

Written evidence submitted by Transport for All (SDV0045)

About Transport for All

Transport for All is the only disabled-led group striving to increase access to transport and streets across the UK. We are a pan-impairment organisation, guided by the passionate belief that all Deaf, disabled and older people have the right to travel with freedom and independence.

About this response

This submission focuses on the lived experiences of disabled people: the barriers to transport, the accessibility considerations of self-driving vehicles, and the importance of co-production with disabled people. This submission was compiled through our independent research, including insights from our pan-impairment membership (600 people across the UK) and from enquiries made to our helpline (250 calls a month), and our previously published research.

Key messages:

- Autonomous vehicles (AVs) hold real potential to increase disabled people's mobility, and make existing transport networks more accessible.
- Disabled people need to be actively included and consulted in the development, rollout, and legislation of AVs to ensure that these benefits can be realised, and that potential harmful effects are mitigated.
- AVs should not be viewed as a silver bullet to the inaccessibility of the public transport network. AVs are a welcome part of a bigger picture, and must not be allowed to divert attention or funding from other accessibility issues.

1. Introduction

There are 14.1 million disabled people in the UK, and around 1 in 5 people (20%) in the UK are disabled people.ⁱ Everyone should have the right to travel with freedom, confidence, and spontaneity, but for disabled people getting from A to B involves facing barriers at every stage of the journey. From poor

physical infrastructure to issues with communication and information, attitudes and systemic processes, and financial barriers.

This has resulted in the disability transport gap: disabled people make almost 30% fewer trips per year than non-disabled people,ⁱⁱ a figure which has not changed for over twenty years.ⁱⁱⁱ

Public transport is often inaccessible, and although disabled people are less likely to have household access to a car than non-disabled people^{iv}, the car is seen as playing a crucial role in mobility.^v Even so, driving is not an accessible option for many, including blind and visually impaired people, people with particular mobility impairments, and people with chronic health conditions like epilepsy. This can result in decreased freedom, independence, and quality of life:

“My husband has a car and gives me lifts, but there’s no real public transport here [...] I actually need my husband to go anywhere which is a huge thing, because obviously I'm a very independent-minded person.”
– *Transport for All workshop participant*

Self-driving autonomous vehicles, if deployed with a keen attentiveness to disabled people’s access requirements, are ideally situated to address the 30% disability transport gap. We have even heard from some of our members the excitement that this prospect brings:

“I’m looking forward to driverless cars. I’m hoping that they have a massive network of driverless cars in a sort of car-sharing, carpooling system.” – *Transport for All Workshop participant*

Tech developers have indeed capitalised on this potential in their marketing, touting the ways in which this technology will revolutionise life for disabled people, and pulling in substantial government funding with claims that “once we get to the stage where vehicles are fully automated (without the need for any human driver), the benefits for disabled users should be massive.”^{vi}

We welcome the extent to which accessibility has been at the forefront of these conversations, and agree that this technology holds significant potential to increase disabled people’s mobility. However, we feel that in order for these benefits to be realised, and the potential harms mitigated, disabled people must be more actively consulted in the development and deployment of AVs,

and that the government holds an obligation to ensure that this happens. Currently, there is insufficient research and legislation to ensure that these promises will be delivered.

2. The importance of accessibility considerations

It is imperative that the social object of inclusion is baked into the development of this technology. A potentially dangerous scenario is one in which autonomous vehicles are available only to a privileged 'kinetic elite' who are afforded greater mobility, flexibility, and speed in the world.^{vii} This would *increase* the disability transport gap, and compound the social inequalities disabled people already face. Existing literature states clearly that without policy interventions, AVs can and will generate equity concerns, and that policy makers need to act as early as possible to identify and protect the interests of disabled people.^{viii}

Major research initiatives that have received millions of pounds of government funding have flown their projects under the banner of accessibility. CAPRI, which is part of a consortium that received more than £4.2 million in funding from the Department for Transport,^{ix} write that '[t]he young, disabled and elderly will have greater access to mobility services through CAVs. This will improve mobility options for many people enhancing the quality of their life.'^x HumanDrive, which is funded by Innovate UK, speculates that:

“Those who cannot currently drive at all (including the blind and visually impaired) will be able to go wherever they want without having to rely on existing forms of public transport, taxis or lifts from friends and family, while those who currently rely on adapted vehicles will, in future, be able to use the same automated cars as everybody else.”^{xi}

The government itself has repeatedly speculated about the potential for AVs to “profoundly change the way we travel”^{xii}, with “benefits of increased safety and accessibility to the travelling public.”^{xiii}

If public money is being put towards initiatives that promise to change the way disabled people travel, then the government needs to have more robust monitoring and regulation of these projects to ensure that these promises materialise, harms are mitigated against, and that disabled people can see the benefits of money that is being spent in their name.

3. Safety

Another potential danger could be that this technology isn't safe for disabled people, either as passengers or pedestrians. A lot of the time, staff and other human assistance is a necessary safety feature: blind and visually impaired people may need a person to sight-guide them, and people with mobility impairments may need assistance getting in or out of the vehicle. In the absence of another person, the accessibility of these vehicles will be especially important, and existing accessibility frameworks, requirements, and design guidelines, will likely be insufficient to account for the number of access requirements and fail-safes needed to make these vehicles function for disabled passengers.

One example would be people with epilepsy; those with active seizures are prohibited from driving, and are among those who would benefit from the proliferation of autonomous vehicles. But, in the absence of another person, would there be a way for the vehicle to detect a seizure or other medical emergency, and potentially contact assistance or redirect the passenger to a hospital? For disabled passengers new to travelling by car alone, assurance that they are safe, and that assistance of some kind will be available if something goes wrong, is likely to be a key factor in determining whether they will use the service. It will also be essential to understand what fail-safes need to be in place if the vehicle were to malfunction while carrying a disabled passenger, particularly passengers with mobility impairments who might be unable to move themselves to a safe position. To determine exactly what features will be necessary, extensive user testing and consultation with disabled people will need to be conducted.

There are also serious risks that need to be managed for pedestrians. In the event of a malfunction or crash, disabled people may not be able to move out way in time, or detect that they are in the vehicles path at all. It is also imperative that these sensors are able to recognise disabled people *as people*: in the event that the vehicle has to choose which way to crash, it must be able to recognise that, say, a person using a power scooter is a pedestrian and not a nonhuman object, and prioritise their life as much as they would a nondisabled person. The Law Commission has already investigated this potential bias, pointing out that "systems may not have been trained to deal with the full variety of wheelchairs and mobility scooters."^{xiv} If the technology isn't able to recognise all mobility aids, then there is a serious risk that disabled people will be disproportionately injured if this technology hits the roads.

The effects of gender bias in road safety testing stands as a warning to policy makers. Crash test dummies are built to male specifications, and the resulting standards that develop from this testing disproportionately endanger female drivers, who are 17% more likely to be killed and 73% more likely to be seriously injured in a crash.^{xv} Especially given the recent scrutiny this gender disparity has come under, it would be remiss to embed biases against disabled people to into the safety standards of AVs. There will need to be ongoing monitoring during the testing and deployment stages of injuries and near misses, assessing whether disabled people are disproportionately affected, and which mitigations need to be in place

4. Consultation

It is absolutely integral that the development of this technology, and the design of any infrastructure and legislation, is coproduced with disabled people. Consultation should start as early in the process as possible, and should be ongoing from development through to real world testing and policy making. This is the only way to ensure that AVs are not only safe and physically accessible, but financially accessible, and deployed in ways that disabled people actually need and want. Without disabled peoples' involvement in the entire process, the speculative "benefits of increased safety and accessibility to the travelling public" that both government and industry have spoken of for years, will fail to materialise.

Government guidelines on Minimum Engagement for AV trials does not currently specify that Disabled People's Organisations (DPOs) need to be consulted.^{xvi} In their publicly available specifications (PASs), the British Standards Institute does make reference to consulting stakeholders during trials. However, DPOs are still framed as an optional extra, rather than a key interest group:

"Stakeholders might include insurers, highway authorities, road operators, landowners, leaseholders, consumers and users of the technology or their representatives and members of the community. There might also be a requirement to consult with organizations representing people with disabilities and individuals living with disabilities."^{xvii}

The responsibility to consult DPOs should not be at the discretion of private developers, but should be a mandatory part of any trial and rollout. This

engagement is critical: DPOs, as opposed to charities or condition specific groups, can offer a pan-impairment approach drawing upon a range of expertise and lived experiences. The consultation needs to be comprehensive, and DPOs will be able to ensure this happens.

5. Real world testing

We want to emphasize the importance of testing in real world environments. The accessibility of AVs is not only dependent on the vehicle itself, but the way it navigates and predicts environmental barriers for the passenger once they dismount. If the vehicle is deploying a ramp for a wheelchair user, it will need to not only find a point on the curb where it is clear, but a point where the ramp can meet the pavement at a regulation angle. This will vary according to the depth of the curb, the availability of parking, whether there is damage to the pavement or objects obstructing the usual drop-off point, among many other factors that the vehicle will need to account for.

The importance of factors such as ramp angle and placement are often missed when there is not sufficient input from disabled people. On the rail network, the current variation of platform edge placement varies by almost a meter, and ramped boarding causes 20 injuries per year, with 80% caused by staff.^{xviii} Even when design guidance and infrastructure is theoretically in place, the real-world implementation of this can vary dangerously. It is important that AVs are not declared to be 'accessible' simply because their designs meet current accessibility standards. Disabled people will need to be continually involved in their roll-out, and there will need to be continued monitoring and feedback to improve how to make the technology works in practice.

This will also be an important phase for ironing out licensing protocols. Currently, all UK trials require that a fully licensed driver be in the AV, ready to manually take over controls. While this is necessary during the testing phase, it will be important to establish exactly what kind of licence, if any, will be necessary for passengers in the future. If a full permit is required, then the disabled people who might most benefit from AVs, such as blind and visually impaired people, will be excluded. It will then be necessary to investigate what training and or licencing will allow disabled people to participate, whilst also ensuring their safety as passengers and pedestrians.

6. Impact on public transport

There is a lot of (well-founded) fear that the proliferation of AVs for private and public use would increase the number of journeys made by car, potentially deterring people from using public transport or other more environmentally friendly modes of travel. However, AVs could be deployed with a view to increasing disabled peoples access to public transport. Many of the access barriers to the train, metro, bus, etc. exist *on the way to and from* stations^{xix}; sometimes the distance is too strenuous, or the pavements broken or obstructed; sometimes there is insufficient parking, or nowhere to store cycles; sometimes taxis drive off if they see someone using a wheelchair or an assistance dog.

Vehicles that could reliably provide a door-to-door service to and from stations could mitigate some of these barriers, and allow more disabled people to get to public transport hubs independently and confidently. This scenario relies on the vehicles being both reliable, in ready supply, and less expensive than a taxi. This could be realised with a specific fleet that provides this service at a discounted price to incentivise use of public transport. There would also need to be sufficient coordination to ensure public transport hubs have the infrastructure to accommodate this.

Another potential use is *within stations*, with pods transporting and guiding people to their desired platform. There can be a number of barriers to navigating stations and getting to platforms, especially for people with mobility, visual, or sensory processing impairments. People with energy limiting impairments may also face barriers moving through the station if there is significant distance between platforms. Small AVs that could carry individual passengers through the station could be a way to mitigate these barriers, especially when stations are understaffed, and mobility or navigation assistance is unavailable.

There are already projects underway that are investigating AVs for precisely these purposes.^{xx} We fully support this concept, and believe they are one of the most worthwhile areas of further investment, potentially increasing disabled people's access to transport long before Tier 5 AVs are commercially available for road use.

7. Air pollution

Air pollution itself is an accessibility issue, with an especially detrimental impact to people with respiratory conditions. A recent report published by

charity, Asthma + Lung UK, found 53% of people with asthma and 47% of people with Chronic Obstructive Pulmonary Disease report that air pollution is a trigger for their symptoms^{xxi}, which can include a tight chest, coughing and breathlessness. When applied to the general population of people with asthma and COPD, this could equate to as many as 3.4 million people who are affected. It is important both for disabled people, public health, and the environment more broadly that AVs do not lead to a net increase in emissions.

Current research suggests that AVs can limit emissions because of reduced congestion, more homogeneous traffic flows, and increased fuel efficiency.^{xxii} This could easily be offset, however, by increased travel demand and number of journeys made by car.^{xxiii} Especially given how nascent much of this technology is, now is the time to set out in legislation that requires that these vehicles use clean or hybrid energy sources. Again, it is significantly more expensive to legislate this retroactively, and the burden of that cost will be passed onto consumers through low-emission zone charging and scrappage schemes. This must also be twinned with meaningful investment into public transport and active travel. AVs are one part of the solution, but a reliable and accessible public transport network is necessary to reduce emissions.

8. Privacy and data protection

The need to protect the privacy of passengers is an issue that will affect everyone. It is especially important for disabled passengers, who may have to enter sensitive information about their health and access requirements. If robust safeguards are not in place to prevent data harvesting, disabled people may be disproportionately deterred from using the service. It may also put disabled people at greater risk while en-route; if, for instance, a bad actor was able to obtain information that a passenger is blind and travelling alone, and was able to access the location and drop-off point, this passenger would be at greater risk of crime at their destination, including hate crime.

Disabled people are already rightfully fearful of how their data is used by the Department of Work and Pensions to determine their access to benefits. If disabled people aren't assured that data about their journeys is protected, that it won't affect their Personal Independence Payment claims, then they will likely be deterred from using the service.

9. Financial considerations

On average, a disabled person faces over £583 more monthly costs than a non-disabled person.^{xxiv} Disabled people are more over a third less likely to be employed as non-disabled people.^{xxv} The proportion of working age disabled people living in poverty (after housing costs) is 27%, which is 8% higher than the figure for working age non-disabled people.^{xxvi}

Financial barriers to AVs are an accessibility issue in themselves, and need to be treated as such. This technology cannot change the way disabled people live if they cannot afford to use it, and a small host of affluent disabled people owning self-driving cars will not bring about a meaningful change. If AVs are prohibitively expensive, then this again poses the risk of creating a 'kinetic elite' which will disadvantage the majority. The government therefore has an obligation to make this technology as affordable as possible.

This is also important from a business perspective. Because of the potential to make meaningful advancements in accessible transport, disabled people are one of the most significant markets for this new technology. It is also substantially more expensive to retroactively add accessibility features than it is to build them in from the beginning, and the government has an obligation to incentivise private developers to do so. Nobody loses when transport and technology are made accessible. Intuitive and usable interfaces, with as few physical barriers to use as possible, benefit nondisabled users as well. Especially with an ageing population, accessibility is worth investing in.

10. Conclusion

AVs represent a whole host of possibilities for disabled people, and the fact that this has been recognised by developers is encouraging. We want to emphasize, however, that AVs will be most productive, accessible, and environmentally friendly, if they are seen as one part of a greater whole. They must not be used to placate disabled people's concerns about accessible public transport, and will be useful when coupled with continued investment and improvements to the existing network. Projects that focus on how AVs can be integrated into stations and airports are among the most promising developments for disabled people.

And finally, in order to deliver on these speculations how AVs will revolutionise accessible transport, disabled people and DPOs need to be embedded in the conversation. Consultation should be ongoing and mandatory, so that the

technology can be developed around the needs of the group it so often claims to champion.

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References

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- ⁱⁱⁱ In 2001 the Commission for Integrated Transport (CfIT) conducted a survey that found that disabled people travel a third less often than non-disabled people. The CfIT study was conducted by MORI between 9 June and 5 July 2001 among 2,202 members of the general public in England. Referenced in DPTAC (2002) Attitudes of Disabled People to Public Transport. Available at https://trimis.ec.europa.eu/sites/default/files/project/documents/20060811_110503_45123_UG395_Final_Report.pdf
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- ^v According to research by Motability (2020):
- 18% report having negative experiences on the bus and/or train (16%). This compares with 1% who report negative experiences in private vehicles, despite similar usage rates (car driven by you 73%, driven by someone else 90%)
 - More than two thirds (68%) of disabled people report having positive experiences on private transport, compared to less than half (48%) who report positive experiences on public transport
 - Participants described a spontaneous preference for private transport over public transport overall. Though some benefits of public transport were identified, such as low cost and the opportunity for social interaction, using public transport was described as less reliable and inaccessible for many. Private travel, especially for those able to drive, was felt to be more convenient and less unpredictable and therefore risky than public transport.
 - Among those that do so, 9 in 10 disabled people (91%) have positive experiences driving their own vehicles
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