Accessible public chargepoints for electric vehicles

Summary report of the Technical Working Group review of PAS 1899:2022

November 2025

bsi

Office for Zero Emission Vehicles

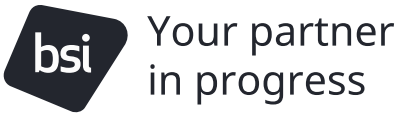
Funded by Motability Foundation

Authors
Peter Weldon (Systra)

Sponsors
Motability Foundation
OZEV

Acknowledgements
The authors are grateful to all the participants of the PAS 1899 Technical Working Group for their contributions and insights.

Disclaimer
This report has been prepared for general information purposes relating to its subject matter only. It does not constitute a definitive or exhaustive advice; it outlines possible courses of action and next steps and is intended to inform further stakeholder discussion and decisions on its subject.



@2025 BSI. All rights reserved.

Contents

Executive summary ..... **iv**
1 Introduction **1**
1.1 Background and context 1
1.2 Initiating a review of PAS 1899 2
2 Scope of the review **3**
2.1 Objectives of the PAS 1899 TWG 3
2.2 Work programme 3
3. Challenges relating to PAS 1899 ..... **5**
3.1 Introduction 5
3.2 Challenges facing disabled drivers 5
3.3 Challenges in delivering PAS 1899 7
4 Proposed approach to updating PAS 1899 ..... **11**
4.1 Introduction 11
4.2 Technical clauses 11
4.3 Availability of assistance 13
4.4 On-street chargepoints and chargepoint innovations 14
4.5 Structure and drafting of PAS 1899 15
4.6 Supplementary guidance 16
4.7 Chargepoint accessibility data 16
5 Recommendations and next steps **17**
5.1 Recommendations for PAS 1899 17
5.2 Next steps for updating PAS 1899 19
Appendix A – PAS 1899 TWG members **20**
Appendix B – Glossary **21**

List of figures

Figure 1: Challenges and issues at public chargepoints – all respondents (n =150) 6
Figure 2: Challenges and issues at public chargepoints – wheelchair user respondents (n = 91) 6

List of tables

Table 1: Programme of meetings for the PAS 1899 TWG 4
Table 2: Interpretation issues impacting delivery of PAS 1899 8
Table 3: Technical content issues impacting delivery of PAS 1899 9
Table 4: Summary of next steps for technical clause updates to be undertaken as part of the PAS 1899 revision 12
Table 5: Decision points on the next steps for PAS 1899 17

@2025 BSI. All rights reserved.

Executive summary

PAS 1899:2022, *Electric vehicles – Accessible charging – Specification* is a standard that specifies requirements for the provision of accessible public chargepoints for electric vehicles (EVs). It aims to improve the accessibility of public charging infrastructure for all potential users, including disabled people and older people.

The development of the standard was co-sponsored by Motability Foundation and the Office for Zero Emission Vehicles (OZEV) and was published in October 2022. It was the first standard of its kind, developed in close collaboration with a wide range of stakeholders and represented a positive step towards making EV charging infrastructure accessible for all drivers, including disabled people.

PAS 1899 aims to improve the accessibility of public charging infrastructure by:

- specifying the minimum accessibility requirements for all public chargepoints;
- providing supplementary accessibility guidance for all public chargepoints; and
- providing guidance for public chargepoints installed adjacent to designated accessible parking bays, for both off-street and on-street settings.

PAS standards typically undergo a review after two years to assess whether and how they might be updated to improve their implementation. As such, Motability Foundation and OZEV initiated a review in February 2024, including to consider challenges stakeholders had raised regarding implementation of the standard.

The review involved establishing a PAS 1899 Technical Working Group (TWG) to examine the emerging evidence of challenges to implementation, and to provide advice on whether and how to update PAS 1899 to improve its effectiveness and implementation. The TWG included a broad range of stakeholders, including consumer and consumer and disabled people's groups, central and local government and a range of industry bodies, reflecting a strong shared commitment across the sector to deliver more accessible charging infrastructure.

This report summarizes the work of the PAS 1899 TWG, including:

- developing an overview of the challenges faced by stakeholders in implementing PAS 1899;
- engaging with stakeholders and experts to develop an evidence base for updating PAS 1899 to mitigate those challenges and improve its efficacy and implementation; and
- making recommendations to the PAS 1899 sponsors and proposing a plan to update PAS 1899.

In summary, the review found that disabled drivers continue to face challenges in accessing public chargepoints. There is a need, therefore, for PAS 1899 to have a clear set of accessibility requirements that could be implemented by the sector. The review process demonstrated strong commitment from across the sector to achieving this goal.

The review identified that the main barriers to the uptake of PAS 1899 were challenges in interpreting and implementing the PAS by those responsible for procuring and installing chargepoints. Some of the key challenges included:

- interpreting and understanding the requirements of PAS 1899, including roles and responsibilities for delivering accessible chargepoints;
- procuring chargepoints that meet the physical design requirements specified in PAS 1899;
- implementing the requirements of PAS 1899 for chargepoints on residential streets ("on-street chargepoints"), where the surrounding environment can be highly variable and constrained; and
- ensuring that drivers have access to data on the accessibility of each public chargepoint so that they can find chargepoints that best meet their needs.

@2025 BSI. All rights reserved.

The TWG's recommendations for addressing these challenges and improving the implementation of PAS 1899 are summarized below and reproduced in Table 5. There was strong consensus that implementing these recommendations would ensure that stakeholders, including site owners and industry, would be able to adopt the revised requirements with greater clarity and speed to deliver infrastructure that is accessible to all.

Decision point	Recommendation
Should PAS 1899 be revised?	**Yes.** Based on the evidence collected during the review, updating PAS 1899 would give the opportunity to clarify points of uncertainty and facilitate improved implementation.
Should PAS 1899 be further developed to become a British Standard?	**No, the document should remain a PAS.** The TWG saw limited benefits in further developing PAS 1899 to become a British Standard. The PAS development process is faster than the British Standard development process and the revised PAS would remain free of charge, unlike a British Standard.
Should PAS 1899 technical clauses be updated?	**There should be focused updates to PAS 1899 technical clauses, specifically regarding component heights, connector forces, cable weights, and bollard placement.** This will ensure that the chargepoints built to these specifications achieve high standards of accessibility while being more achievable for industry to implement in practice. Where necessary, the technical clause updates should be informed by further testing to ensure both accessibility and feasibility from an industry perspective. Where appropriate, alignment with wider accessibility standards should also be considered.
How should PAS 1899 be revised to ensure better availability of assistance at public chargepoints?	**PAS 1899 requirements on the availability of assistance should be updated following further engagement with the sector.** This will support the improved provision of physical assistance where it is needed, while ensuring that this is feasible to deliver in practice. Further work should be undertaken with site owners, chargepoint operator (CPO) representatives and accessibility organizations to agree how to update the availability of assistance requirements. Virtual assistance will also continue to be provided at all public chargepoints through a free-to-use helpline in line with the requirements of the Public Charge Point Regulations 2023. In addition, the future provision of open data on the accessibility of chargepoints will support drivers in finding chargepoints that best meet their needs.
How should PAS 1899 be revised to support the delivery of accessible on-street public chargepoints?	**PAS 1899 should be split into parts, one addressing on-street chargepoints and the other addressing off-street chargepoints.** Existing guidance for on-street designated accessible bays will be replaced by core minimum requirements to ensure high standards of accessibility. This will also be done for existing guidance for off-street designated accessible bays. For other types of on-street chargepoints, PAS 1899 will take an amended approach that reflects the variability of the local environment. This will include a smaller set of core minimum requirements applicable to all on-street chargepoints, together with guidance on issues that are likely to be more site specific. The future provision of open data on the accessibility features of each chargepoint will also enable drivers to locate the chargepoints that best meet their needs.
How should PAS 1899 be revised to account for chargepoint innovations?	**Consideration of chargepoint innovations will form part of the PAS 1899 revision process.** These include lamppost chargers, chargers that sit flush with the pavement surface, wireless chargers and other charging solutions that are either being trialled or yet to be widely adopted.

@2025 BSI. All rights reserved.

Decision point	Recommendation
How can we support better understanding of the requirements in PAS 1899?	**The structure and drafting of PAS 1899 should be revised to improve understanding by stakeholders.** As part of this, PAS 1899 should be split into two different parts, one focused on on-street chargepoints, and the other focused on off-street chargepoints. PAS 1899 should also be updated to reflect feedback from stakeholders, including the addition of further diagrams to aid understanding, and ensuring that the distinction between requirements and guidance is clear.
How can we support better understanding of roles and responsibilities in delivering PAS 1899?	**Easy-to-understand supplementary guidance should be developed alongside PAS 1899.** It was agreed that this would support improved implementation and uptake of the standard. It would also support greater clarity on roles and responsibilities in delivering and complying with PAS 1899. The proposed division of the PAS into two parts, one on on-street chargepoints and the other on off-street chargepoints, would help with this.
How can we improve the data that are available on the accessibility features of each public chargepoint?	**An accessible chargepoint data standard should be developed by the time the revised PAS is issued.** This standard would enable CPOs to share data on the accessibility-related features of their chargepoints and the surrounding built environment in a consistent manner. The data standard is being co-sponsored by Motability Foundation and OZEV, and is being developed by the EV Roaming Foundation, which manages the Open Charge Point Interface (OCPI) standard. It is proposed that the use of the data standard should be a requirement of PAS 1899.
How should issues that fall outside the PAS 1899 revision process be addressed?	**Motability Foundation and OZEV should engage with stakeholders on issues identified that fall outside the remit of the TWG and the PAS 1899 revision.** The TWG identified several issues that fall outside their remit [e.g. vehicle original equipment manufacturers (OEMs) having standardized locations for charging ports or two charging ports on vehicles; spacing of general parking bays; cross-pavement charging; the proportion of charging bays in a car park or on-street that should be designated accessible]. Motability Foundation and OZEV should continue to engage with stakeholders on these issues as appropriate.
How can we support alignment between PAS 1899 and similar accessibility standards internationally?	**BSI, OZEV and Motability Foundation will monitor and interact with European standards work while the PAS 1899 revision process proceeds.** The European standards bodies, CEN and CENELEC, are considering jointly developing an accessible chargepoint standard; however, this is likely to take between three and five years. The TWG agreed that the PAS revision process should be kicked off immediately, whilst BSI, OZEV and Motability Foundation monitor and feed into any longer-term European standards work.

The PAS 1899 TWG recommends that Motability Foundation and OZEV trigger the start of the process to deliver these recommendations. This includes engaging BSI to start the PAS 1899 revision process, which involves establishing a Steering Group and conducting a public consultation.

@2025 BSI. All rights reserved.

1 Introduction

1.1 Background and context

In 2020, Motability Foundation undertook research focused on the barriers disabled people face when using electric vehicles (EVs).[1] The research highlighted challenges related to public charging infrastructure, including:

- chargepoint design, e.g. heights of chargepoint components, manoeuvrability of cables, interactive elements of the chargepoints;
- chargepoint placement and environment, e.g. sufficient space to access both the chargepoint and the vehicle, surrounding ground surface type, objects impeding access to the chargepoint; and
- information provision for chargepoints, e.g. provision of digital information on accessibility, usage of phone applications for chargepoints.

The research found that there were no specifications, standards or guidelines to encourage the consideration of accessibility when installing or operating public charging infrastructure. As a result, Motability Foundation partnered with the Office for Zero Emission Vehicles (OZEV) to co-sponsor the development of a PAS to address the barriers to using chargepoints for disabled people.

The creation of a PAS, rather than a British Standard, was pursued because the development process is faster, and the resultant document is available free of charge, rather than requiring purchase.

PAS 1899[2] was published in October 2022. It was developed following the PAS development process,[3] including extensive consultation with chargepoint operators (CPOs), accessibility and consumer advocates, transport authorities, and government bodies, amongst others.

PAS 1899 aims to:

- specify minimum accessibility requirements for all public chargepoints;
- provide supplementary accessibility guidance for all public chargepoints; and
- provide guidance for chargepoints installed adjacent to designated accessible parking bays, for both off-street and on-street settings.

PAS 1899 was a global first-of-its-kind. There were no pre-existing standards specifying a minimum level of accessibility for public chargepoints, and its creation started the global conversation. The specification has informed the development of similar standards and guidance worldwide.

[1] Motability Foundation (2020). *Electric vehicle charging infrastructure for people living with disabilities*. https://www.motabilityfoundation.org.uk/media/nghmmyu0/electric_vehicle_charging_infrastructure_for_people_living_with_disabilities_ricardo_energy_and_environment.pdf

[2] BSI Group (2022). PAS 1899, *Electric vehicles – Accessible charging – Specification*. https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/pas-1899-electric-vehicles-accessible-charging-specification/

[3] BSI Group (2021). PAS 0, *Principles of PAS standardization*. https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/pas-0-principles-of-pas-standardization/

@2025 BSI. All rights reserved.

1.2 Initiating a review of PAS 1899

PAS standards typically undergo a review after two years to assess whether and how they might be updated to improve their implementation.

Following the publication of PAS 1899, stakeholders began to report implementation challenges. These challenges varied across stakeholder types, such as local authorities (LAs) and CPOs, and included:

- difficulty interpreting the requirements;
- difficulty procuring chargepoints that satisfy the design requirements;
- confusion regarding the onus of responsibility for complying with PAS 1899; and
- additional barriers to implementation in on-street settings.

As a result of this stakeholder feedback, Motability Foundation and OZEV decided to co-sponsor BSI to manage this review of PAS 1899. This review included establishing a PAS 1899 Technical Working Group (TWG), which convened six times between February 2024 and March 2025.

@2025 BSI. All rights reserved.

2 Scope of the review

2.1 Objectives of the PAS 1899 TWG

The purpose of the PAS 1899 TWG was to ensure the PAS can be implemented effectively, future-proofed, and evolves with the best available evidence for the benefit of society, and people with access needs in particular. This included:

- Exploring and gathering evidence of concerns and challenges regarding the implementation of PAS 1899.
- Advising on any emerging evidence, technological innovations and other developments that should be considered.
- Providing advice to the PAS 1899 sponsors on whether, and how, PAS 1899 should be updated.
- Setting out proposed next steps to improve the implementation of PAS 1899.

The TWG included 20 organizations representing a range of stakeholder categories, including disabled peoples' groups, representative organizations for CPOs and EV consumers, transport authorities and government bodies. The full list of TWG members is set out in Appendix A.

2.2 Work programme

Table 1 sets out the key themes for discussion and the programme of six meetings that formed part of the review. The meetings were divided into two phases:

- **Phase 1 (Meetings 1–3)**: Focused on the challenges relating to the implementation of PAS 1899.
- **Phase 2 (Meetings 4–6)**: Focused on how to address the identified challenges via revision of PAS 1899 or other mechanisms.

@2025 BSI. All rights reserved.

Table 1: Programme of meetings for the PAS 1899 TWG

Meeting	Key issues to review
1. Interpretation	• How requirements are being interpreted by different stakeholders and what clarifications might be required. • Common misinterpretations of the standard, and examples of real-life implementation challenges. • Ways to make PAS 1899 clearer and more implementable.
2. Technical content	• Whether the PAS conflicts with any other standards. • Challenges in delivering the technical clauses within the PAS. • Any updated technical information that could feed into PAS 1899.
3. Efficacy/fit-for-purpose	• Current state-of-play of charging infrastructure from an accessibility perspective, including feedback from disabled consumers on usability, design, etc. • Ensuring the standard meets its intended aim. • Any updated accessibility research to feed into the PAS.
4. Progress review and planning for next steps	• Recap of challenges identified and problem definition. • Context from CPO and accessibility perspectives. • Deep dive into technical clauses within PAS 1899 and discussion on next steps for PAS 1899.
5. Evidencing challenges and proposing solutions	• Development of evidence base to address known challenges, focused on technical clauses, chargepoint (on-street) innovations, and structural/compliance issues. • Sharing of results and feedback from TWG on evidence.
6. Next steps and recommendations for PAS 1899 update	• Recap on all challenges. • Discussion on proposed updates to the PAS, including technical clause changes; approach to on-street chargepoints; supplementary guidance; data requirements; and structure.

@2025 BSI. All rights reserved.

3. Challenges relating to PAS 1899

3.1 Introduction

The initial phase of the review focused on gathering evidence from a wide range of stakeholders on the challenges relating to PAS 1899. This consisted of work to build a clear understanding of the current challenges facing disabled drivers in accessing public chargepoints. It also included work to understand the challenges faced by stakeholders in delivering chargepoints that meet the requirements of PAS 1899.

3.2 Challenges facing disabled drivers

The review gathered extensive evidence from representatives of disabled peoples' groups on the challenges faced by disabled drivers when using public chargepoints. The main purpose of this research was to ensure an up-to-date understanding of the accessibility requirements for public chargepoints.

As part of this, a range of survey-based research was undertaken during the review to understand the experience of disabled drivers and to assess how this had changed since the publication of PAS 1899.

3.2.1 Designability/Access Association survey

Designability undertook a survey administered by the Access Association to assess the extent to which levels of public chargepoint accessibility had evolved since the publication of PAS 1899. The survey found no significant change in the reported levels of accessibility since PAS 1899 was published.

The research also included responses indicating that the lack of strategy on how much and where accessible charging is needed has acted as a barrier to the installation of designated accessible charging bays.

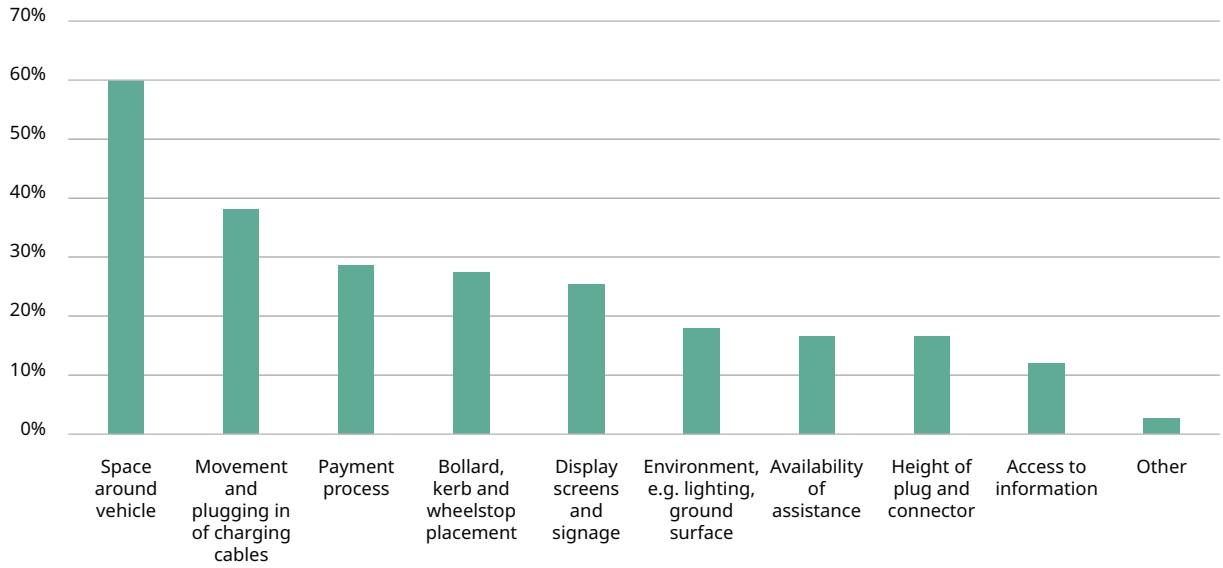
3.2.2 Motability Foundation/Research Institute for Disabled Consumers (RiDC) survey

Motability Foundation undertook survey-based research administered by RiDC in April to May 2024 (sent to RIDC's disabled consumer panel and shared on social media) to understand what has changed since the introduction of PAS 1899, and to gain further evidence specific to some of the key requirements within the PAS.

The survey found that 75% of respondents had a positive experience of charging at home, compared with 36% at public chargepoints. Additionally, 49% of survey respondents who had charged their vehicle at a public chargepoint rated their experience as "poor" or "somewhat poor".

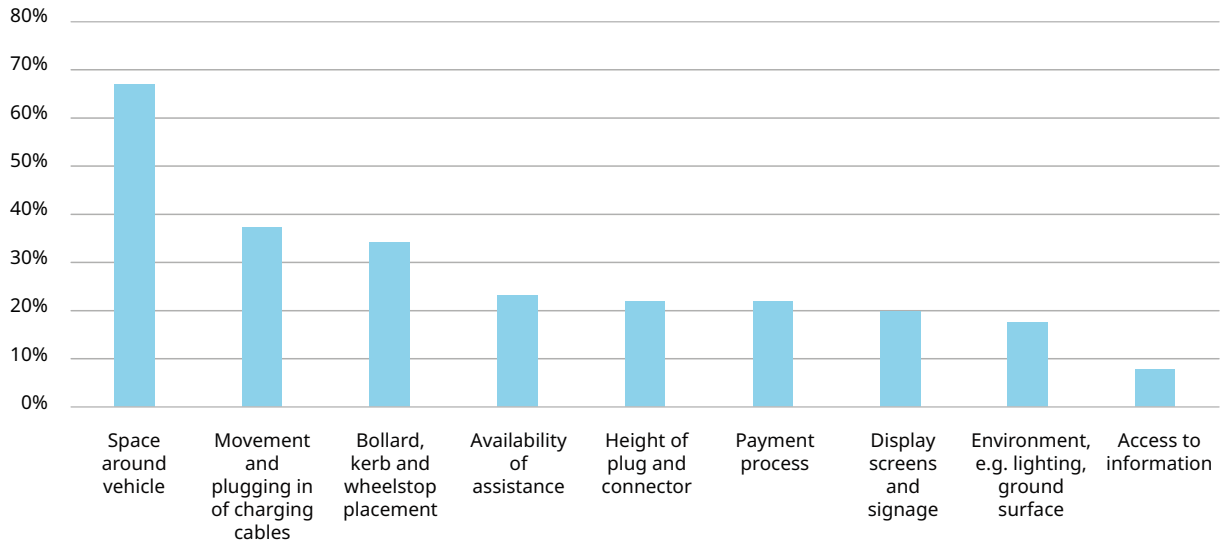
This survey also provided an updated view of challenges at public chargepoints – Figure 1 shows the highest-ranked challenges for all respondents, and Figure 2 shows the highest-ranked challenges for wheelchair users.

@2025 BSI. All rights reserved.



Source: Motability Foundation

Figure 1: Challenges and issues at public chargepoints – all respondents (n =150)



Source: Motability Foundation

Figure 2: Challenges and issues at public chargepoints – wheelchair user respondents (n = 91)

The results of the survey demonstrate that:

- The lack of sufficient space around chargepoints and parking bays is the most significant challenge experienced by the survey respondents.
- Movement and plugging in of charging cables is the next most significant challenge for the survey respondents when using public chargepoints.
- Other challenges include the availability of assistance, low-lying obstacles and payment processes.

The review also received evidence on the data that disabled users would like to see relating to public chargepoints. This information was gathered by Motability Operations, the company that runs the Motability Scheme. The key points highlighted by users included:

- operational and availability status of chargepoints;
- physical accessibility of chargepoints (bay sizes, cable weights, dropped kerbs, etc.);
- further data points on chargepoints, such as locations and charging types; and
- payment options and pricing information to be improved.

@2025 BSI. All rights reserved.

3.2.3 Research summary findings

In summary, the research confirmed that there are still many concerns surrounding public chargepoint accessibility since the publication of PAS 1899 in October 2022. The evidence suggests that this is primarily due to the low uptake of PAS 1899 to date rather than because of gaps in the requirements themselves.

It should be noted that some of the public chargepoint accessibility challenges highlighted above fall outside the scope of PAS 1899 and are being addressed elsewhere. For example, the Public Charge Point Regulations 2023 address matters relating to access to information by requiring all operators to share open data and transparent pricing information at all public chargepoints.

It should also be noted that Motability Foundation is looking into whether there is a minimum proportion of charging bays that should be designated accessible charging bays. While government policy is that decisions of this nature are best taken at the local level, Motability Foundation is considering whether it could helpfully provide further guidance outside the revision of PAS 1899 revision to support this decision-making process.

3.3 Challenges in delivering PAS 1899

Given the limited uptake of PAS 1899 to date, the review also gathered evidence on the challenges faced by stakeholders in meeting the requirements of the standard.

The challenges raised can be broadly categorized into two key themes: challenges with interpreting the standard, and technical challenges in implementing it. These two areas are examined below.

3.3.1 Theme 1: Challenges with interpreting PAS 1899 requirements

Information submitted to the PAS 1899 TWG highlighted several challenges relating to the interpretation of PAS 1899. The standard was written to be applicable to all chargepoints, including both low- and high-powered chargepoints, and for chargepoints in both on- and off-street settings. Additionally, the onus of responsibility for compliance had to be on a single party – the procurer of the chargepoint, despite the delivery of accessible chargepoints involving many parties.

Despite efforts in the development of PAS 1899 to address any issues that could potentially cause confusion, such as through the provision of a comprehensive navigation section, stakeholders still reported issues interpreting the requirements.

Table 2 summarizes the key challenges experienced by stakeholders in relation to the interpretation of PAS 1899.

@2025 BSI. All rights reserved.

Table 2: Interpretation issues impacting delivery of PAS 1899

No.	Challenge	Description
1	**Interpretation and understanding**	
Uncertainty about what are minimum requirements and what is guidance.		PAS 1899 included minimum requirements for all public chargepoints alongside guidance for all public chargepoints, and guidance for designated off- and on-street parking bays. Some stakeholders have experienced difficulty distinguishing between minimum requirements and guidance.
Stakeholders do not understand BSI drafting rules.		BSI drafting rules for specifications typically include both normative and informative text. Normative text is upright and indicates requirements; informative text is in italics and provides supplementary information or guidance. Annexes can also be either normative (requirements) or informative, despite combining both styles of text. PAS 1899 users do not necessarily know these drafting conventions and hence find it hard to differentiate between the two kinds of text.
Lack of visual interpretations of clauses.		PAS 1899 users fed back that additional diagrams showing visual interpretations of clauses would be useful.
2	**On-street vs. off-street**	
Uncertainty about which requirements apply to which type of chargepoint.		PAS 1899 uses scenarios to illustrate how the requirements apply under different circumstances, for example between on- and off-street chargepoints, or between high- and low-powered chargepoints. Stakeholders are nevertheless uncertain about how some requirements map onto different types of chargepoint.
3	**Onus of responsibility**	
Uncertainty about the onus of responsibility for compliance.		BSI drafting rules state that a standard should be written in such a way that its requirements (or provisions) can be undertaken by the intended user of the standard. This is particularly important in a specification, which is normally aimed at a single party. It was decided for PAS 1899 that its requirements would be aimed at the procurer of a chargepoint. However, the delivery of accessible chargepoints involves many parties, each with varying abilities to influence different aspects of the chargepoint. For example, one will have influence over the physical design and another over the built environment. In this context, aiming the provisions of the PAS at a single party has caused confusion about the roles and responsibilities of other parties involved in facilitating the delivery of accessible chargepoints.
4	**Designated accessible parking bays**	
Confusion around the content for designated accessible parking bays.		Some stakeholders have queried whether requirements for designated accessible parking bays are mandatory for all chargepoints. In addition, some stakeholders have requested that the PAS should specify a minimum proportion of charging bays that must be provided as accessible parking bays.

@2025 BSI. All rights reserved.

3.3.2 Theme 2: Challenges with implementing PAS 1899 requirements

PAS 1899 was developed to encourage industry and the wider sector to consider accessibility in the design and delivery of public chargepoints. However, information submitted to the PAS 1899 TWG identified several challenges related to implementation of the technical content within PAS 1899.

Table 3 summarizes the key challenges experienced by stakeholders in relation to implementing the technical requirements within PAS 1899.

Table 3: Technical content issues impacting delivery of PAS 1899

No.	Challenge	Description
1	**Aligning with other standards**	
Differences between PAS 1899 and other charging infrastructure standards.		There are actual or perceived conflicts between PAS 1899 and other standards relating to chargepoints. For instance, the International Electrotechnical Commission (which develops and publishes international standards for electrical, electronic, and related technologies) standard, IEC 62196-1 (adopted in the UK as BS EN 62196-1), specifies a maximum connection force for chargepoint connectors of 100 N, while PAS 1899 has a maximum value of 60 N.
Differences between PAS 1899 and other accessibility standards.		There are actual or perceived conflicts between PAS 1899 and other standards focused on accessibility. For example, BS 8300 sets out permissible heights for ticket machine components. These heights were used to inform permissible heights for chargepoint components. However, as a result of user testing, some of these components (e.g. chargepoint connector sockets) have narrower permissible height ranges in PAS 1899 than those set out in BS 8300.
2	**Component heights**	
Differences between PAS 1899 requirements and international manufacturing standards.		Related to the above point on aligning with other standards, the specification of component heights in PAS 1899 has more restricted height ranges compared with similar European/international guidelines and was based on user testing with disabled people undertaken during the development of PAS 1899. Many UK-based chargepoints are procured internationally, and manufacturers have little incentive to comply with UK-based PAS 1899 requirements.
3	**Connector force**	
Differences between PAS 1899 requirements and international standards.		PAS 1899 specifies that the connector force shall not exceed 60 N. IEC 62196-1 (adopted in the UK as BS EN 62196-1) states that the maximum connector force shall not exceed 100 N.
Technically difficult for high-powered chargepoints to conform to PAS 1899.		High-powered chargepoints have heavier cables due to liquid cooling mechanisms. As a result, it is not technically feasible for CPOs to keep the linear force-in-hand below 60 N.
Scope of the clause related to connector force challenges.		The scope of this clause is limited to connecting to the chargepoint rather than including connection to the vehicle.
4	**Cable weight**	
Technically difficult for high-powered chargepoints to conform to PAS 1899.		High-powered chargepoints have heavier cables due to liquid cooling mechanisms. With charger speeds going up, cable weights are also trending upwards. In addition, with vehicle charging port locations not standardized, cables need to be long enough to accommodate a variety of different port locations.

@2025 BSI. All rights reserved.

No.	Challenge	Description
5	**Bollard placement**	
The core minimum requirements relating to bollard spacing could be amended while still keeping them fit for purpose for drivers.		PAS 1899 specifies core minimum requirements for distances around bollards and impact protection barriers; however, installations with different spacings have emerged that also seem to be suitable for disabled users.
6	**On-street chargepoints**	
Differences between PAS 1899 requirements and international manufacturing standards.		On-street chargepoint installations are constrained by the existing built environment and the variability of on-street conditions. Existing street furniture and/or footway conditions might result in greater difficulty implementing the core minimum requirements in these settings.
CPOs often cannot resolve challenges relating to the existing built environment around chargepoints.		Elements of the existing built environment around chargepoints can have impacts on meeting PAS 1899 requirements, such as the presence of a kerb or ground conditions. These are often not within the power of the CPO to resolve and need to be addressed through close working with the site owners.
7	**Connector force**	
The provision of additional assistance by on-site staff is often either not feasible or is prohibitively expensive.		PAS 1899 stipulates that additional assistance is required for high-powered off-street chargepoints or where the chargepoint does not meet certain technical requirements in the PAS. While the PAS does not specify that this assistance should always be provided by on-site staff, drivers might reasonably expect this to be the case. However, this is not always feasible or might be prohibitively expensive for CPOs to provide, e.g. for a single high-powered chargepoint in a rural location. Greater clarity on the kind of additional assistance to be provided in specific settings would address this.
8	**Chargepoint innovations**	
Chargepoint innovations might not be considered within PAS 1899.		There are many chargepoint innovations both currently on the market and coming to the market (“pop-up”, “pull-up”, in-kerb chargepoints, etc.). These chargepoint innovations might not conform to current PAS 1899 requirements. Note that chargepoint innovations primarily impact on-street charging provision.
9	**Accessibility data**	
There is no standardized way for CPOs to provide consumers with data on the accessibility of chargepoints.		The Public Charge Point Regulations 2023 require that CPOs provide open data on each public chargepoint using the OCPI v2.2.1 data standard. However, there is no accessibility data module within OCPI, which means there is no agreed, standardized protocol for CPOs to communicate how accessible their chargepoints are, and by extension, no data available to communicate to consumers.

@2025 BSI. All rights reserved.

4 Proposed approach to updating PAS 1899

4.1 Introduction

The second phase of the review consisted of extensive work to assess the evidence that had been gathered in order to develop a set of recommendations for improving PAS 1899 and its implementation.

The following section sets out the proposed approach that was developed in each of the key areas of challenge that were identified through the review process.

4.2 Technical clauses

Challenge

There are significant difficulties in sourcing chargepoint hardware that meets the physical design requirements set out in PAS 1899.

Proposed outcome

It was agreed that there is a need to update these requirements to maintain a high level of accessibility while ensuring that they are feasible to deliver in practice.

There should be focused updates to some of the technical clauses within PAS 1899, namely those on component heights, bollard spacing, connector forces and cable weights.

The first two of these would need to be informed by additional user testing. This testing should be conducted as a separate workstream running alongside, and feeding into, the PAS 1899 revision process. Alignment with wider accessibility standards should also be considered where appropriate.

The evidence related to the technical clauses highlighted that stakeholders supported updating several PAS 1899 clauses, noting that any technical clause updates need to be evidence-based to ensure both accessibility for consumers and feasibility for chargepoint manufacturers and CPOs. The exact changes to be implemented will therefore be informed by additional testing where required.

Further evidence was also gathered to inform the recommendations on these issues. This included survey-based research among stakeholder groups, including representatives of disability peoples' groups, CPOs and chargepoint manufacturers. The research gathered evidence on views related to component heights, connector forces, cable weights and the availability of assistance, and respondents were requested to propose evidenced solutions in their responses. These issues were then discussed further by the TWG.

Table 4 summarizes the proposed next steps for the various technical clauses, including proposed testing during the revision process.

Alongside this, it was agreed that BSI, OZEV and Motability Foundation would continue to monitor the longer-term development of European standards to ensure alignment with UK standards. It is understood that the European standards bodies, CEN and CENELEC, might be considering jointly developing an accessible chargepoint standard in the next few years.

@2025 BSI. All rights reserved.

Table 4: Summary of next steps for technical clause updates to be undertaken as part of the PAS 1899 revision

Decision point	Proposed outcome and next steps
Component heights	• Some adjustments are proposed to align with broader accessibility standards, in particular BS 8300. Suggested changes (to be tested) include: – payment terminal: extend range from 800–1,000 mm to 750–1,200 mm; – visual interface: for interactive elements, extend range from 800–1,200 mm to 750–1,200 mm; for screen, extend range from 800–1,300 mm to 750–1,300 mm; – socket/connector heights: subject to additional user research to understand accessibility implications. • The proposed next steps for component heights are to undertake user research to inform decisions on heights and to provide feedback, in particular on socket/connector heights.
Connector force	• Connector forces are not fully within the CPO's control. • As such, the TWG proposes to reference the IEC 62196-1 standard's force value of 100 N and make the value of 60 N for connector forces a recommendation. • Parallel engagement should be undertaken to advocate for change to IEC 62196-1, using the accessibility research undertaken for PAS 1899 as a basis. • The clause relating to the availability of assistance should be updated to address scenarios where the connector force is greater than 60 N, to enable users needing assistance to obtain it.
Cable weights	• The issue with cable weights relates primarily to high-powered chargepoints and for cables longer than 4 m. This is due to the additional cooling mechanisms required for safety reasons and the additional cable length required due to the lack of standardized locations for charging ports on vehicles. Both of these issues result in heavier cables. • The existing requirement for linear-force-in hand to be <60 N for high-powered cables and cables longer than 4 m should become a recommendation, to encourage innovation to achieve the <60 N threshold in future. • Further work should be undertaken to support improved availability of assistance for drivers at high-powered chargepoints. • Progress against this clause should be closely monitored, as technical innovations might enable this clause to become more feasible in the future.
Bollard spacing	• Some CPOs have expressed issues with the requirements for bollard spacing, which specify a distance of 1,400 mm between bollards. • In their view, when deploying chargepoint units with narrower widths, placing the bollards with a distance of 870 mm between them still allows drivers with wheelchairs and other mobility aids to manoeuvre around the vehicle and access the chargepoint without obstruction. • As with component heights, the next steps are to undertake user research to inform the revision of PAS 1899.

@2025 BSI. All rights reserved.

4.3 Availability of assistance

Challenge

The availability of assistance can play an important role in improving the accessibility of public chargepoints, particularly for higher-powered chargepoints that have heavier cables for safety-related reasons. However, it is not always feasible to provide this assistance for every public chargepoint.

Proposed outcome

PAS 1899 requirements on availability of assistance should be updated following further engagement with the sector. This will support the improved provision of physical assistance where it is needed, while ensuring that this is feasible to deliver in practice. Further work should be undertaken with site owners, CPO representatives and accessibility organizations to agree how to update the additional assistance requirements.

It was noted that the availability of assistance is important in supporting the accessibility of chargepoints, but that it is not always feasible for CPOs or site owners to provide this at every public chargepoint.

It was noted that, under the Public Charge Point Regulations 2023, CPOs have a duty to provide virtual assistance at every public chargepoint through a free-to-use, staffed 24/7 helpline displayed on the chargepoint.

The future provision of open data on the accessibility features of each chargepoint would also enable drivers to locate the chargepoints that meet their needs, including those at which physical assistance is available.

It was agreed that further work should be undertaken with site owners, CPOs and accessibility organizations to agree where physical assistance should always be provided and to work through any challenges associated with this.

@2025 BSI. All rights reserved.

4.4 On-street chargepoints and chargepoint innovations

Challenge

There are specific challenges in implementing PAS 1899 requirements in an on-street environment. This is due primarily to the constrained and highly variable on-street environment, which makes a "one-size-fits-all" approach difficult to achieve in practice. It is also due to the innovative nature of some on-street chargepoints, such as lamppost chargepoints.

Proposed outcome

The revision of PAS 1899 should take a more pragmatic approach to on-street chargepoint requirements, in recognition of the significant challenges affecting the provision of on-street chargepoints.

It was agreed that there should be minimum requirements rather than simply guidance for chargepoints installed adjacent to designated on-street accessible bays. This reflects the importance of these chargepoints for disabled users.

For other types of on-street chargepoint, it was recommended that an amended approach should be taken that reflects the variability of the local environment. It is proposed that this should include a smaller set of requirements applicable to all on-street chargepoints, together with guidance on issues that are likely to be more site specific.

Consideration of chargepoint innovations should form part of the PAS 1899 revision process.

It was noted that the constrained and highly variable on-street environment can make it challenging to meet all of the requirements in PAS 1899 in all cases. It was therefore agreed that an updated approach should be taken which maintains a high level of accessibility while being more feasible to deliver in practice. In addition, it was noted that a number of innovative on-street chargepoint products had emerged since the publication of PAS 1899.

Further information was gathered to inform the recommendations on this issue. This included survey-based research among stakeholders, including manufacturers of innovative chargepoint products, to receive their feedback on whether their products were covered in the standard and on the updates that might be required to bring their products within scope. The survey also included broader questions on how to treat on-street chargepoints in the future, including more pragmatic approaches to compliance. Respondents were requested to propose evidenced solutions in their responses. These issues were then discussed further by the TWG.

The TWG considered several approaches to address the challenges of the on-street chargepoint environment. The recommended approach for on-street chargepoints was as follows:

- PAS 1899 should be divided into two parts: one for on-street chargepoints and one for off-street chargepoints.
- Designated on-street (and off-street) accessible chargepoints should have core minimum requirements, rather than just guidance.
- For other types of on-street chargepoint, it is recommended that an amended approach should be taken that reflects the variability of the local environment. It is proposed that this should include a smaller set of requirements that will be applicable to all on-street chargepoints (for example, specifying chargepoint design and the requirement to provide data), together with guidance on issues that are likely to be more site specific (such as dropped kerbs).

@2025 BSI. All rights reserved.

- Supporting guidance should be provided to help meet on-street chargepoint requirements.
- Open data on the accessibility features of chargepoints should be made available to enable drivers to locate the chargepoints that meet their needs.
- Consideration should be given to chargepoint innovations that might not currently be accommodated by PAS 1899.

4.5 Structure and drafting of PAS 1899

Challenge

The structure and drafting of the current PAS 1899 has made it difficult to understand for those responsible for procuring and installing chargepoints, particularly due to the lack of distinction between how to implement the requirements in on-street and off-street settings.

There was also a range of feedback provided by stakeholders on the need to improve the clarity of PAS 1899.

Proposed outcome

PAS 1899 should be split into two different parts: one focused on on-street chargepoints, and one focused on off-street chargepoints.

It was agreed that it should remain as a PAS rather than being developed as a British Standard. This is because the PAS development process would be faster and the revised PAS would remain free of charge.

The PAS should also be updated to reflect feedback from stakeholders, including the addition of further diagrams to aid understanding, and ensuring that the distinction between requirements and guidance is clear.

The main structural change to PAS 1899 will be the division of the document into two parts, as outlined above. Both the on-street and off-street PAS 1899 documents will retain a similar structure to the current document.

The TWG received feedback that it is desirable to have requirements for designated accessible charging bays rather than guidance. Therefore, the recommendations contained in the guidance for designated accessible charging bays will now be reviewed for conversion to requirements. This reflects the importance of these chargepoints for disabled users.

More broadly, the drafting of the document should be updated to reflect the feedback received from stakeholders, though noting that the document will still need to follow BSI drafting rules and be subject to the consensus of the PAS Steering Group.

@2025 BSI. All rights reserved.

4.6 Supplementary guidance

Challenge

The current PAS 1899 requirements can be difficult to understand due to their technical nature and there has been confusion over who is responsible for implementing which aspects of the standard.

Proposed outcome

It was agreed that easy-to-understand guidance should be developed alongside PAS 1899 to support its implementation, including clarifying roles and responsibilities.

In order to support effective implementation, it was agreed that supplementary guidance should be provided alongside PAS 1899. This would support understanding of the requirements for different types of chargepoint and provide clarity on how stakeholders should work together to deliver accessible chargepoints.

4.7 Chargepoint accessibility data

Challenge

The provision of accurate and reliable data on the accessibility features of each public chargepoint would enable drivers to locate chargepoints that best meet their needs. However, there is currently no agreed standard that sets out what the data should cover or how data should be provided by CPOs.

Proposed outcome

An open data standard [part of the existing Open Charge Point Interface (OCPI) open data standard] is being developed, to cover accessibility-related features of chargepoints and the built environment. This will enable CPOs to share accessibility data relating to their chargepoints in a consistent manner. The creation of this is being co-sponsored by Motability Foundation and OZEV, and led by the EV Roaming Foundation, which manages the OCPI open data standard. It is proposed that the use of the data standard should be a requirement of PAS 1899.

PAS 1899, **8.2** requires the procurer to provide data in an openly accessible format to consumers, similar to the open data requirements of the Public Charge Point Regulations 2023. However, there is currently no open, common data standard that captures data on the accessibility features of a chargepoint.

These data will have a key role to play in helping consumers determine whether a chargepoint is appropriate for their needs.

Given the prevalence of OCPI for sharing data and the Public Charge Point Regulations 2023 mandating the use of OCPI v2.2.1 for all public chargepoints in the UK, Motability Foundation and OZEV have co-sponsored a project with the EV Roaming Foundation to create an OCPI module for accessibility data. This module will be compatible with OCPI v2.2.1.

The module is intended to be used by CPOs and service providers in the ecosystem to share accessibility data in a consistent fashion, allowing consumers to compare like-for-like across CPOs and apps. It is proposed that the use of the data standard should be a requirement of PAS 1899.

The project should aim to have the accessibility data module completed by the time the revised PAS is issued.

@2025 BSI. All rights reserved.

5 Recommendations and next steps

5.1 Recommendations for PAS 1899

In summary, the review found that disabled drivers continue to face challenges in accessing public chargepoints. There is a need, therefore, for PAS 1899 to have a clear set of accessibility requirements that could be implemented by the sector. The review process demonstrated strong commitment from across the sector to achieving this goal.

The review identified that the main barriers to the uptake of PAS 1899 are the challenges in interpreting and implementing the PAS by those responsible for procuring and installing chargepoints. There was strong support in the PAS 1899 TWG that the PAS should be updated to ensure both a high level of accessibility for drivers and that it is deliverable in practice by industry and the wider sector.

Table 5 summarizes the key recommendations of the PAS 1899 TWG.

Table 5: Decision points on the next steps for PAS 1899

Decision point	Recommendation
Should PAS 1899 be revised?	**Yes.** Based on the evidence collected during the review, updating PAS 1899 would give the opportunity to clarify points of uncertainty and facilitate improved implementation.
Should PAS 1899 be further developed to become a British Standard?	**No, the document should remain a PAS.** The TWG saw limited benefits in further developing PAS 1899 to become a British Standard. The PAS development process is faster than the British Standard development process and the revised PAS would remain free of charge, unlike a British Standard.
Should PAS 1899 technical clauses be updated?	**There should be focused updates to PAS 1899 technical clauses, specifically regarding component heights, connector forces, cable weights, and bollard placement.** This will ensure that the chargepoints built to these specifications achieve high standards of accessibility while being more achievable for industry to implement in practice. Where necessary, the technical clause updates should be informed by further testing to ensure both accessibility and feasibility from an industry perspective. Where appropriate, alignment with wider accessibility standards should also be considered.
How should PAS 1899 be revised to ensure better availability of assistance at public chargepoints?	**PAS 1899 requirements on the availability of assistance should be updated following further engagement with the sector.** This will support the improved provision of physical assistance where it is needed, while ensuring that this is feasible to deliver in practice. Further work should be undertaken with site owners, chargepoint operator (CPO) representatives and accessibility organizations to agree how to update the availability of assistance requirements. Virtual assistance will also continue to be provided at all public chargepoints through a free-to-use helpline in line with the requirements of the Public Charge Point Regulations 2023. In addition, the future provision of open data on the accessibility of chargepoints will support drivers in finding chargepoints that best meet their needs.

@2025 BSI. All rights reserved.

Decision point	Recommendation
How should PAS 1899 be revised to support the delivery of accessible on-street public chargepoints?	**PAS 1899 should be split into parts, one addressing on-street chargepoints and the other addressing off-street chargepoints.** Existing guidance for on-street designated accessible bays will be replaced by core minimum requirements to ensure high standards of accessibility. This will also be done for existing guidance for off-street designated accessible bays. For other types of on-street chargepoints, PAS 1899 will take an amended approach that reflects the variability of the local environment. This will include a smaller set of core minimum requirements applicable to all on-street chargepoints, together with guidance on issues that are likely to be more site specific. The future provision of open data on the accessibility features of each chargepoint will also enable drivers to locate the chargepoints that best meet their needs.
How should PAS 1899 be revised to account for chargepoint innovations?	**Consideration of chargepoint innovations will form part of the PAS 1899 revision process.** These include lamppost chargers, chargers that sit flush with the pavement surface, wireless chargers and other charging solutions that are either being trialled or yet to be widely adopted.
How can we support better understanding of the requirements in PAS 1899?	**The structure and drafting of PAS 1899 should be revised to improve understanding by stakeholders.** As part of this, PAS 1899 should be split into two different parts, one focused on on-street chargepoints, and the other focused on off-street chargepoints. PAS 1899 should also be updated to reflect feedback from stakeholders, including the addition of further diagrams to aid understanding, and ensuring that the distinction between requirements and guidance is clear.
How can we support better understanding of roles and responsibilities in delivering PAS 1899?	**Easy-to-understand supplementary guidance should be developed alongside PAS 1899.** It was agreed that this would support improved implementation and uptake of the standard. It would also support greater clarity on roles and responsibilities in delivering and complying with PAS 1899. The proposed division of the PAS into two parts, one on on-street chargepoints and the other on off-street chargepoints, would help with this.
How can we improve the data that are available on the accessibility features of each public chargepoint?	**An accessible chargepoint data standard should be developed by the time the revised PAS is issued.** This standard would enable CPOs to share data on the accessibility-related features of their chargepoints and the surrounding built environment in a consistent manner. The data standard is being co-sponsored by Motability Foundation and OZEV, and is being developed by the EV Roaming Foundation, which manages the Open Charge Point Interface (OCPI) standard. It is proposed that the use of the data standard should be a requirement of PAS 1899.
How should issues that fall outside the PAS 1899 revision process be addressed?	**Motability Foundation and OZEV should engage with stakeholders on issues identified that fall outside the remit of the TWG and the PAS 1899 revision.** The TWG identified several issues that fall outside their remit [e.g. vehicle original equipment manufacturers (OEMs) having standardized locations for charging ports or two charging ports on vehicles; spacing of general parking bays; cross-pavement charging; the proportion of charging bays in a car park or on-street that should be designated accessible]. Motability Foundation and OZEV should continue to engage with stakeholders on these issues as appropriate.
How can we support alignment between PAS 1899 and similar accessibility standards internationally?	**BSI, OZEV and Motability Foundation will monitor and interact with European standards work while the PAS 1899 revision process proceeds.** The European standards bodies, CEN and CENELEC, are considering jointly developing an accessible chargepoint standard; however, this is likely to take between three and five years. The TWG agreed that the PAS revision process should be kicked off immediately, whilst BSI, OZEV and Motability Foundation monitor and feed into any longer-term European standards work.

@2025 BSI. All rights reserved.

5.2 Next steps for updating PAS 1899

The PAS 1899 TWG recommends that Motability Foundation and OZEV trigger the start of the process to deliver the recommendations in Table 5. This includes engaging BSI to start the PAS 1899 revision process, which includes establishing a steering group and conducting a public consultation.

@2025 BSI. All rights reserved.

Appendix A – PAS 1899 TWG members

- AccessAble
- BEAMA
- British Parking Association
- BSI
- Cenex
- ChargeSafe
- ChargeUK
- Department for Infrastructure, Northern Ireland
- Designability
- Disabled Motoring UK
- Disabled Persons Transport Advisory Committee (DPTAC)
- Energy Saving Trust
- EVA England
- Motability Foundation (Co-sponsor)
- Office for Zero Emission Vehicles (Co-sponsor)
- Renewable Energy Association
- SYSTRA UK & Ireland Ltd. (Chair and technical author)
- Transport for Wales
- Transport Scotland
- Zapmap

@2025 BSI. All rights reserved.

Appendix B – Glossary

Blue Badge
parking card displayed upon parking a vehicle in a designated accessible parking bay within the UK, part of the Blue Badge Scheme, which helps disabled people to park closer to their destination

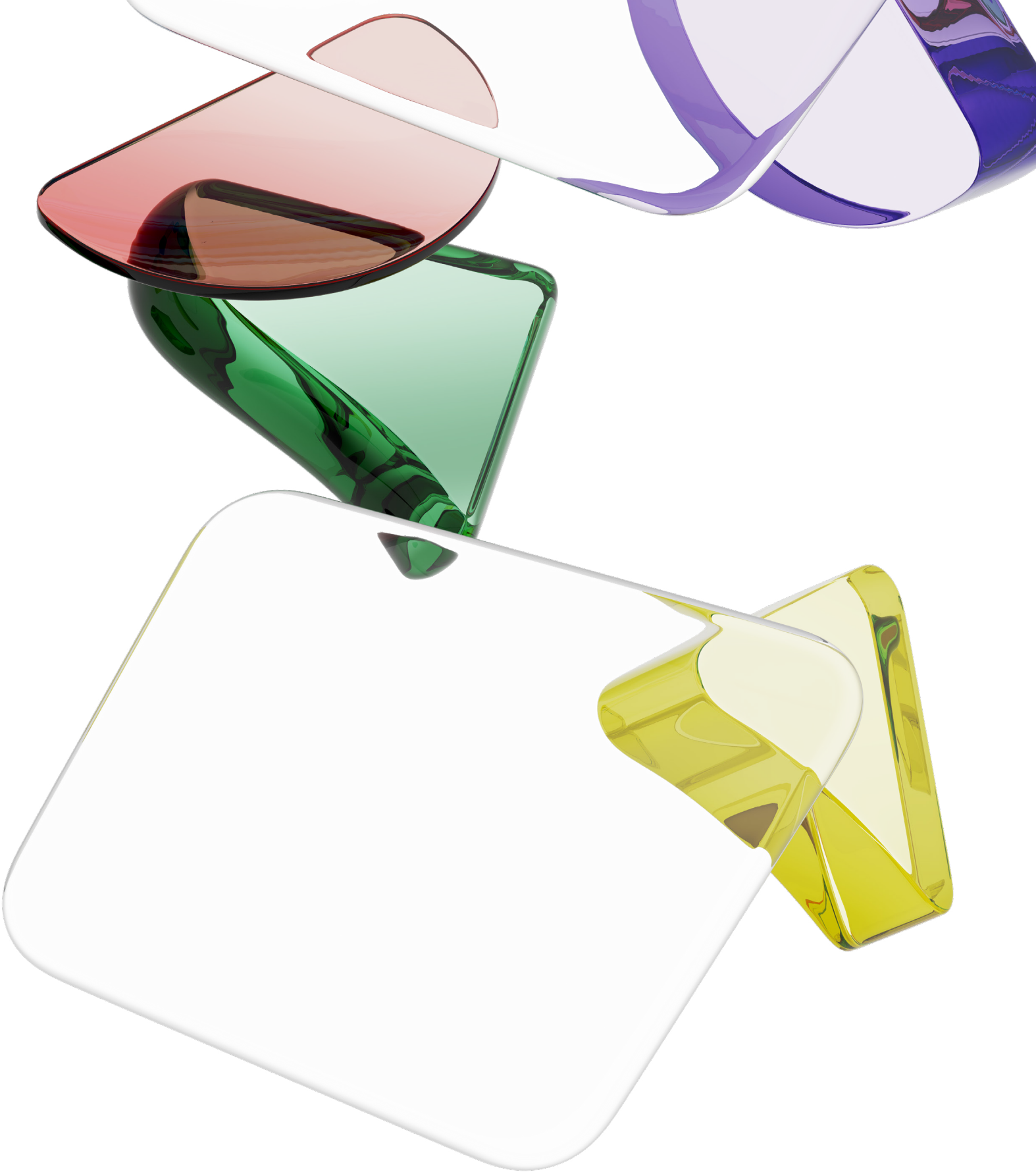
designated accessible bay
parking space specifically reserved for people with disabilities or limited mobility, who have a Blue Badge, that is designed to provide safer, more convenient access to buildings, facilities and public areas

NOTE Also known as an accessible parking bay.

off-street public chargepoint
any chargepoint location that is not on the public highway, such as car parks, charging hubs and service areas

on-street public chargepoint
any chargepoint location that is on the public highway, such as in residential areas and on high streets

@2025 BSI. All rights reserved.



BSI, The Acre, 90 Long Acre,
London, WC2E 9RA

bsigroup.com

Your partner
in progress