

Protected characteristics and infrastructure: social research to inform the National Infrastructure Commission

Additional Audiences | Full report

NATIONAL
INFRASTRUCTURE
COMMISSION

Better infrastructure for all

Thinks
Insight & Strategy

Contents

- 01** Project overview and key findings
- 02** Context
- 03** Transport
- 04** Heating
- 05** Recycling
- 06** Other areas of infrastructure
- 07** Appendix

Project overview and key findings

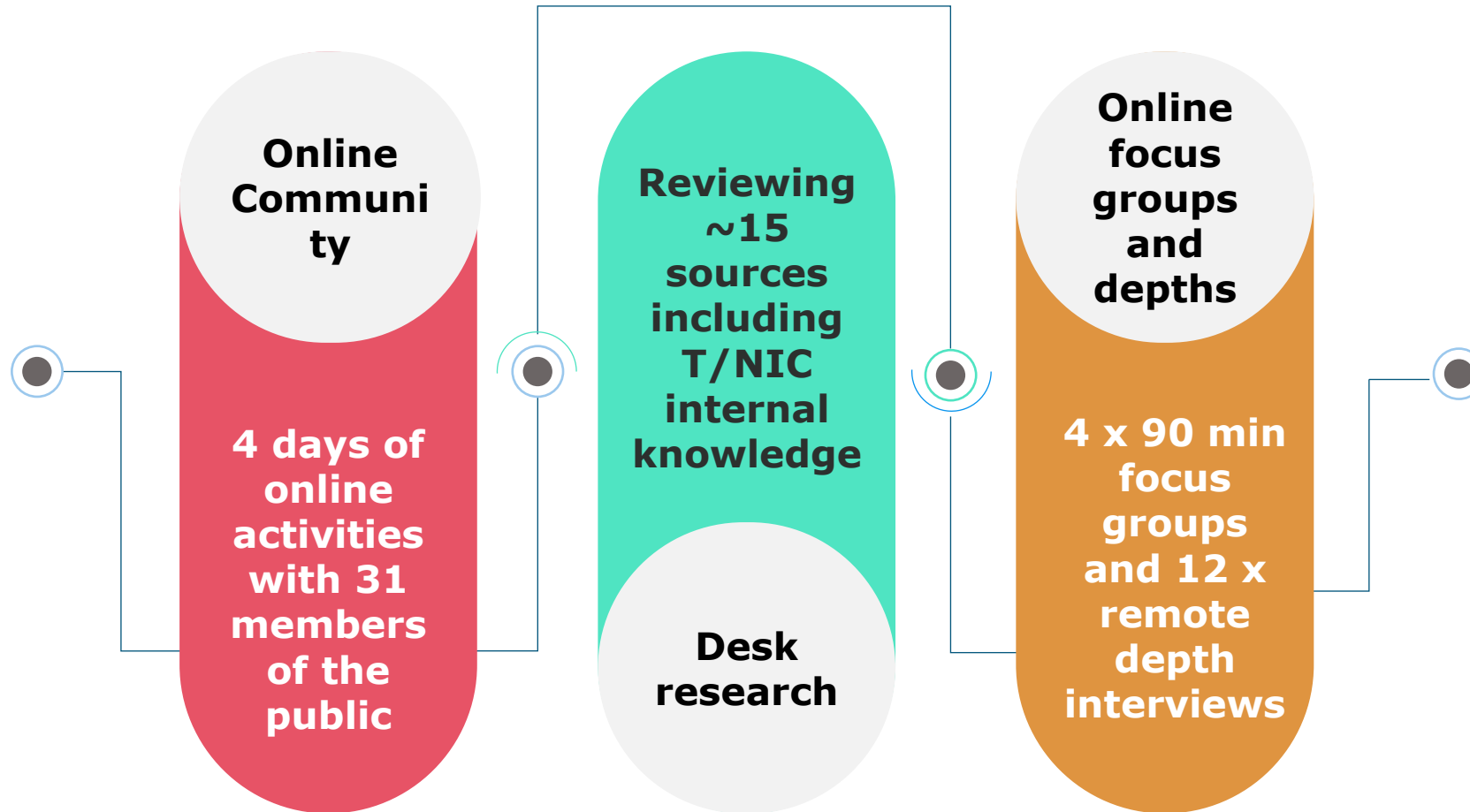
Background and objectives

The National Infrastructure Commission (NIC) is currently preparing the second National Infrastructure Assessment (NIA2). To help inform the policy recommendations included in the NIA2, NIC commissioned Thinks Insight and Strategy to conduct research with the public. As part of this, NIC wanted to understand how people with different protected characteristics experience and view infrastructure, including any barriers that may be faced. The nine protected characteristics are **age, gender reassignment, marriage status, pregnancy, disability, race / ethnicity, religion, sex and sexual orientation.**

The objectives of this research were to understand:

- How people with protected characteristics experience and view different areas of infrastructure, including what is working well and less well.
- Detailed views of transport, heating and recycling – including any specific issues and barriers faced, and views on the suggested changes in these areas.
- How, if at all, different protected characteristics shape experiences and views of infrastructure.

Methodology overview



Methodology in detail

Online Community

31 participants took part in 4 days of activities hosted on a bespoke web platform to understand individual experiences with infrastructure, including what is working well and less well in each area, and to identify emerging insight into any experiences with infrastructure that are common to those with certain protected characteristics.

Desk research

19 relevant sources reviewed, including Thinks and NIC's internal knowledge, in order to identify key themes relevant to understanding how protected characteristics shape experiences of infrastructure.

4 x 90-minute focus groups (each with 6 participants) and 12 x remote depth interviews

Focused on the three areas of transport, heating and recycling, to understand key issues and experiences in more depth and gain feedback on some of the suggested changes with key audiences.

Sample

Participants for the online community were recruited to be representative of different groups with protected characteristics as well as a mix of **locations** (including Northern Ireland, England, Wales and Scotland). The sample for the focus groups and depths focused on those with the protected characteristics identified during the online community as more significant in shaping experiences of infrastructure: people of **different ages**, people with **disabilities**, people who identify as **LGBT+**, people from an **ethnic minority** background, and those who are **religious and wear religious dress**. *The full sample breakdown can be found in the Appendix.*

A note on how findings have been reported

This report often contextualises findings in relation to a general public audience. Where this has been done, it refers to a separate piece of research conducted by Thinks Insight & Strategy in parallel to this work. This research focused on very similar topic areas, but with a broader, general public sample.

Key findings

1.

Cost of living and **location** most strongly influence opinions on how well the public feel infrastructure is working overall. **Protected characteristics** play a role in **shaping specific, day-to-day experiences** of infrastructure but not necessarily how well infrastructure is working overall.

2.

In particular, **disability** and **age** are particularly influential in experiences of infrastructure, with people who are older and those with disabilities often facing specific barriers. Other protected characteristics do shape some specific experiences, for example women are more likely to feel unsafe on public transport.

3.

Whilst not protected characteristics, **income / socio-economic background** and **the digital divide** are other factors that determine how people experience infrastructure. It is worth noting that these can also intersect with protected characteristics, such as age and disability.

4.

When it comes to future priorities, there is consistency across different groups in wanting to see **climate change addressed** as a **top priority**, and the **importance of decarbonisation**.

5.

Findings around the **transport, heating and recycling policies** tested are largely consistent with the general public, with **some minor nuances in views** according to **age** and **disability** in particular.



Context

While most are quick to associate physical networks with infrastructure, the public broadly understand the term as the systems needed for society to function

People consistently make the following associations with infrastructure, regardless of protected characteristic:

Most frequently mentioned

Railways and roads are top of mind when discussing infrastructure, showing transport is closely associated with the term.

Utility provision such as gas, electricity is also commonly associated with the term and, to a lesser extent, the internet.

Some also mention **key public services** in relation to the term, especially healthcare and policing which are seen as vital to the smooth running of the country.

Less frequently mentioned

"It seems to me it's the basic framework...in a city the way the roads link to the railways and airports, or how all the transport systems connect." Participant, aged 70+

"I would describe infrastructure as the basic systems and structures needed for everyday life to run smoothly, e.g. transport systems, education systems and the road systems." Participant, wears religious clothing

Cost of living and location strongly influence opinions on how well infrastructure is working overall. Protected characteristics play a role in shaping specific, day-to-day experiences of infrastructure

These factors are consistently influencing **how well people feel infrastructure is currently working**

These factors can **shape specific, day-to-day experiences of infrastructure**, but do not necessarily influence perceptions of how well the UK's infrastructure is working overall

Cost of living pressures

Location, including region and rurality

Income / socioeconomic background

The digital divide

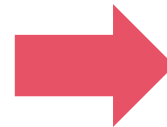
Protected characteristics, such as disability and age

The cost of living crisis is a powerful backdrop that is shaping opinions of infrastructure, regardless of protected characteristic



Cost of living pressures

The high cost of living, especially energy bills, is the **most front of mind issue** and shapes how many are evaluating the infrastructure near them.



Significant infrastructure costs are viewed within the context of a high cost of living, making the public (regardless of protected characteristics) less supportive of what they suspect to be expensive or large-scale projects. They are quick to predict that such projects are likely to be paid for by the public, either through taxation or higher bills.

"I don't like how expensive energy is in my area, but I know it's a nationwide issue." Participant, religious

"I know it's custom to moan about the cost of everything...I am grumpy. But you can fly places cheaper than you could go there on the train...and bus fares!" Participant, aged 60+

"The big thing is cost of living and price right now. Energy prices are through the roof, those disadvantaged households have it hard." Participant, male

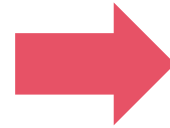
Thinks Insight & Strategy 2023 cost of living research has found that anxiety around cost of living increases remains high amongst the UK public, with 90% saying they are concerned as of late April 2023.

Views towards infrastructure vary significantly by location, including rurality and region



Location

Views towards infrastructure are often **hyper-localised**, varying depending on region and even by specific neighbourhood. There are also key differences in views for those in **rural** compared to **urban** areas.



Of the different infrastructure areas, views towards transport tend to vary the most depending on where people live. For example, those in rural areas are much likelier to rely on their own vehicles and struggle to use public transport (as a result wanting to see inter-urban links prioritised), whereas those in better-served areas are more frequent users of public transport systems.

"If you go down south , they are miles ahead of us...trains are great, there's not that luxury up here." Participant, male

"I always has issues with buses in Bournemouth, since I learned to drive I don't use them as much. There's a huge decline in the amount of buses." Participant, non-physical disability, LGB

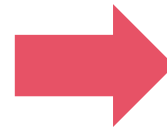
"Over the last four years I've lived in different areas, and each area is different. That needs to level out." Participant, non-physical disability

Whilst not a protected characteristic, income and socio-economic background are particularly front of mind when thinking about infrastructure



Income / SE background

Many highlight that those from poorer socio-economic backgrounds or those on lower incomes are more likely to **struggle with the everyday costs associated with using infrastructure** – particularly in the context of the cost of living.



Those who report struggling financially or being on a tight budget often adapt the way they use infrastructure to manage this, e.g. focusing on cheaper forms of transport and using less energy. This can also impact views on future priorities and policies, for example feeling financially squeezed drives resistance to the upfront costs associated with installation of alternatives to natural gas boilers.

"I don't like anything about energy in my area, it's extremely expensive with all these inflations and prices increasing things are even worse now." Participant, religious and wears religious clothing

"[Heat pumps] are expensive, so many people won't be able to afford them."
Participant, physical disability

NIC distributional analysis found that for all sectors of infrastructure except transport, spending (i.e. % of total household income expenditure) increases as household income decreases.

Lack of digital skills or access can also be a barrier to engaging fully with some types of infrastructure, especially as areas become increasingly digitised



The digital divide

Some people find using digital technology harder than others or do not have the same access, for example **older people**. This means they can struggle if there are only online options for aspects of infrastructure, for example managing an energy account online.



Some infrastructure areas, particularly energy, are becoming more and more digital. There is therefore the risk those who are less digitally confident or who have less access are left behind and excluded from areas of infrastructure.

"Quite a few elements of infrastructure now need a smartphone to access them. E.g to pay for car parking in Bromley you now have to use an app. Not everyone has a smartphone, especially the elderly, or the cognitive skills to be able to use a smartphone or an app. I do believe that this is an age discriminator"
Participant, female

"I think some people in my area struggle with digital literacy...some people of older ages will tend to struggle with the use of technology."
Participant, aged 70+

Protected characteristics can shape day-to-day experiences of infrastructure, most strongly for disabled and older people



Protected characteristics

Disability and **age** are particularly influential in shaping specific experiences of infrastructure. However, **other characteristics** can have some influence, for example those in religious dress and women report feeling more unsafe on public transport.



Those who are older and who have disabilities often have specific barriers to using infrastructure. Although there is general agreement across groups with future priorities, protected characteristics can also influence views on specific aspects of infrastructure policy (e.g. preferred alternative heating systems and the need for better public transport).

"I have serious pain if I stand for long, so unless there is a seat on public transport I struggle." Participant, physical disability

"I think older people would rely on their car for different reasons, because of mobility." Participant, aged 60+

"As a woman, walking home on an unlit road causes concern...a quiet area raises the issue of safety." Participant, female

It is important to note that people often struggle to connect their experiences of infrastructure with their protected characteristic(s). The intersecting nature of characteristics should also be acknowledged

Participants in this research often struggled to articulate their experiences of infrastructure in relation to their protected characteristic(s). It can be very hard for them to step outside their individual, everyday experiences of infrastructure, and consider any issues they face on a more 'structural' level. Therefore, it is not always clear how far a protected characteristic is driving an experience or viewpoint.

In reality, many protected characteristics are intersecting. For example, research shows some groups with protected characteristics are more likely to be on lower incomes and/or in poverty in the UK, such as certain ethnic minorities, women and people with disabilities.

Due to the limited scope of this research, it was not able to fully account for these two considerations. There could be merit in exploring this further in any future work.

There is agreement across different protected characteristics that decarbonisation and tackling climate change should be priorities for UK infrastructure

- In research with the wider public, it was found there is a clear preference that a vision for infrastructure reflects **climate change priorities** and **long-term thinking**.
- Regardless of protected characteristics, there is consistently the sense that **addressing climate change** should be a **top priority for Government** – but that the UK has a long way to go and this is **not being prioritised enough** currently.

"The world could come to an end. If we carry on like this, you know...we hear about it all the time and we have to live with it, it's happening. You know, so you have to do something about it." Participant, aged 60+

"The nation has a long way to go as green as we need to be, in order to limit climate change." Participant, male and religious

- As of late 2022 ONS data, climate change was the **second biggest concern facing adults** in Great Britain (74% feeling very or somewhat worried), with **the rising cost of living** being the main concern (79%).
 - **Women** are more likely to be worried than men.
 - **Young adults 16-29** are most likely to be 'very worried'. This was reflected in focus groups, with younger groups expressing strong anxiety about climate change.

Transport



Across different groups, there is a strong desire to see improvements in transport provision outside London and the South East

Perceptions of transport: working well

Those living in the southeast and in large urban cities where there is access to a range of private and public transport options (including sustainable options like park and ride, cycle lanes, e-scooters etc.) think transport infrastructure is working well. They also highlight that transport is more reliable and regular in these areas.

The transport in London is particularly praised as being much better than other parts of the UK (especially the underground and new Elizabeth line).

"Because of staff shortages and cuts, they just cancel things...just this unreliability, and then it's so expensive. And then you're like, I might as well take my car and then at least I know I'm gonna get to where I need to go and be safe." Participant, aged 30-59

Perceptions of transport: working less well

However, there is more criticism of transport in less urban locations, particularly where bus and rail services are seen as inadequate (unreliable, infrequent and expensive in relation to the quality of service).

Many complain of the high price of transport, especially buses and trains, with many saying that this prevents them from choosing public transport.

As with the wider public, there is a prevailing view that investment in public transport has been lacking over the past 10-20 years, with many suggesting this is the cause of perceived failings in the bus and train systems.



Older people and those with disabilities face particular barriers to using public transport, experiencing a range of accessibility issues

Disability and age

People with **physical disabilities** and **older people** feel public transport is often **not accessible due to:**

- Pushchairs / others taking up wheelchair space.
- Overcrowding and lack of seats.
- No platform support and / or booked assistance not turning up.
- An overly long distance to walk to and from stops.
- Difficulty getting on or off buses and trains (e.g. due to the vehicle not being near the kerb or being unable to see the gap if visually impaired).
- Receiving incorrect information about accessibility, e.g. lifts being out of order.
- Struggling to read signage (e.g. bus route maps) if dyslexic, or to hear announcements if hearing impaired.

Research by organisations such as Scope, who looked at people with disability's experiences of travel as part of their 2019 Travel Fair report, also identified many of these barriers.

"Buses do not go anywhere near the station and there are lots of steps to access it, or there is a very long walk from the nearest bus stop." Participant, physical disability

They have to park 2-4 inches from the kerb, it's a struggle to get off the bus. When I've got on the bus driver puts his foot down and doesn't wait, the bus drives off." Participant, physical disability



Desk research identifies a number of other issues those who are older or who have disabilities face

Disability and age

Not knowing who to complain to: Scope's Travel Fair research found that the many different operators, regulators, watchdogs and passenger groups can mean it's confusing to understand who is responsible when things go wrong. It also found complaints procedures are very complicated and can therefore be inaccessible in themselves.

The digital divide: Many disabled people use digital resources such as digital maps or journey-planning sites to plan their journey in advance. However, Ofcom's 2018 Access and Inclusion report found disabled people were significantly less likely than non-disabled people to access the internet regularly. Older people may also struggle more with using technology.

Staff and organisational attitudes towards disabled passengers: In 2019, Scope found 45% of disabled people had experienced negative attitudes from staff and/or other passengers while on transport in the last 12 months. In focus groups, those with conditions such as autism reported particularly struggling with the negative attitudes of others, due to difficulties they have processing and communicating.



Issues with transport can have a real impact on how people with disabilities or who are older engage with transport infrastructure

Travelling less

Those with disabilities report that issues using transport infrastructure can make them **want to take fewer trips out of the house.**

NIC distributional analysis data found that households with a disabled member spend a significantly smaller proportion of their household expenditure on transport, compared to those who are not disabled.

Changing transport mode

Issues can make them choose to avoid public transport and instead **rely more or entirely on their car** or taking taxis. There is awareness this is a less sustainable travel method, but many say they do not feel safe or comfortable on public transport.

"My mobility is slow, so being in constant pain, the more I have to stand the more uncomfortable I am." Participant, physical disability

"I'd rather pay for a taxi which will cost me a hell of a lot more money, as I know I'll get there safer." Participant, physical disability

Low wellbeing / independence

Poor reliability of transport and information affects **confidence in being able to plan** and travel, which can cause **mental and physical stress** and symptom flare ups.

Research by Scope shows planning ahead is key for disabled people to travel independently (e.g. finding the most accessible route, seeking assistance). Barriers to using transport can therefore impact disabled people's independence.



Those who are pregnant and parents travelling with children / buggies can find the public transport network harder to navigate

Pregnancy

Pregnant women can sometimes struggle with accessibility issues on public transport, such as being forced to stand, or taking stairs.

Marital status

Whilst life stage is connected to, rather than indicative of, marital status, **parents with small children** report travelling with them to be more difficult compared to how **single people** report their experiences (the latter are unsurprisingly more likely to report travelling alone).

In a 2020 report, The London Assembly Transport Committee also found that people with buggies can find the transport network difficult to navigate, due to accessibility issues. Thinks Insight & Strategy deliberative research on decarbonising transport and electric vehicle charging infrastructure found that parents tend to feel that active travel options are less suitable for them, and they are more likely to go for convenient, familiar transport solutions such as using their existing car.



Women, LGB people, those from ethnic minorities and those who wear religious clothing may feel more unsafe using public transport

Sex

A significant minority of **women** report feeling uncomfortable / unsafe using public transport, fearing harassment or being attacked.

This is usually after dark or early in the morning when there is inadequate lighting or in unstaffed stations/stops.

Some choose to drive rather than take public transport options as a result.

Sexuality, religion, ethnicity

A small minority of people who **are LGB, who wear religious dress or who are from an ethnic minority** can feel fearful of, or have experienced, discrimination / harassment on public transport (due to their protected characteristic).

As a result, some of these people choose to avoid public transport and feel safer in their cars.

"It totally impacts my experience, I wouldn't feel safe holding my girlfriend's hand on public transport, only during pride month. As a woman I don't mind using public transport in the day, but am hesitant to go on the upper deck at night." Participant, female

The ONS Opinions and Lifestyle survey (2022) found people feel less safe using public transport after dark than during the day, and women aged 16-34 felt the most unsafe of any age and sex group using public transport alone after dark.



Scepticism about transport “levelling up” and apathy towards the current Government is consistent across different protected characteristics

Across different groups, the public find it hard engage with the term “levelling up” or point to examples of transport ‘levelling up’ in their area. Many believe the quality of transport systems in the UK is worsening, not improving.



Those who have seen improvements in their local area are located in the South East and Scotland, where they can describe new projects and better services, especially the Elizabeth line.

Those from rural areas, as well as Wales and Northern Ireland, are unable to cite any new projects or improvements in services, instead reporting a reduction in local bus and train services.

There is significant scepticism of transport “levelling up”, reflecting the apathy towards the current Government.

There is an assumption that apart from one or two main projects, transport provision budgets have decreased recently, not increased, especially in areas like the North-East.

Some also express a suspicion that the current Government would not have the skills or expertise to properly “level up” transport across the UK, even if they wanted to.

“We obviously haven't got the same facilities as you've got in London, and we do get forgotten about. And they promise this, that and the other and there's plenty of areas here that need to be brought up to scratch and they're just not, which is very upsetting sometimes.” Participant, aged 60+

“I got nothing personally ever. I'll feel like it's just kind of got worse to be honest. Especially where I live in Worcester. Like I said before, they've just been cutting routes and they've not really been adding anything.” Participant, aged 18-29



Most want to see a reduction of traffic in their local area – but improving public transport options is felt to be especially important for certain groups of people

Attitudes to demand management schemes are consistent with the wider public – most complain about there being too much traffic in their local area and support seeing a reduction to this. Consistently across different groups, improving public transport is the most popular scheme.

Unpublished research by Thinks confirms that the public support an “infrastructure first” approach to enable different behaviours.

Improve transport options

This is key for reducing car use, as many – especially **people with disabilities and older people** – feel they can only be less reliant on their car if public transport and cycling options are viable.

Land use planning

The public also like this idea, feeling that town centres could be better designed for active travel options.

Financial charges or incentives

While some, especially those in London, feel that initiatives like congestion charge have worked well, those living in less-well served areas feel public transport infrastructure must be improved first.

Outreach programmes

While this idea is not criticised, the public tend to feel that the initial onus should be on Government to improve infrastructure systems to enable the public to change their behaviour.

Most Popular

Least Popular



Improving public transport is seen as even more essential for those with disabilities, older age groups and others who feel less safe on public transport currently

Those with **disabilities and those who are older** often choose to use cars or taxis instead of public transport, due to issues using the latter. Making public transport options easier and more affordable to use is strongly preferred by these groups.

Women, LGB, religious dress, ethnic minorities can feel more at risk of discrimination / harassment on public transport. They want to see more of a staff presence and better managing of behaviour to feel safe using public transport.

Older people are often more skeptical about the scale of change needed to upgrade the public transport system. **Young people** are more likely to point to positive, recent examples of this, such as the introduction of more e-bikes and e-scooters.

"I don't use buses a lot as I cannot guarantee I can get my powered wheelchair on the bus due to buggies, shopping trolleys, people standing etc. so if I am going anywhere I tend to drive...this needs changing." Participant, physical disability

"The Government obviously need to do a heck of a lot for people to leave the cars at home. They have to improve the networks, they have to improve the trains, they have to improve the buses, maybe bringing the price down or whatever, and laying on routes where people need them." Participant, aged 60+



Land use planning is generally supported, but there is concern over making it harder for cars to get around

There is concern about making car use harder (e.g. by removing parking spaces) amongst **older people** and **those with physical disabilities**, as well as those with **other disabilities such as autism / mental health conditions** which mean they find crowds difficult and prefer to travel via car.

There is a sense that even if facilities such as jobs / shops can be brought closer to homes, **these groups will still be reliant on their cars** because of how poor public transport is perceived to be.

In focus groups, **young people** were more likely to be strongly supportive of making areas more walking and cycling friendly, compared to older groups.

Public transport is felt to be an expensive and uneconomical alternative to driving, especially for **families when compared to single people**.

"As far as I'm concerned, a car is a necessity, not a luxury anymore. It's a necessity of safety...who wants to be standing at bus stops waiting for buses that don't come, waiting in the train station, when the trains don't turn up." Participant, aged 60+

"I like it, making our streets and cities more like walkable. Having been to Amsterdam, it's so much more like easy to walk around and get around without cars going everywhere. Encouraging people to bike, encouraging people from a young age to actually cycle."
Participant, aged 18-29



Financial charges and incentives are seen as unfairly impacting certain groups, if public transport options are not first improved

Financial incentives and charges

Older people and those with disabilities most strongly reject the idea of financial charges. They see charges as unfair without other transport options being improved first.

This is despite the fact that some people, particularly **younger people**, see these as effective.

As with the general public, **concern about the cost of living crisis supersedes concern for the environmental impact** when making travel decisions.

Outreach programmes

This idea is not criticised, but nor is it actively supported. Attitudes do not vary significantly by protected characteristic.

There is general support across groups for educating people on sustainable travel, especially for those who it is perceived could more easily make changes (notably **young, active people**).

Compared to other demand management schemes, it is not interpreted to be as negatively impacting those who may be more "reliant" on their cars, such as **those with disabilities** and **older people**.

"I don't like them [financial charges] because I think they're unfair in cost of living, but they'd be effective."

Participant, aged 18-29



Rural participants show a strong preference for improving inter-urban links, while urban participants are broadly satisfied with both, but feel the price of public transport in general is often prohibitive

Improving transport *within* and *around* cities

The public say this is especially important, not least because many feel that the current provision for this is poor. Some also point out that we should be prioritising this more frequent local travel over longer distance travel, because it will have a greater impact on climate change.

Improving transport *between* cities

The public tend to believe that transport links between major cities are sufficient so see this as less of an urgent priority. Many point out however that the price of this transport between cities can be prohibitive.

Rural

Those in rural areas say this should be a priority because they find it particularly hard to get around their area and into the closest city on public transport.

Urban

Those in major urban areas and the South-East are more satisfied with this by comparison but believe more could be done outside major cities.

Rural

Those in rural areas say this has been the primary focus of government policy often at their expense.

Urban

Those living in urban areas focus on the price of travelling, not journey time and connections.

Views of this are generally consistent across protected characteristics. However, some with disabilities are more likely to emphasise wanting the *reliability* of services to improve (both inter-urban and between cities).

"Please prioritise reliability over quickness...I need the train to turn up, rather than shaving 10 minutes off the journey time." Participant, physical disability

Energy and heating



Although the energy and heating are felt to be consistent and reliable, most think substantial change is needed to ensure more sustainable and affordable options

Across different groups, the public's mindset on energy, is overwhelmingly negative, meaning they find it hard to identify or engage with solutions, or envision a future where the system works well:

Perceptions of energy: working well

Some mention the fact that their energy supply is consistent and reliable, with power cuts generally infrequent, which shows the energy system in the UK is delivering the basics.

However, beyond this across groups people find it hard to say positive things about the energy system.

"Obviously [if I was Prime Minister] I would reduce prices to the consumer, it's so expensive." Participant, aged 70+

"I dislike the lack of renewable energy sources such as wind turbines and solar panels."
Participant, pregnant

Perceptions of energy: working less well

As with the general public, there is a strong focus on the cost of energy and how this currently feels unaffordable (although a small number also praise the support offered by energy firms to vulnerable groups).

There is a shared perception that the public are not only footing the bill for the energy crisis but that they will also inevitably be lumbered with the cost of future system upgrades required by climate change.

Whilst some have seen investment in renewables where they live, the current system is criticised as being unsustainable, with many wanting a much stronger focus on renewable sources of energy (e.g. solar panels, wind turbines).



Older people and those with disabilities can face barriers in relation to energy use

Disability and age

Those with conditions such as **dyslexia**, or **older people who don't regularly access technology**, say they can struggle to read meter information or access their account information digitally (with some relying on younger family members to support).

A minority report depending on a reliable energy supply or using more heating than the average person due to a **medical condition or being older in age**.

Whilst not a front of mind, some point out **young people** will be disproportionately impacted if the UK cannot successfully shift to using more sustainable energy sources as part of the transition to net zero.

NIC distributional analysis data found that households with a disabled member spend a significantly larger proportion of their household expenditure on energy, compared to those who are not disabled. In depths, some express worry about people with disabilities being at more risk of struggling financially due to not being able to afford energy, or making their health conditions worse by not heating their homes properly.

"The energy companies charging so much, you have people deciding between heating and eating... my mum is disabled and bed bound, and certain months she can't put her heating on" Participant, physical disability

"I think I would say all ages are conscious of the planet's global warming. However, maybe the younger generation is more bothered as they will be more affected by this in the long term." Participant, female



Desk research shows that those who are single, as well as women, spend more on their energy

Marital status and sex

Those who are **single** are more likely to be spending more on their energy, according to NIC distributional analysis, compared to those who are co-habiting, married or in a civil partnership. The same is true for **all-female households** compared to others.

Single parents are mentioned as a group who have been hit hard, and a single person's cost of living is often higher than those who are cohabiting. For example, ONS reported single people spend more of their income on housing costs, bills and food.

Digital access

Citizens' Advice note that it is becoming increasingly difficult for **digitally disadvantaged consumers** to take part in the energy retail market, with the rise of online price comparison sights, online service channels, and smart energy technologies. Digitally disadvantaged groups often share characteristics around **age, disability**, education and deprivation.



Installation costs is the dominant barrier to switching across different groups of protected characteristics

Bigger barrier

There is fixation on the **cost of installation**, with many assuming instantly that adopting an alternative method of heating won't be affordable for someone "like me" (especially with the current cost of heating).

Especially a barrier for those on lower incomes

"The price is too high for heat pumps...they should just be replaced free of charge, it should be on the Government – they are expensive." Participant, physical disability

The **number of "unknowns" and uncertainties** also acts as a barrier, with participants having many questions about hydrogen in particular and struggling to imagine how this will work in future.

Stronger for older participants, who can be more fearful and suspicious of alternatives

"The fact is, hydrogen isn't a low carbon alternative anyway. And it may be in the future, but when's the future? 50 years? 100 years? To me, it's not an option." Participant, aged 60+

Many also assume that **switching would involve a level of "hassle" and too much disruption** to their everyday lives to be worth it.



While the public see how heat pumps could contribute to decarbonisation, the associated costs, lack of space and perceived inefficiency are major barriers to adoption

Strengths

- Broadly agreement that efforts to decarbonise are important, so zero emissions is seen as a bonus
- Positive that the UK would be less dependent on importing gas (though mentioned to a lesser degree)

"It's better for the environment which is really good" Participant, LGB

Weaknesses

- Strong resistance to the high costs associated with this solution i.e. high upfront costs, electricity being perceived to be more expensive than gas etc.
- Need a large amount of space in order to fit the pumps – this is not seen as feasible for many (particularly those in flats)
- Heat pumps need longer to achieve the same temperature, leading to concerns this will mean higher overall bills (due to heating being on for longer) – especially for the **elderly and people with disabilities** who may use more heating

"The installing and grant process could be difficult to understand, hard for those with disabilities, mental health and learning conditions." Participant, physical disability and LGB

Barriers

- Initial costs of £8-15k are seen as prohibitive to most, even with a Government grant (which is also not seen as enough). Some highlight that having a complex grant process would be a barrier for those with **disabilities / who are older / who are less digitally confident**.
- Cumulative costs are also seen as an issue – such as the need for new insulation for older houses



Electric heating is felt to be the easiest to transition to and to have the most benefits compared to other heating alternatives, though cost is still a prohibitive factor

Strengths

- Being a lower carbon option is seen as a positive, particularly if electricity can be provided through renewable sources
- Idea of cheaper tariffs appeals to those looking to cut costs, especially **young people** who don't mind adapting the times when they use electricity
- May be more suitable for those in small flats / homes, such as **young people**
- Electric boilers are seen as the easiest system to switch to, and felt to be the most suitable alternative to introduce nation-wide

"I feel like young people will be more inclined to opt in for this, especially because it says that it's great for small homes or one small room."

Participant, aged 18-29

Weaknesses

- More expensive to run than gas boilers
- Takes longer to heat up water than traditional gas boiler. Those with larger homes (such as families) may be disadvantaged; it is felt that electric boilers won't keep up with capacity, and may require additional costs to improve efficiency i.e. extra insulation
- **Older people, those with disabilities and parents** do not want to think about when to use heating or wait longer– symptoms or childcare often disrupt planning

"These houses like Edwardian houses, and they're not insulated at all like the modern house...you can't really insulate the walls...it wouldn't be as good in my house really."

Participant, aged 60+

Barriers

- Cost is seen as the major barrier – the public are hesitant to see their bills increase at a time when they are already paying so much



Cost and safety concerns are top of mind when considering hydrogen as a source of heating, with few associated benefits when compared to traditional gas boilers

Strengths

- The idea that hydrogen will have the same efficiency, but at a lower cost to the environment is welcomed – many do not feel that the current heating system can continue as is

Weaknesses

- Safety concerns are top-of-mind for many, with people hesitant to adopt technology that is not well-understood or tested – especially for **older people**.
- They expect it will require large investment and disruption to current heating infrastructure.
- There are also outstanding questions as to how all homes can be appropriately retro-fitted to ensure proper ventilation and storage, with those who are **older and with disabilities** most concerned about disruption.
- Costs are seen as prohibitive: the public are resistant to any increase in bills; there are also concerns regarding the upfront cost of ensuring safety requirements – who will foot the bill for this?

"There are real questions over its safety." Participant, physical disability

Barriers

- There is a need for much more reassurance that hydrogen is a safe and reliable alternative before they are willing to adopt.
- Clear plans need to be put in place as to how the necessary changes to the system can be implemented, and clear cost implications for doing so.

"It requires changes in the home, implementing might be a struggle for some people with disabilities. Will it be a physically and mentally accessible system?"
Participant, LGB, non-binary, and non-physical disability



Recycling



Recycling is seen as an important for protecting the environment, but there is appetite for more to be done to improve provision in the UK

Recycling: working well

Overall, the public have seen improvements in the quality of systems designed to support recycling and do think it is easier than ever to recycle.

Most feel they individually take recycling seriously. Those who regularly recycle take pride in their adherence to the rules and systems.

"Recycling is so important now and I like that it is so easy to recycle most things." Participant, aged 70+

"I dislike that our closest recycling centre is about a 15 minute drive away on the motorway. I think North Wakefield is missing a local recycling centre." Participant, pregnant

Recycling: working less well

But there are still concerns that the UK does not do not enough recycling, with some saying it lags behind other countries who have better policies in place.

Those living in dwellings like city centre flats feel their waste sorting facilities are still very limited (some still do not have recycling bins available to them). Others report their nearest recycling centre is too far away, which they believe encourages fly tipping in their area. Some also say bin collection is unreliable where they live.

Many think others in their community are still not doing enough to recycle consistently and properly.

There is a desire to see more action from industry and manufacturers, plus the Government, to contribute to effective recycling in the UK.



Views and experiences of recycling are fairly consistent across protected characteristics – although there are some specific barriers faced by certain groups

Disability and age

A small number of those with **physical conditions / who are older** point out that recycling and waste disposal points are far away from their house. Due to their condition or limited mobility, this means they have to drive there, which can exacerbate symptoms. Some get around this by booking waste collection services, but they feel these can be expensive.

Wheelchair users can feel their bins are sometimes hard to access and empty rubbish into, due to the design and weight of the bin (especially wheelie bins).

Those who struggle more with using non-accessible digital services, which can overlap with those **with certain disabilities and those who are older**, can also struggle to use online waste collection booking services and rely on friends and family to help them.

Crucially, these issues **do not seem to significantly impact willingness to recycle**. Most in these groups report being proud of how much they recycle, and putting in effort to overcome any challenges they face.

"I am unable to access a bottle bank locally without help to take me there and help carrying the waste." Participant, physical disability



Perceptions of recycling can vary slightly between younger and older groups

Some older people hold a perception that younger people were more likely to be 'lazy' when it comes to recycling.

On the other hand, younger people are more likely to express confusion and frustration over what can and cannot be recycled, and anger at limited recycling facilities for those living in shared flats.



Recent research by the University of Manchester found that the complexity and inconsistency of recycling infrastructure across the UK can act as a barrier to recycling.

"I think the older people are more likely to [recycle]. The younger ones don't seem to be educated in it and they don't care."

Participant, aged 60+

"It really annoys me when you get a tray or something....recycling labels, one of them will often say 'check with local council', that's just not a national thing...I think it makes it so much more complicated."

Participant, aged 18-29



In principle, the public think producers should take the most responsibility for recycling in the UK

More responsibility

Manufacturers / industry

The public believe producers should have the **most responsibility** for the burden of recycling in the UK. They see solutions that rely on the manufacturer as removing the problem at source. Many also point to more sustainable methods of packaging and product restoration used in the past as evidence this can be feasible for the future.

Government

The public say that the Government (both central and local) have a key role to play in ensuring the recycling system works well. They believe the Government have the power to 'set the tone' by encouraging producers to do more in this area and making it easier for the public to recycle.

Individuals

Most feel that individuals should have the **least responsibility** when it comes to recycling, simply because they feel that too many people are either too lazy or set in their ways to do it properly. However, there is acknowledgement that the public have a role to play and the current burden to tackle waste on the consumer is viewed as reasonable.

Views on this do not vary significantly by protected characteristic, but older people tend to place slightly more emphasis on individuals being responsible compared to younger people.

"The people that actually make the waste, they should be more responsible." Participant, aged 18-29

"I think the individual really plays the biggest part sometimes, you know, how you shop, what you buy, and where you buy it from." Participant, aged 60+



Recycling policies that incentivise and support rather than punish are more popular with the public

Producers should have to make goods that are easier to repair

This is generally supported, with **older participants** in particular thinking back to days when there was more of a 'repair' rather than 'throwaway' culture (but **young people** are also very supportive of this).

"The repair thing I would absolutely believe in - in our house we're big on repairs." Participant, female

The Government should ban materials and products that can't be recycled

There is generally support for this, particularly amongst those who want producers to take more responsibility. However, some point out it isn't practical for all materials and products to be recyclable. Additionally, there is scepticism that Government would ever do this and some concern that producers would pass on extra cost to consumers.

"I think the Government ban, it would have to be phased in to ensure companies aren't passing it all onto consumers." Participant, LGB

Households should face fines if they don't recycle their waste

Whilst many, particularly **older**, people support this, others worry this is too harsh and less effective for those who may struggle to recycle (e.g. **very elderly people**). There is also a belief it would not be easily enforced.

"I think household fines should be introduced to hold people accountable." Participant, physical disability



Other areas of infrastructure



Digital communication is an area where big improvements are seen to have been made, but there is desire for consistent access to high connection speeds

Digital communication: working well

The progress made in the last 10 years in digital communications, particularly around broadband and mobile network speed and reliability, is seen as impressive.

Many also like that there is a choice of provider, unlike in other infrastructure areas (notably water).

"We have had significant disruption to these services, due to reception and phone lines being down."

Participant, religious

"I think public Wi-Fi should be more widely available for people who can't afford Wi-Fi at home or don't have access to mobile data."

Participant, female

Digital communication: working less well

However, many say more still needs to be done to improve broadband and mobile network speeds in certain locations (particularly rural locations).

A small number report having experienced frequent disruptions e.g. due to phone lines being down, and feel the resilience and therefore reliability of the service needs to continue to improve.

There is awareness that some people are less likely to have access to good Wi-Fi (e.g. those living in poverty). As a result, some feel good public Wi-Fi should be made more widely available given how essential access to the internet is becoming.



Age, disability and ethnicity have some influence on experiences of digital communications

Disability

Some people with **dyslexia** find it harder to use digital communications, e.g. navigating different broadband packages. They feel these processes need to be made more accessible.

A small number with **mental health conditions**, such as anxiety, find a disrupted network connection can be highly stressful and can exacerbate their condition.

Those with **hearing and sight impairments** report an added need for strong Wi-Fi to ensure video calls and text type service capacity, which can be harder to get in some areas.

"For people with learning difficulties or disabilities, this infrastructure can be particularly challenging and may emphasise the disparity in the digital divide."
Participant, non-physical disability

Age

Those who are **older** report finding it harder to use digital communications, e.g. navigating their different options for broadband and Wi-Fi packages. They feel these processes need to be made more accessible.

Many people feel concern for **older people** who cannot access online services due to lack of skills or access to technology and think this is putting them at a significant disadvantage when conducting everyday tasks.

"I suppose I am a bit more wary of digital equipment because I haven't grown up with it, but had to learn in later years. I'm still learning really."
Participant, aged 60+

Ethnicity

A small number see broadband and mobile networks as a vital tool to communicate with loved ones in another **country of heritage**. They see it as a vast improvement on older methods of international communication.

"If anything it doesn't affect us negatively, but positively... The ease of being able to contact family in Pakistan with the click of a button."
Participant, ethnic minority

However, participants perceive lack of access due to cost or poor coverage as a significant issue that can intersect with protected characteristics

The digital divide

Participants spoke of cost and lack of coverage a lot in relation to digital services, and some highlighted how this might intersect with protected characteristics such as **age and disability**.

"They have invested to improve older and disabled people's lives through the Digital Inclusion Innovation Fund... I think it will be hugely beneficial for common tasks e.g. household appliances, book GP appointments online, contact friends and family by video, and shop online."
Participant, religious

"I feel that having reliable communication services is vital for persons with illnesses and age issues."
Participant, non-physical disability

The Rural Services Network describe how the term 'digital divide' describes the **gap between those who can access information and communication technology and those who can't**. There are multiple dimensions to the digital divide, including: access to data, the skills and knowledge to use technology and handle updates to it, confidence that it is safe and secure to use, and money to pay for the connection and technology which enables it to form part of our everyday lives.



Most feel that the built environment where they live is well laid out, although older buildings can cause accessibility issues

Built environment: working well

The built infrastructure is generally felt to be working well. Many feel they have good access to a range of built facilities which they need (e.g. shops, public services like schools and hospitals), and that their villages/towns/cities are well laid out overall.

Many praise having the mix of refurbished, 'old' buildings and 'new' buildings near them – both for aesthetic reasons and because it is seen as more sustainable.

"Within the town we do have key public buildings such as a nice library, council offices, job centre and the likes of supermarkets etc. I am also always taken aback by a lot of the historical buildings in the area, especially those with thatched roofs." Participant, physical disability

Built environment: working less well

However, a small number criticise very narrow roads (especially in the countryside) which often have blind corners that are seen as unsafe. Some also criticise one-way routes where they live and the condition of pavements.

Others live in areas with a central space for amenities such as shops and surgeries. They feel that having shops in strategic locations rather than centrally will allow more people to have better access.

"The pavements can often have holes in which can be difficult when using a buggy or a wheelchair and this needs to be improved. Increase more local shops for the convenience of those that don't drive." Participant, physical disability

Those with physical impairments and those experiencing gender reassignment or who identify as non-binary are experiencing barriers to certain facilities

Age and disability

Those with **physical disabilities and/or older people** with mobility issues report some buildings not being accessible to them. This is particularly true for older buildings especially in historic towns and cities.

Some people struggle with access to public spaces because of a lack of toilet and changing facilities designed to accommodate those with **disabilities**.

These audiences also report finding crowded spaces particularly challenging and stressful.

"A lot of people with disabilities need specialist equipment like hoists in 'changing places' [and] toilets and there seems to be a lack of these meaning a lot of places are inaccessible for them."

Participant, pregnant

Gender reassignment / identity

A very small number mention that finding gender neutral bathrooms can be challenging for those who identify as **transgender/non-binary**, and want to see more of these.

They report that they may feel uncomfortable and unsafe using gendered toilets and changing facilities.

"Transgender people also struggle with infrastructure, especially if mid transition [...] It can feel like they don't feel comfortable or safe using certain gendered facilities such as changing rooms and toilets."

Participant, pregnant

The Centre for Aging Better explores the concept of ageism and how the built environment can ignore the needs of the older population: "This might include a failure to design and build age-friendly homes and communities [...] Similarly, the characteristics of our wider built environment – such as a lack of transport, public seating, toilets and poorly maintained footpaths and infrastructure – fail to address the needs of older people and can result in social isolation."



The natural environment is deeply valued, but as with other infrastructure types, it can feel less accessible to those with mobility issues

Natural environment: working well

Many feel they do have a good range of natural spaces available near them to enjoy, particularly those in more rural and suburban areas.

Some feel the value of the health benefits of getting outside, particularly for specific conditions.

"Once upon a time Burnley was quite a green place with lots of places to go with country views and grass. Recently this is all diminishing. There are buildings and factories and flats built everywhere. It's almost as if we're running out of land."
Participant, ethnic minority

Natural environment: working less well

Whilst natural and particularly green spaces are hugely valued for the range of benefits they are felt to provide, many see a significant loss of these spaces over time, largely as a result of housing developments.

Some also say local natural spaces are full of litter or vandalism which spoils and pollutes them, particularly those in urban spaces.

Some do not feel safe in green spaces due to perceived high levels of crime and harassment.



Those with mobility issues, ethnic minorities and those in religious dress report particular barriers to natural spaces

Age and disability

People who are **older, and some with disabilities**, report that because of their additional travel needs, accessing natural spots in more remote locations can be difficult.

Some also report accessibility issues once at natural sites, such as minimal disabled parking and uneven paths.

Some feel there is a need for more park equipment for **neurodiverse children and those with disabilities**.

Others report that **being in the natural environment can be especially important** for them in managing their condition and wellbeing, and so barriers to access can be particularly difficult.

"I really do value the health benefits of getting into the great outdoors and it's lovely that I can do this in my area. It helps my condition massively to get out and about."

Participant, physical disability

Religious dress and ethnicity

A small number report feeling less welcome in natural spaces due to their **Islamic dress**, so have stopped visiting these places. They ideally want to see more patrols in parks and an emphasis on inclusivity.

Similarly, a small number of people from **ethnic minorities** report experiencing racial abuse from people in green spaces, which puts them off wanting to visit. They want to see more security in these places.

"In some areas I feel I'm not welcome just for wearing hijab which clearly indicates my religion, I feel people feel I'm a threat so I completely stopped visiting certain places no matter how much I do like them."

Participant, religious and wears religious clothing

Research from Groundwork UK supports findings that ethnic minorities experience increased levels of harassment in green spaces, causing a barrier to use. They also note that "The way that urban natural spaces are designed can also reinforce barriers to use for people from ethnic minority groups. A study on the Queen Elizabeth Olympic Park in London found significant differences between the spatial practices and preferences of local people along ethnic lines."



The water system is felt to deliver a dependable and steady water supply into people's homes, although there is a concern that drainage systems can be easily overwhelmed

Water and flooding: working well

Water systems are seen to deliver a largely uninterrupted supply of clean, safe water which is a sign the system is working well.

Some also point to the replacement of lead piping as a positive.

In general flood defences in the UK are felt to be working well, although a small number want to see improvements to these in their specific location.

Water and flooding: working less well

However, there is concern that drainage systems can be very easily overwhelmed and rivers burst their banks, particularly when there is heavy rainfall.

In the cost of living crisis, some say the cost of water and waste management should be reduced. This is compounded by a sense of unfairness that the public do not have a choice over their supplier.

Some also heavily criticise the practice of wastewater being 'dumped' in rivers and seas. Those living near sewage treatment works also say odours are unpleasant and want more action to be taken to remedy this problem.

"I like that we have never had any issues with our water supply and it has been reliable. I like that we haven't had any direct impact by flooding."

Participant, pregnant



There is positivity about how water companies support more vulnerable groups of people

Disability, sex, marital status, age

Whilst not mentioned by anyone in the online community, the NIC's own distributional analysis suggests that **households with a disabled member, all female households, single households and older age brackets** spend a higher proportion of their household expenditure on water.

A small number of participants are aware of the priority service register and support this idea for vulnerable groups such as those with **certain medical conditions**.

One participant reported finding **water bills challenging to understand** due to their ADHD, making it difficult to keep track of their usage.

"Water and sewage services - persons with disabilities often have a greater need for water."
Participant, religious

"I don't understand how to read a water bill. It is too complicated and I have ADHD so trying to work out how much I have used is confusing."
Participant, physical disability

A report from CCWater states that the level of customers in vulnerable circumstances registering for support is increasing: "It is imperative that consumers can trust their essential service providers to give them the support they need. This is vital in the case of water and sewerage services. For example, some customers may find it difficult communicating or receiving information in the formats that companies ordinarily use. Others may struggle to boil water during a water quality incident so could need bottled water."



Appendix

Sample breakdown

Sample frame (68 participants)

Online community	Focus groups	Depths
<ul style="list-style-type: none"> • Age: 4 x participants over 70 • Gender: 2 x participants who identify as transgender 19 x women • Pregnant or on maternity leave: 3 x participants who are pregnant or on maternity leave • Disability: 7 x participants with a disability that has a significant impact on their everyday life • Ethnicity: 7 x participants from an ethnic minority background • Religion: 21 x participants who are religious, including 3 x of those who wear religious dress e.g. a hijab or kippah • Sexual orientation: 5 x participants who identify as LGB 	<ul style="list-style-type: none"> • Age: 6x aged 18 – 29 6x aged 30 – 59 12 x aged 60+ (including 7 x 70+) • Gender: 3 x men and 3 x women per focus group • Digital literacy: 4 x participants aged 60+ who feel less confident in using digital technology • Ethnicity: 7 x participants from an ethnic minority background across the sample • Location: 3 x Scotland 1 x Northern Ireland 20 x England (6 x South East) 	<ul style="list-style-type: none"> • Disability: 7 x participants with a disability that has a significant impact on their everyday life 3 x physical 3 x non-physical, e.g. dyslexia 1 x both • Age: Spread of ages between 20-70 • Gender: 5 x women 5 x men 1 x person identifying as non-binary • Ethnicity: 2 x participants from an ethnic minority background • Religion: 2 x participants religious and who wear religious dress e.g. a hijab or kippah • Sexual orientation: 2 x participants who identify as LGB • Location: 3 x Scotland 1 x Wales 1 X Northern Ireland 8 x England (2 x South East)

Desk review sources

Organisation	Publication	Date	Link
CCWater	Water for All Report	2019/2020	Here
Centre for Aging Better	Ageism: What's the Harm? Exploring the Damaging Impact of Ageism on Individuals and Society	Not specified	Here
Citizens Advice	Access Denied: Digital Disadvantage and Exclusion in the Energy Market	Nov 2022	Here
Groundwork UK	Out of Bounds: Equity in Access to Urban Nature	May 2021	Here
House of Commons Library / Brigid Francis-Devine	The Gender Pay Gap	Dec 2022	Here
Joseph Rowntree Foundation	Comparing Poverty Rates for Disabled and Non-Disabled People – From the 2022 UK Poverty Report	Jan 2022	Here
London Assembly Transport Committee	From Step Free to Stress Free	Mar 2020	Here
NIC	Distributional Analysis: Fact Sheets	2023	
Ofcom	Access and Inclusion Research: Disabled Consumers Research Summary	Jan 2019	Here
ONS	Data from the Opinions and Lifestyle Survey	Oct 2022	Here
ONS	The Cost of Living Alone	Apr 2019	Here

Desk review sources continued

Organisation	Publication	Date	Link
Rural Services Network	Are Rural Areas Falling Through the Net?	Aug 2021	Here
Scope	Travel Fair	Sept 2019	Here
Thinks Insight & Strategy commissioned by Motability	Transport Needs for Disabled People	Jul 2020	Here
Thinks Insight & Strategy	Cost of Living Research (April 2023, unpublished)	Apr 2023	Unpublished
Thinks Insight & Strategy and Scope	Living the Life I Choose	Feb 2019	Here
Thinks Insight & Strategy & Department for Transport	Decarbonising Transport: Deliberative Research	Jul 2021	Here
UK Government	Income Distribution by Ethnicity	May 2023	Here
The University of Manchester	Tackling Household Plastics Waste: Best Practice for a Circular Plastics Economy	Mar 2023	Here