciting, because it's something I could see myself, and a lot of people around me using. Being a wheelchair user in the world is draining, so anything that can rule out a physical obstacle in advance is a real help.

I'd love to see this eventually integrated with something like Google Maps, Apple Maps or Waze, so the information is somewhere I'd naturally look, as an accessibility overlay you could switch on.

A lot of disabled people are stuck indoors and genuinely scared of going into nature because of past bad experiences, but tools that clearly explain what to expect can change that. Being outside matters for mental health, physical health, and for seeing people face to face. I think that's worth taking seriously.

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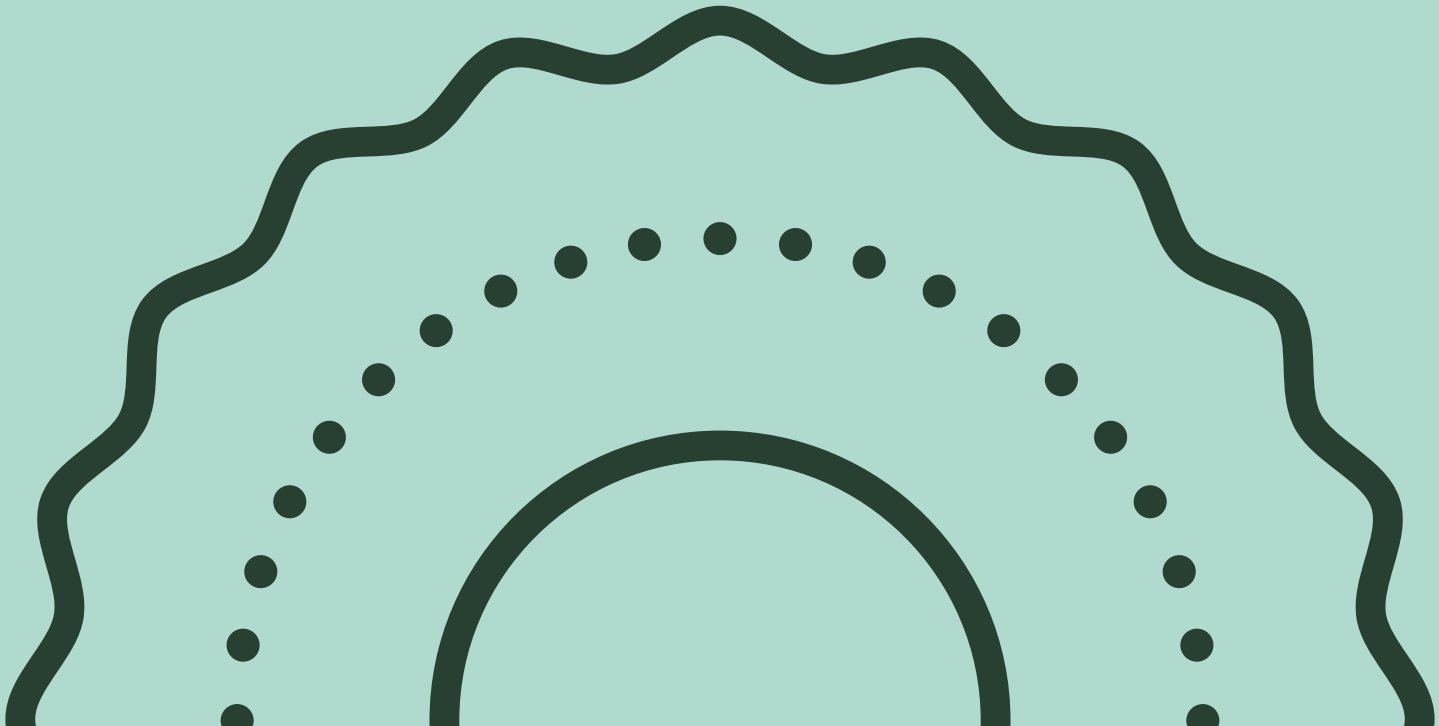
Section 5

The shared agenda



1. Collect and share accessibility data.

One of the clearest barriers identified in this project was the absence of reliable, granular, real-world accessibility data. Surface types, physical barrier dimensions, noise levels, lighting conditions and other public amenities were either unavailable or inconsistent across existing datasets. That is not a design problem, but a data problem.

Disabled people's organisations

Lobby for accessibility data to be treated as a public good. Shape what gets collected and how, so it's consistent and reflects actual user needs rather than what is easiest to record.

Government and decision-makers

Fund and require the collection of open, standardised accessibility data. The investment case is the same as for any other transport or infrastructure data.

Digital journey planning and mapping sector

Pursue data partnerships with organisations that will supply up-to-date, real world barrier and location data needed to make useful tools possible. The tool developed in this project depends on data that does not yet exist at scale. Getting there requires collaboration across sectors.



2. Make data work with assistive technology, not around it

This project demonstrated that GIS mapping data can be turned into structured, more accessible descriptions that work with screen readers and other assistive tools. That does not happen by accident. It requires deliberate decisions at the design and development stage.

Disabled people's organisations

Push for assistive technology compatibility as a standard requirement, not a feature to be added if budget allows.

Government and decision-makers

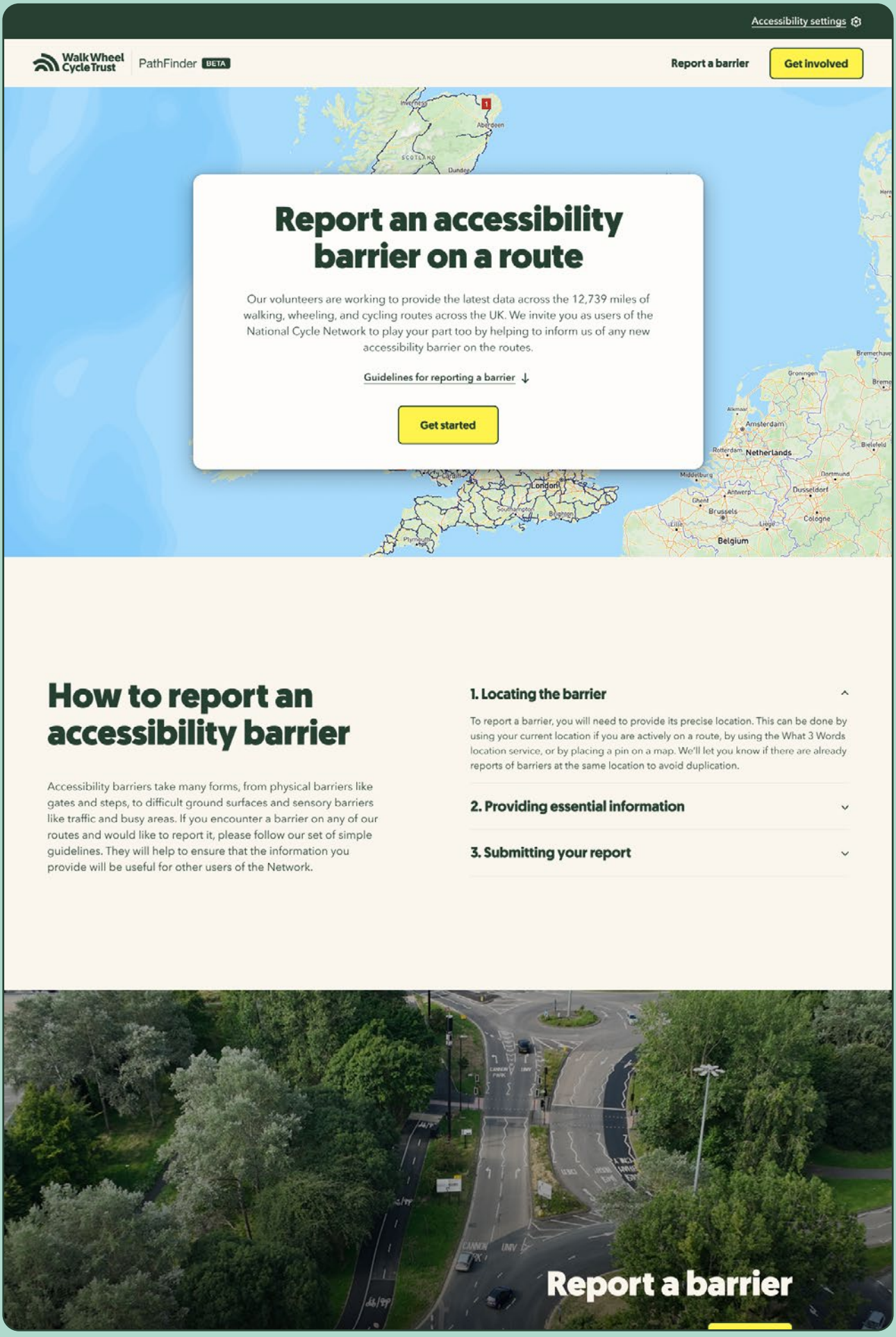
Include assistive technology compatibility as a condition of any publicly funded digital tool.

Digital journey planning and mapping sector

Invest in the capability to make spatial data readable. The methods developed in this project should be applied more broadly.



Photo: Allowing users to contribute to the tools data by reporting barriers is critical to building a user-led tool.



3. Treat co-creation with disabled people as a design method, not a checkbox

The most significant improvements to the tool across Phase Two came directly from disabled participants, whose diverse access needs and impairments shaped the direction of development. The change between round one and round two of usability testing was not the result of the team working harder in isolation. It was the result of listening to what participants said and acting on it.

Co-creation needs to be properly resourced. It is important to acknowledge that disabled people's time and knowledge have value and provide compensation for it wherever possible.

Disabled people's organisations

Set the terms on which your members engage with co-design processes. Advocate for participation that is paid and structured, not ad hoc. For example, disabled access panels for all local authorities.

Government and decision-makers

Ensure new transport schemes reduce real world barriers by requiring meaningful participation of disabled people from the start.

Digital journey planning and mapping sector

Put co-design in your process and your budget from day one. Feedback from disabled users is the most useful input you will get.



4. Engage with this project, and kick-start collaboration

This project has produced a working prototype and a body of evidence. Together, they show both the scale of the challenge and that a viable approach exists. What happens next depends on who engages with those outcomes.

Disabled people's organisations

The evidence in this report, and expertise of those involved, is yours to use. The voices here are the voices of those you represent. Use this research to hold others accountable, to push for co-design as standard practice, and to shape what the next phase of this work looks like.

Government and decision-makers

The policy and funding levers that could move this forward are in government hands. Accessible digital journey planning and mapping is not a niche concern. It is a condition of freedom and independence for disabled people helping access to eduction, employment and community. We welcome a conversation about how this evidence should inform your work.

Digital journey planning and mapping sector

The design principles from this project are highly transferable. The case for inclusive journey planning and mapping needs is clear. We are open to exploring data partnerships, shared standards, and other practical steps that should move this project from prototype to product.



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Section 6

Appendix: methodology, research and technical insight

This section provides deeper detail on methodology, research stages, and technical considerations for those who want to understand or apply the findings in practice.

Research and design stages

The project followed an iterative design methodology built around four prototype versions. Each stage produced a formal feedback and amends process before the next iteration began.

Participant diversity

Participants across the focus group and two rounds of usability testing included people with vision impairment (including severely sight impaired participants and screen reader users), manual dexterity and upper limb conditions, lower limb impairments and wheelchair users (manual and power), cognitive conditions including ADHD, autism, and memory conditions, auditory impairments, and colour perception differences. Assistive technologies used included screen readers, screen magnification, and voice recognition software including Dragon.

Issues identified in our research

Stage	No. of items identified	No. of items actioned	No. of items not actioned
AbilityNet Accessibility Design Review (Prototype V1)	27 items identified (18 WCAG issues and prototype bugs)	15 actioned, 11 with technical implications	1
Focus Group (Prototype V2)	29 items across five themes	25 actioned	2 not actioned, 2 required no action
Usability Testing Round 1 (Prototype V4)	15 items identified	14 actioned	1 required no action
Usability Testing Round 2 (Prototype V4)	11 items identified	9 actioned, 1 with technical implication	1 required no action

Items deferred from the final phase

Two items from the second round of usability testing were acknowledged but not addressed within the project scope. Rest points, including benches and shelters, were confirmed as a genuine priority for disabled users but could not be included in the design due to time and budget constraints. This should be prioritised in any future development phase and will require reliable underlying data to deliver. Account functionality needed to display author names alongside community comments was identified late and could not be fully explored within the current timeframe. It must be resolved before any potential rollout.

Data mapping

The Data Mapping Exercise tested the feasibility of proposed features against existing datasets and assessed how spatial GIS data could be transformed into structured, accessible outputs. A key finding was that accessible route descriptions can be generated from ordered route geometry and associated spatial attributes, making it possible to produce consistent, structured route summaries from existing data rather than writing them manually.

WCAG 2.2 AA considerations

The prototype was reviewed against WCAG 2.2 AA throughout the design process. Areas addressed included hiding decorative images from assistive technologies; maintaining a logical, semantically communicated heading structure; using appropriate structural markup for lists and tables; providing sufficient colour contrast; and ensuring all interactive elements are keyboard accessible. Full technical detail is in the AbilityNet Feedback and Amends documentation.

Prototype limitations

The prototype was built in Figma. Some participant feedback reflected constraints of that software rather than issues with the underlying design. Certain screen reader interactions in particular may not have behaved in Figma as they would in a built product. These are Figma limitations, not design ones, and would be resolved in development.

Walk Wheel Cycle Trust

For our health.
Our wellbeing.
Our world.

We're the charity making it possible for everyone to walk, wheel and cycle.

We work directly with communities to make change happen. Then we evidence the impact to influence policies to push those changes further.

Because people powered movement changes everything. Our health. Our wellbeing. Our world.

Let's do this! **www.walkwheelcycletrust.org.uk**

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