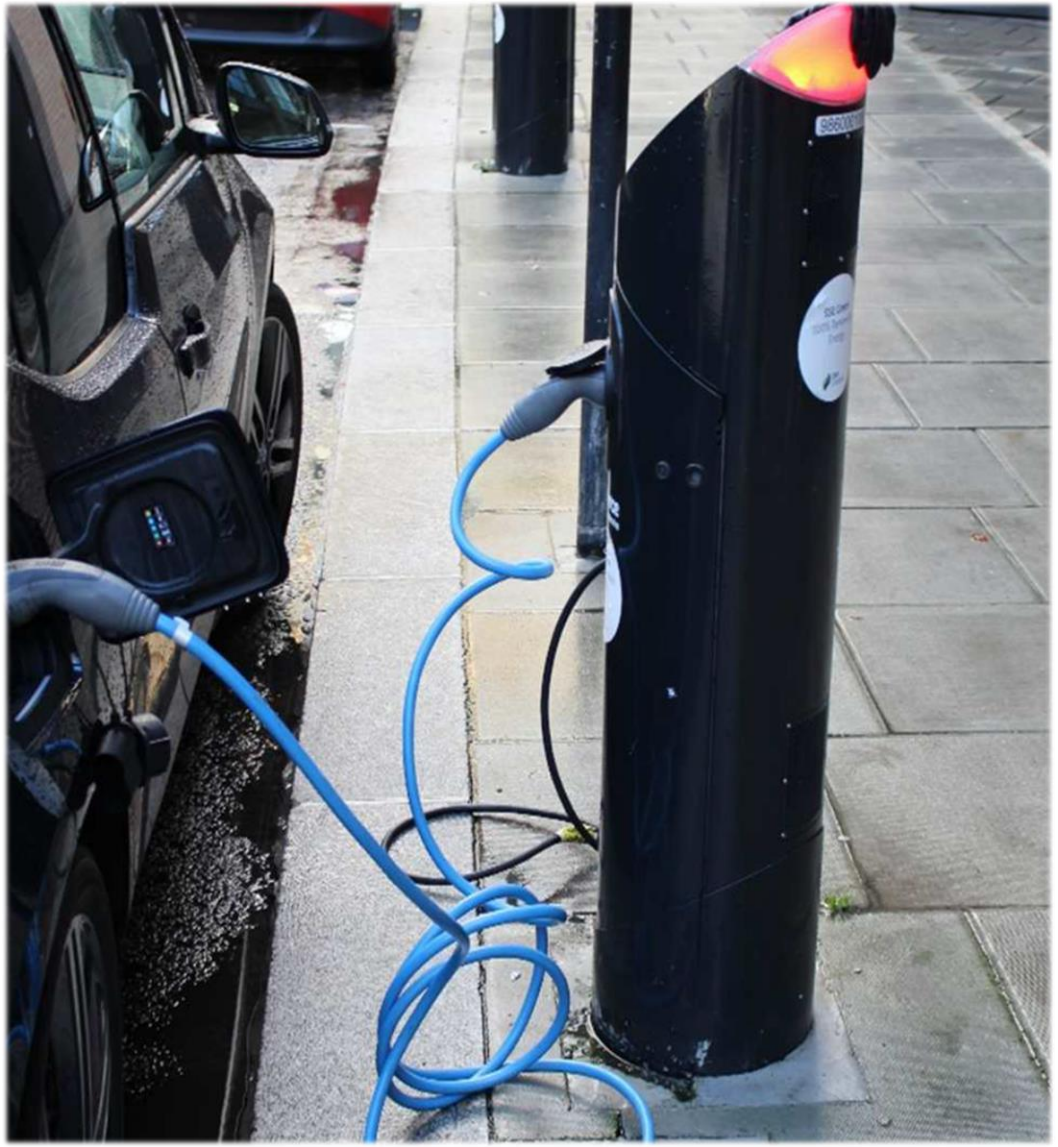
Motability

Accessible electric vehicle charging infrastructure

APRIL 2021



Contents

Why are we doing this?

- Motability-sponsored research from the Research Institute for Disabled Consumers (RiDC) identifies **serious accessibility challenges with existing charging infrastructure** (July 2020)
- Motability-commissioned research from Ricardo Consulting estimates there will be 2.7 million disabled drivers in the UK in 2035, with **up to half (1.35 million) being wholly or partially reliant on public charging infrastructure**; even market leaders such as Norway, the Netherlands etc. have not set national standards for accessible charging (September 2020)
- Disability questions on Zap-Map's annual survey indicated **low uptake of EVs among disabled drivers** (December 2020)

Why are we doing this? (cont.)

- Informal meetings with industry and disability stakeholders over Autumn and Winter 2020 indicate **need to understand what "accessible" means in the context of charging**, established social and commercial case for more inclusive infrastructure
- In response, **Motability and OZEV establish a partnership to sponsor guidance to industry** through independent standards body BSI, aiming for practical changes that can be made now
- **Motability grant funds design and disability charity Designability** to produce outputs with the aim of supporting industry understanding and informing standards; Motability links to other innovation in this space

Motability

Office for Zero Emission Vehicles

designability

January-March

- OZEV-Motability partnership
- Designability scoping and discovery
- REA feedback
- Launch of consultation

April-June

- Scoping standards
- Sourcing technical author
- Contracting BSI
- Designability user engagement
- Consultation closes

July-August

- Base standards document developed
- User engagement delivered
- Broader sector engagement
- Steering group convened
- Launch event

September onwards

- Steering group feedback
- Standards iteration
- Designability concept design and prototyping

Spring 2022

- Standards finalised
- Designability best practice showcase
- Monitoring/ evaluation begins

Users and their journeys

Charging components +interfaces

Vehicle types +adaptations

Built environment around EV chargers

Figure 2:1 Disability type as a proportion of all people with a long-term disability

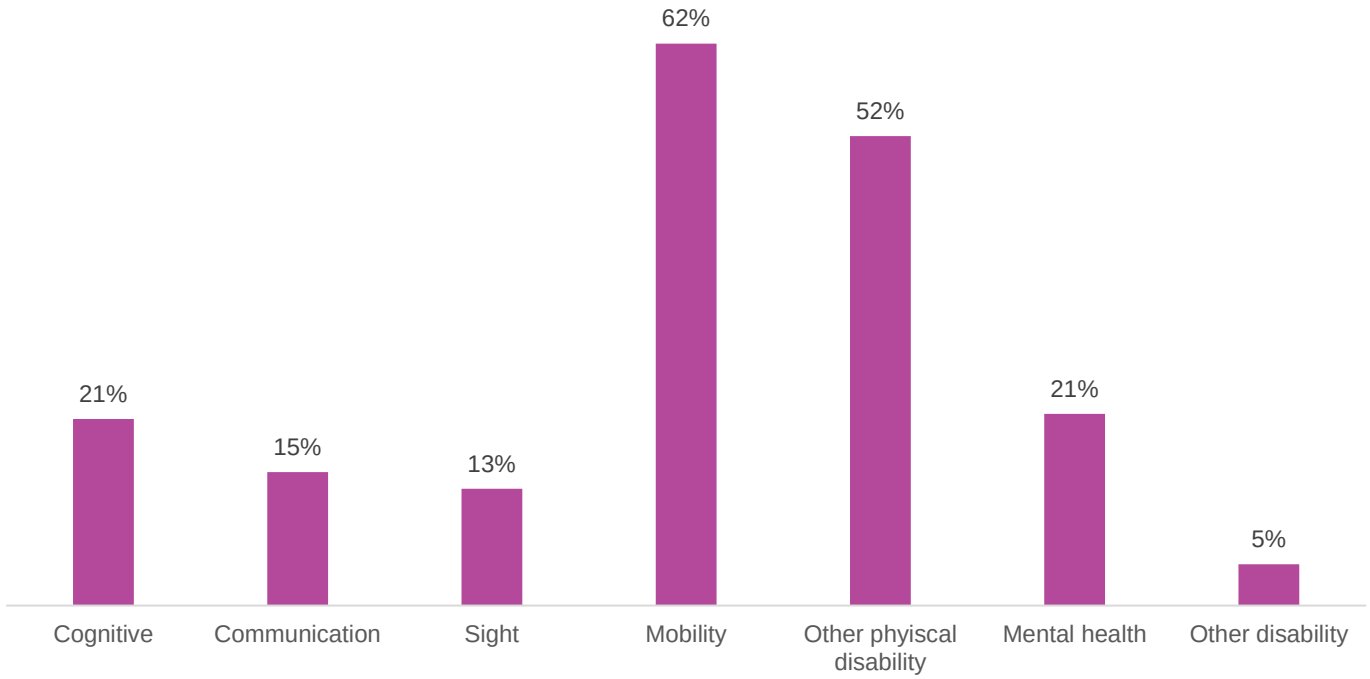
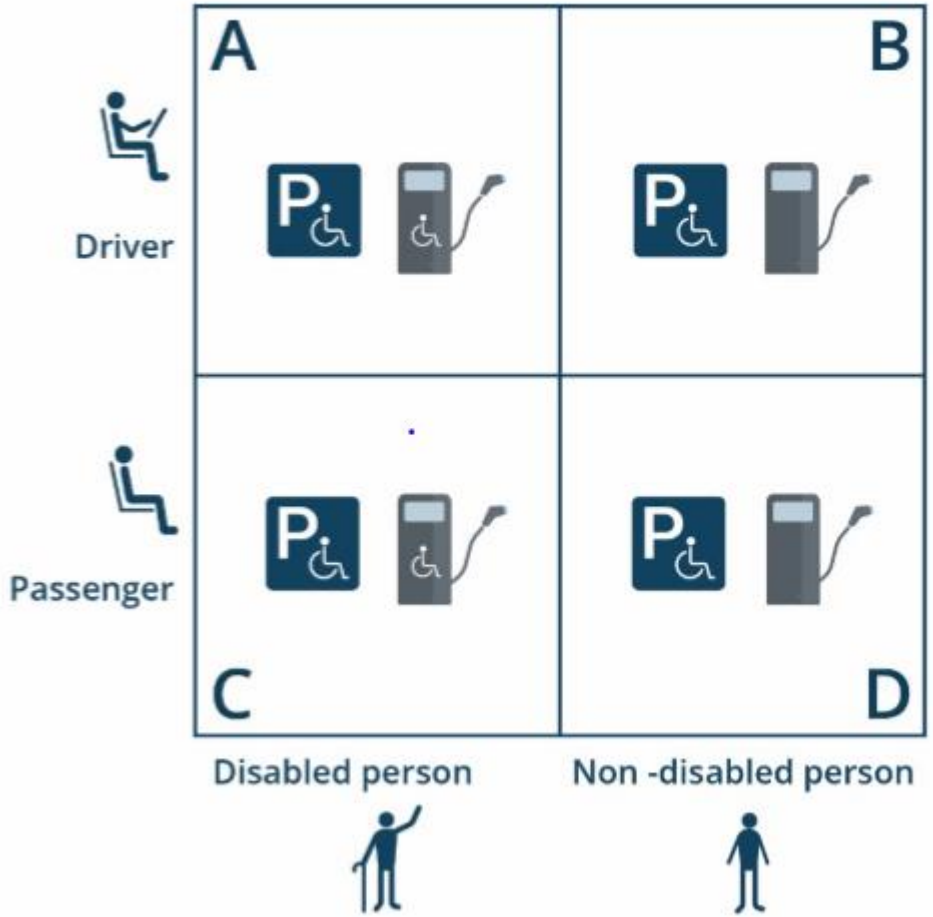


Table 3:19 Use of mobility aids, by type

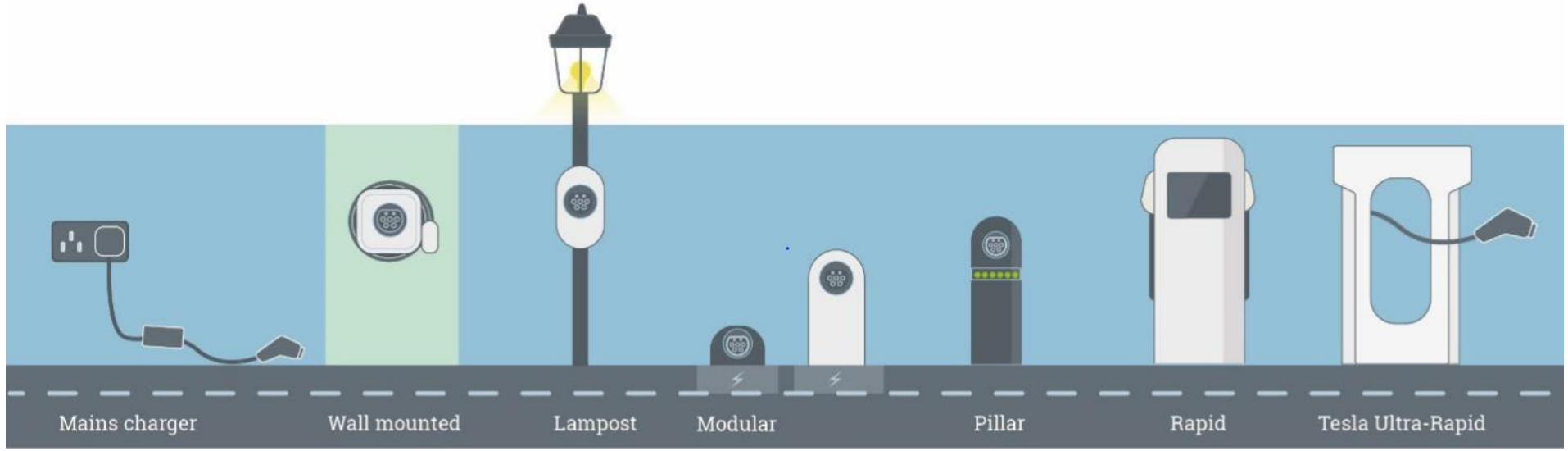
Base: All respondents who have difficulty going out on foot unaided	National Travel Survey 2018 Total
Type of mobility aid used	%
Powered wheelchair	3
Manual wheelchair	12
Powered mobility scooter	9
Walking sticks	48
None of these	34
Other walking aid	16
Unweighted base	1,061

Table 2:2 Type of disability reported, as a proportion of everyone who has a long-term disability (physical or mental)

Base: all respondents with a long-term disability (physical or mental)	
Type of disability	%
Cognitive disability: including memory related conditions, learning or understanding or concentrating, or social or behavioural problems	21
Communication related disability: speech or hearing	15
Problem with vision, e.g. blindness or partial sight	13
Problem with mobility, e.g. walking short distances or climbing stairs	62
Other physical disability: including problems with dexterity, such as lifting or carrying objects, or using a keyboard, or with stamina, fatigue or breathing	52
Problem with mental health	21
None of these types of disability	5
Unweighted base	2288

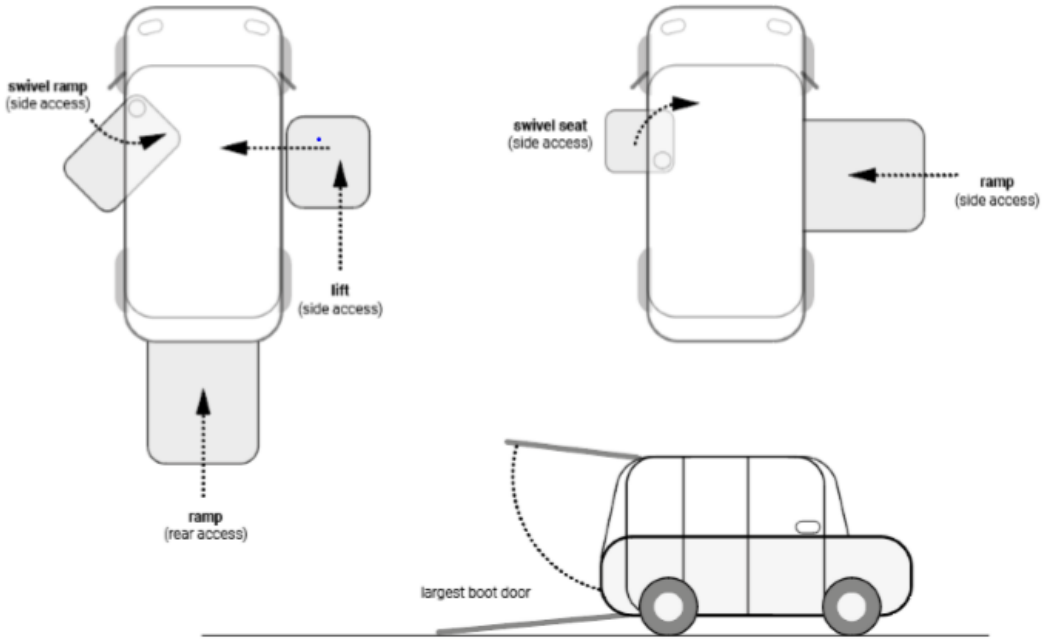


- Independent disabled drivers who charge an EV
- Disabled people passing by the charging location
- Disabled drivers and passengers who need to enter and exit an EV and manoeuvre around it
- Common groups of disabled EV users
- Disabled users of EVs who are reliant on public EV charging infrastructure
- Users with the most significant accessibility need



Within public charging, the **charging unit types to focus on:**

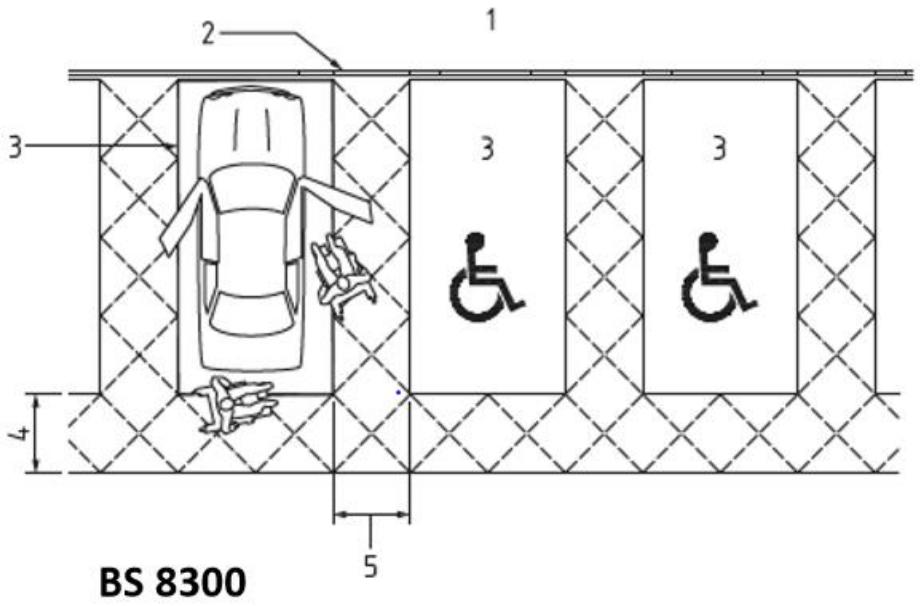
- Lamp post charging units, kerbside (slow)
- Pillar charging units, on and off street (fast)
- Rapid charging units, in a service/fuel station context



EVs will need to be adapted for disabled drivers just as ICE vehicles are now; such as driving control adaptations (speed, steering, signalling, handbrake); access (hoists, swivel seats); stowage (for wheelchair or mobility device, hoists and roof stowage)

What kinds of EVs will disabled people drive/be passengers in?

- Large WAVs
- Smaller WAVs
- non-WAVs with adaptations
- non-WAVS, no adaptations, but might need space for other mobility aids
- EVs where the person charging is not using a mobility aid and there is no adaptation, but there is a physical disability affecting strength, dexterity, energy levels, etc.



BS 8300

Public off-street

- Majority off-street chargers sited at car park, 'bay' parking spaces, vs. 'kerbside' parallel parking spaces
- Off-street parking bays provide the best opportunity for safe, confident access to public EV charging, where on-street charging is not suitable, available or preferable
- These settings can provide maximum accessibility for people charging EVs with greatest needs – e.g. large vehicles (WAVs), space around vehicle for movement, deploying adaptations
- Standard BS8300 for on-street disabled parking spaces dictate dropped kerbs or level access but many existing on-street charge points do not meet this requirement

Non-parking accessibility considerations

- Proximity of parking bay to charger
- Obstacles, street furniture
- Information and signage
- Pedestrian/wheelchair travel surfaces

User Engagement/Requirements Gathering

We will seek more to understand and explore more about…

Users/Journeys

- Different user characteristics and prioritised journey types
- Who charges (or would charge) an EV, and why, and whether this is by choice
- What are the most significant edge cases, and is assistance a viable option, and in what contexts

Charging components/infrastructure

- People's EV charging experiences: specifics and end to end (e.g. interfaces, access, cables, connection)
- Give people the opportunity to try this out (face to face) or imagine through simulation
- Willingness to own/charge an EV – greatest perceived barriers
- Test idea of different accessibility levels/solutions given one size doesn't fit all

Built environment

- How do disabled people use on and off street parking currently and what challenges do they face; how might this change with EVs; what can we learn from compensation strategies
- What requirements do the different vehicles disabled drivers use place on the built environment
- What additional considerations need to be made for moving within a charge setting and accessing a charger for people using large or adapted vehicles (e.g. cable length)
- What additional considerations are there for those with a small sized EV who have dexterity and mobility issues

User Engagement/Requirements Gathering

- Motability sample: screening, segmenting, targeting
- Sourcing via other charities and representative groups
- Kind offers to test

Sourcing technical author

- Combined accessibility and EV charging expertise

Decision on standards type

- Exploring merits of PAS vs. Code of Practice vs. Guidance document – same process across all options

Incorporating consultation insights

Convening stakeholders

Catherine Marris

Head of Innovation

CatherineMa@motability.co.uk

Motability