



# Inclusive Design In Town Centres And Busy Street Areas

Transport Scotland Research Report

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## Terms and definitions

The following terms have been taken from existing guidance and are defined at the outset of this report to ensure consistency of application and to reduce the risk of misinterpretation.

During the course of this research it was found that the same or similar terms were used by different parties with different interpretations, influenced by personal perspective / views, geographic differences, etc. The research team endeavoured to seek clarification, where possible, in order to consistently align the research input with the terminology adopted in this report.

Where the report has referred to external source material, the research team has endeavoured to ensure that the term is aligned to the definitions outlined below.

<b>Term</b>	<b>Definition</b>
<b>Accessibility / Access Audit</b>	Undertaken as part of a Quality Audit and considers all forms of access in an area including emergency services and deliveries. This includes consideration of pedestrian access for people of all levels of mobility.
<b>Carriageway</b>	Part of a highway over which vehicles and pedestrians have a right of way. Commonly called the 'road'.
<b>Cognitively impaired (person)</b>	A person having one (or more) of a range of conditions which can impact thinking, communication, understanding and / or memory. Example conditions include dementia, Alzheimer's disease, vascular dementia, Lewy bodies, frontotemporal dementia, Huntington's disease, Parkinson's disease.
<b>Cycle lane</b>	Part of the carriageway reserved for pedal cycles only and shown by a solid or broken white line boundary road marking.
<b>Cycle track</b>	A route reserved for pedal cycle traffic. May be within or separate from the highway.
<b>Deafblind (person)</b>	A person having impairment of both hearing and vision, which can range from minor to severe impairment.
<b>Department for Transport (DfT)</b>	Department of the UK Government responsible for the English transport network and certain non-devolved transport matters in Scotland, Wales and Northern Ireland.
<b>Disabled People's Organisation (DPO)</b>	A representative organisation or groups of disabled persons.
<b>Disabled (person)</b>	An individual with knowledge and personal experience of disability: a person with an impairment that influences their experience of using a given service or facility.
<b>Disabled street user</b>	A disabled person (or a person who directly supports a disabled person) with life experience of the subject area being discussed.
<b>DPTAC</b>	Disabled Persons Transport Advisory Committee.
<b>Equality Impact Assessment (EQIA)</b>	A statutory process that involves assessing the impact of new or revised policies, practices or services against the requirements of the public sector equality duty. The duty requires all public authorities to have due regard for the need to eliminate unlawful discrimination, to advance equality of opportunity and to foster good relations. This is to ensure compliance with the Equality Act 2010.

<b>Footway</b>	Pedestrian pavement that forms part of or runs directly alongside the highway carriageway and limits the width of the highway carriageway. Commonly called the 'pavement'.
<b>Grey literature</b>	Information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing, i.e. where publishing is not the primary activity of the producing body.
<b>Hearing impaired (person)</b>	A person with partial or total deafness.
<b>Inclusive Design</b>	Collective term for design process that considers the needs of all people in order to deliver environments that can be accessed and used by all.
<b>Inclusive Engagement</b>	Engagement process that supports inclusion and access for all.
<b>Inclusive Physical Design Measures</b>	Street design features that supports inclusion and access for all.
<b>Learning Disability</b>	Learning disability that affects the way a person is able to learn and understand information and how they communicate. Examples of learning disabilities include Dyslexia, Attention Deficit Hyperactivity Disorder (ADHD), Down's Syndrome, Cerebral Palsy, and Autism Spectrum Disorders.
<b>Level Surface</b>	A street surface with no level difference to segregate pedestrians from vehicular traffic.
<b>MACS</b>	Mobility and Access Committee for Scotland.
<b>Non-disabled (person)</b>	A person who does not have a cognitive or physical impairment, learning disability or a non-visible disability.
<b>Pan-Disability Organisation</b>	An organisation or group made up of disabled people regardless of the type of disability its members have.
<b>Non-visible disability</b>	An impairment or condition which may not be immediately apparent to others. Examples of non-visible disabilities include Asperger's, Autism, some mental health conditions, Diabetes, Epilepsy, Insomnia, Learning Difficulties, Rheumatoid Arthritis, some visual and / or auditory impairments.
<b>Participant</b>	Contributor to the research reported in this document from outside of the project team, including focus group participants and online participants.
<b>People orientated street</b>	Street design concept which aims to prioritise pedestrians over vehicles. Examples include pedestrianised streets and shared space streets with and without kerb demarcation.
<b>Person with mental health condition</b>	A person with a mental health impairment or illness such as Anxiety, Depression, phobias, Obsessive-Compulsive Disorder (OCD) and / or Post-Traumatic Stress Disorder (PTSD).
<b>PSED</b>	Public Sector Equality Duty under the 2010 Equality Act.
<b>Public Realm (Scheme)</b>	This is used by some participants to refer to 'Street Design' in this research.
<b>Quality Audit</b>	A Quality Audit is a defined process, independent of, but involving, the design team, that through planning, design, construction and management stages of a project, provides a check that high quality places are delivered and maintained by all relevant parties, for the benefit of all end users.

<b>Road Network</b>	Referred to as the ‘highway network’ (England, Wales and Northern Ireland). The road vehicle carriageway system.
<b>Scottish Government (SG)</b>	The devolved government of Scotland.
<b>Segregated shared use path</b>	A facility used by pedestrians and cyclists with some form of infrastructure or delineation in place designed to segregate these two modes.
<b>Shared Space</b>	A street or place designed to improve pedestrian movement and comfort by reducing the dominance of motor vehicles and enabling all users to share the space rather than follow the clearly defined rules implied by more conventional designs.
<b>Street Design</b>	Streetscape design and layout made up of footway, carriageway, landscaping and street features. Other features may include segregated cycle tracks, or tracks that are shared between cyclists and pedestrians without segregation.
<b>Street User</b>	Anyone that uses the street. A distinction can be made as to the type of user, i.e. pedestrian, cyclist, etc.
<b>Transport Scotland (TS)</b>	National transport agency of the Scottish Government, responsible for devolved transport matters in Scotland and accountable to the Scottish Ministers.
<b>Unsegregated shared use path</b>	A facility used by pedestrians and cyclists without any measure of segregation between modes. It is designed to enable pedestrians and cyclists to make use of the entire available width of the path.
<b>Visually Impaired (person)</b>	A person with partial vision loss or total inability to see.
<b>Wheelchair user</b>	An individual who uses a wheelchair. This term includes powered wheelchair users, manual wheelchair users and / or wheelchair users with ‘personal assistant / carer’ support.
<b>Working Group</b>	Group of key stakeholders set up by the Scottish Government to inform and engage with the research reported in this document.

## Specific note on the term ‘shared space’

It should be acknowledged that the term ‘shared space’ was used by participants providing input to the research reported in this document and so was included in the Literature Review.

‘Shared space’ is a street design concept as defined above that is associated with mixing pedestrians and vehicles in the same public streetscape (or public realm). The result of this is that the term ‘shared space’ is open to being interpreted differently by different people.

This resulted in ambiguity when this term was under discussion and the term was sometimes used to describe individual design features rather than the design concept. During the research, clarification was sought where reference was made to an individual design feature and / or street design concept.

As far as practically possible, the research reported in this document uses the term ‘shared space’ as a street design concept.

## 1. Executive summary

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### 1.1 Introduction and background

- 1.1.1. Transport Scotland (TS), the Scottish Government (SG) and the Department for Transport (DfT) required research, evidence and recommendations on methods and approaches to help deliver inclusive design environments within town centres and busy street areas. WSP was commissioned to undertake the research and produce this research report.
- 1.1.2. This research project has been undertaken in parallel with separate research commissioned by the DfT, and undertaken by TRL, to review the following two sets of DfT guidance with the aim of understanding how they need to be updated:
- Inclusive Mobility: A guide to best practice on access to pedestrian and transport infrastructure (published in 2002)
  - Guidance on the use of tactile paving surfaces (published in 1998).
- 1.1.3. Both research studies have been designed to be complementary without significant overlap of content.
- 1.1.4. This research included two main aspects - evidence on how inclusive engagement approaches can support inclusive design, and evidence on physical design measures that can support inclusive and accessible design.

### 1.2 Research methodology

- 1.2.1. The research drew on the following sources and approaches, the full details of which are included under the relevant appendices listed below.
- A Literature Review (Appendix A)
  - Perspectives from disabled street users through a series of focus groups (Appendix B and C)
  - Perspectives from designers, implementers and promoters through an online survey and a series of follow-on interviews (Appendix D)
  - Good practice examples (Appendix F)
  - Other research on street design (Appendix H)

### 1.3 Research findings – inclusive engagement

- 1.3.1. The findings derived from this research can be summarised across five key themes:
- Theme 1 - Stakeholder identification
  - Theme 2 - The scale and nature of the engagement process, including timing and notification
  - Theme 3 - Accessible engagement
  - Theme 4 - Recording
  - Theme 5 - Establishing and maintaining a good working relationship.
- 1.3.2. A review of the alignment between current guidance and the principles related to inclusive engagement concluded that existing guidance does cover the majority of points.



- 1.3.3. It is, however, clear from the focus group and designer feedback that, despite the existing guidance (spread across a range of different documents), there remains a gap between what has been implemented as part of street design projects and the expectations of disabled street users and designers, and that there are some specific requirements for street design projects to be addressed.
- 1.3.4. The research has established principles that will support the delivery of more inclusive engagement. A recommendation of this report is that these principles be reflected in guidance, supported by further research as recommended in this report.
- 1.3.5. The key principles and recommendations for inclusive engagement (supported by further sub-principles described in this report) are set out in Table 1.
- 1.3.6. It should be noted that all the principles need to be considered collectively, i.e. not in isolation, in order to recognise the inter-relationship between maintaining the existing level of amenity for disabled street users and the opportunity to improve the level of amenity for all disabled street users.

**Table 1 – Principles and recommendations for inclusive engagement**

NR	Principle / Sub-Principle	Recommendation
1.0	The individuals and groups representing the views of local disabled street users who will be affected by the proposed changes to the street design should be identified during the planning of the inclusive engagement process.	
1.1	Sub-principle: Local disabled street users who make use of the street space, and whose existing level of amenity may be impacted by the proposed changes to the street design, should be included in the engagement.	
1.2	Sub-principle: The identification of local disabled street users can be achieved through a combination of accessible media promotion and organisations that represent and / or support local street users.	Further research is recommended into the development of a GDPR-compliant stakeholder list (including preferred communication methods) to improve stakeholder identification / engagement. The GDPR-compliant mailing list could be passed to the designer (under conditions of use) at the start of a project.
1.3	Sub-principle: Input from any one stakeholder group should be proportionate and seeking views from only one interest group should be avoided.	It is recommended that more training be given to designers and promoters in respect of the broad range and complexity of different disabilities. This will support a greater appreciation of how disabled street users' perspectives may differ and encourage a wider range of views to be sought.
1.4	Sub-principle: The use of internal accessibility officers or equivalents within local authorities to “proof check” designs instead of undertaking engagement should be avoided.	
1.5	Sub-principle: Engagement should include proportionate representation from local older adult street users and disabled pedestrians and cyclists to ensure that all voices are heard equally.	Further research is recommended into engagement with older adults with age-related disabilities in order to support the inclusive design for lifelong conditions and the needs of an aging population of disabled street users.

NR	Principle / Sub-Principle	Recommendation
2.0	Utilising established local groups (where there are no Access Panels) who represent the views of locals disabled street users will benefit the planning and delivery of inclusive engagement.	Further research is recommended to examine different approaches to the efficient and effective establishment of such local groups, where Access Panels are not in place or inactive.
3.0	Engagement should be undertaken from the start of the design process, ideally at scheme conception.	
3.1	Sub-principle: Local disabled street users should have the opportunity from early on in the design process to provide input to the design process, to outline how they use the space, and to describe their existing level of amenity.	
3.2	Sub-principle: Engagement should be regarded as a multi-stage process and invite ongoing contributions from those affected by proposed changes.	
3.3	Sub-principle: Working with local stakeholder and the community can help ensure that the correct scale of engagement forms for a project are undertaken and at the most suitable times within the project cycle.	
4.0	The scale and nature of the engagement should inform the project commissioning with budget and timescales established to meet these requirements.	
4.1	Sub-principle: The approach to inclusive engagement should be proportionate to the size and type of project.	
4.2	Sub-principle: Sufficient budget should be set aside to allow for the full inclusive engagement process (from concept stage onwards).	Further research is recommended into the costs for inclusive engagement on completed projects in order to benchmark reasonable and realistic budgets for engagement on different types of projects.
4.3	Sub-principle: The project programme should allow for the identification of stakeholders, time for stakeholders to mobilise and attend engagement events, and time for responses to consultation throughout the engagement.	

NR	Principle / Sub-Principle	Recommendation
5.0	Media promotion should be multi-sensory and should recognise the limitations of media format to those with sensory impairments.	Further research is recommended into: i) determining the response / value of accessible media promotion through local TV, radio, audio newspapers versus DPO spoken media (RNIB <sup>1</sup> Radio) for different project types. ii) determining the response / value of making a press release to DPOs to promote engagement / stakeholder identification standard practice. Use could be made of participant records from future engagement as to how they became aware of the engagement event and feedback on efficacy of approaches adopted.
6.0	The use of different communication methods can improve access and understanding during the inclusive engagement process.	
6.1	Sub-principle: Inclusive engagement is supported through the provision of different ways of physically interacting with the proposals, such as walk-throughs and material samples.	
6.2	Sub-principle: Inclusive engagement is supported by facilitating different forms of engagement (e.g. joint events and one-to-one interviews).	
6.3	Sub-principle: Inclusive engagement is supported by a clear definition of the different communication preferences of the disabled street users to be engaged with, and provision for these approaches to be adopted.	
7.0	The sourcing of accessible venues that can accommodate participants with a range of impairments (in the group of disabled street users being engaged with) supports inclusive engagement.	

1 RNIB – Royal National Institute of Blind People

NR	Principle / Sub-Principle	Recommendation
8.0	Maintaining a record of engagement supports inclusive design and the designer's Public Sector Equality Duty compliance under the Equality Act.	It is recommended that guidance be updated to ensure designers maintain records which include the design response to inputs from the engagement, including design changes and reasonable adjustments made, or where no action has been taken, in order to inform the EQIA / Access Audit. The EQIA / Access Audit (or similar) should form the central document for demonstrating compliance with the relevant legislation and regulations associated with inclusive design and engagement.
8.1	Sub-principle: The recorded input from the engagement process should be assessed and responded to (i.e. 'you said, we did').	
8.2	Sub-principle: Engagement input and feedback should be facilitated in the most accessible format for the participant, with associated record keeping.	
9	A collaborative approach that encourages local disabled street users or representatives to consider the needs of other users supports inclusive engagement.	

## **1.4 Research findings – inclusive physical design measures**

- 1.4.1. The perspectives of disabled street users with respect to inclusive physical design measures were sought in relation to specific design features and their impact on people with different impairments.
- 1.4.2. The physical design features considered by the disabled street user focus groups were:
  - Crossings - uncontrolled and controlled crossing of carriageways.
  - Segregation between pedestrians, cyclists and motor vehicles.
  - Obstructions and 'street clutter'.
- 1.4.3. Two key themes were drawn from the research that are of overarching importance to the implementation of inclusive design.
  - Theme 1 - Consistency in approach.
  - Theme 2 - The influence of feeling 'unsafe' on access and use of areas by disabled street users.
- 1.4.4. Most aspects of physical design measures are covered to some extent by existing guidance. However, the guidance is spread across multiple documents leading to inconsistency in its application and a perception of a lack of effectiveness of guidance by disabled street users.
- 1.4.5. The research has established principles that will support the delivery of more inclusive physical design measures. A recommendation of this research study is for these principles to be reflected in guidance, supported by further research as recommended in this report.
- 1.4.6. The key principles for inclusive engagement (supported by further sub-principles) are set out in Table 2.
- 1.4.7. It should be noted that all the principles need to be considered collectively, i.e. not in isolation, in order to recognise the inter-relationship between maintaining the existing level of amenity for disabled street users and the opportunity to improve the level of amenity for all disabled street users.

**Table 2 – Principles and recommendations for inclusive physical design measures**

NR	Principle / Sub-Principle	Recommendation
	General Principles	
10.0	Consistency in the approach to, and design of, street features in town centres and busy street areas supports access for all street users, increases the confidence of disabled street users and minimises feelings of discomfort and/or feeling unsafe.	It is recommended that guidance embeds the importance of consistency (including engagement to inform the design) in the approach to and the design of street features and the need to consider the impact of any proposals on the existing level of amenity of disabled street users, as well as seeking opportunities to enhance the level of amenity.
10.1	Sub-principle: Undertaking an EQIA where changes to physical design features are proposed will support the identification of changes to the existing level of amenity for disabled street users. It will allow action to be taken to best support access for disabled street users.	<p>Further research is recommended in respect of the training of designers (and those who contribute to design) to better equip designers undertaking EQIAs to appreciate the perspectives and needs of street users with different abilities.</p> <p>It is recommended that guidance, which may include Manual for Streets, Designing Streets and Inclusive Mobility, should encourage the completion of EQIAs.</p>
10.2	Sub-principle: Consistent monitoring and evaluation will inform better design and support access for disabled street users by incorporating lessons learned and good practice.	Further research is recommended into the standardisation of the monitoring and evaluation of street design schemes. This should include consideration of requirements for baseline surveys (including street user perception and health and wellbeing) and categorisation of street design into standard categories, in order to allow comparisons between different locations and project scales.
	Crossings	
11.0	The type and frequency of pedestrian crossings (controlled and uncontrolled) can improve access and safety, and enhance the confidence of disabled street users in town centres and on busy streets.	<p>It is recommended, as part of the Site Assessment outlined in Traffic Signs Manual Chapter 6, that the level of amenity of existing disabled street users is observed and that this should inform the considerations of crossing location, type and regularity (taking into consideration demand and reasonable walking distances to existing and preferred crossing facilities).</p> <p>The street design should be developed with consideration of the outcomes of the Site Assessment and the principles presented from this research.</p> <p>It is recommended that guidance should be expanded to incorporate this principle.</p>

NR	Principle / Sub-Principle	Recommendation
11.1	<p>Sub-principle: Street features included at all crossings which are conspicuous, legible, comprehensible and credible from the perspective of the disabled street user, whilst maintaining access, especially for disabled street users with reduced mobility, will support access for disabled street users.</p>	<p>Further research is recommended into:</p> <ul style="list-style-type: none"> <li>i) Further research into the design of continuous footways.</li> <li>ii) Pedestrian refuge island design detail for facilities of less than 2m wide (between kerbs) where no tactile separation is currently required. Additional research is recommended to establish if changes to current guidance are required, incorporating some form of non-tactile demarcation to differentiate between the two stages of crossing the street (i.e. crossing both lanes).</li> </ul>
11.2	<p>Sub-principle: Signal controlled crossings are the preferred crossing type by all disabled street users and provide the highest degree of confidence to disabled street users.</p>	<p>It is recommended that guidance should be expanded to incorporate this principle, and include the following considerations as part of the design following the Site Assessment under Traffic Signs Manual Chapter 6:</p> <ul style="list-style-type: none"> <li>i) A signalised crossing should by default be considered in new installations or the upgrading of existing facilities subject to Traffic Signs Manual Chapter 6 guidance regarding demand, minimum distance between junctions, etc.</li> <li>ii) Further signalised crossings can be considered subject to Traffic Signs Manual Chapter 6 guidance regarding demand, minimum distance between crossings, etc.</li> <li>iii) Signalised crossings provide the least discomfort to visually impaired street users.</li> <li>iv) Zebra crossings can complement signalised crossings in town centres / busy streets to provide an improved level of crossing amenity.</li> <li>v) Zebra crossings are preferred over courtesy crossings by non-visually impaired disabled street users. Visually impaired street users experience a high level of discomfort and avoid zebra crossings.</li> <li>vi) Courtesy crossings are considered the option which gives the least access to disability groups, with visually impaired participants expressing a high level of discomfort with and avoidance of such facilities.</li> </ul>
12.0	<p>Regular rest locations with clear wayfinding and directions improve access for disabled street users to crossings.</p>	



NR	Principle / Sub-Principle	Recommendation
	Segregation	
13.0	Disabled street user access is conditional on physical street design features that are conspicuous, legible, comprehensive and credible.	It is recommended that guidance outlines the importance of the physical street features in supporting the confidence of disabled street users in accessing an area.
13.1	Sub-principle: All disabled street users value some form of kerb demarcation to define the pedestrian place and demarcate it from the vehicle place (including cyclists).	Further quantitative research is recommended to define the kerb height provision with and without tactile demarcation, taking into consideration all types of disabled street users. The research approach should consider the level and type of disability, the level of personal adaptation and degree of personal assistance as well as street conditions. The research should seek to identify the kerb height that supports access for the majority of users (i.e. 85%ile of street users).
13.2	Sub-principle: The provision of a demarcated pedestrian clear corridor of a minimum width of 2 metres clear of obstructions provides a 'safe area' for pedestrians and supports access for disabled street users in busy streets / town centres.	It is recommended that guidance should include a requirement in town centres and busy streets for a horizontally segregated pedestrian clear corridor or zone which is demarcated from cyclists and vehicles. Further research is recommended into the maximum width of demarcated clear pedestrian corridors.
13.3	Sub-principle: The provision of Level Surface streets with tactile demarcation can be considered in exceptional circumstances with low flow (vehicles and wheeled modes) / low speed conditions after consultation with local disabled street users, in particular the visually impaired.	Further research is recommended to define 'low flow / low speed' conditions in town centres and busy street areas.  The provision of Level Surface streets with tactile demarcation may be retained in exceptional circumstances. This could be accompanied by additional support to improve the accessibility of these areas such as one-way traffic flow or restricting vehicle access. This is likely to be mainly on historical streets and should be restricted to "low flow / low speed" locations. In the absence of detailed quantitative research, it is suggested that the definition of "low flow / low speed" locations in Manual for Streets of 100 vph / under 10 mph is adopted. Where these flows / speeds are exceeded, kerb demarcation is required.
14.0	The segregation of pedestrians and cyclists in town centres and busy street areas supports access for disabled street users.	

NR	Principle / Sub-Principle	Recommendation
14.1	Sub-principle: Kerbed demarcation to cycle tracks supports access for disabled street users. The provision of some form of kerb demarcation reduces anxiety, promotes confidence and increases the level of access.	
Use Of Materials		
15.0	Colour and tonal contrast of street features and pavement in all weather conditions supports access for all street users.	It is recommended that guidance reflects the requirement for colour and tonal contrast in town centre and busy street areas, with examples and suggested approaches for assessing tonal and colour contrast.
15.1	Sub-principle: Material textures can be used to differentiate between the footway and the carriageway but should not present an obstacle or trip hazard or present differently in wet weather or lower light.	
15.2	Sub-principle: The maintenance of surfaces and build quality / standards supports access for all street users.	
Obstructions / Street Clutter		
16.0	Within town centres and busy street areas, all street features should be outside / away from the demarcated pedestrian clear corridor.	It is recommended that guidance embeds the importance of demarcation of clear pedestrian corridors in enabling inclusive access for disabled street users.
16.1	Sub-principle: Street features that support pick up and drop off (PUDO) by support vehicles improve access for disabled street users in town centres and busy street areas.	It is recommended that guidance conveys the importance of considering the needs of disabled users with regard to pick up and drop off (PUDO) facilities. This relates to providing clear kerbside access and to other considerations such as the provision of wayfinding to these PUDO areas and ensuring their close proximity to destinations.
16.2	Sub-principle: Regulation of moveable temporary street features could support access for disabled street users.	Further research is recommended into the regulation of the use and location of moveable temporary street features (e.g. domestic waste wheelie bins) on footways and in respect of efficacy in supporting access for disabled street users.

## **1.5 Principles and recommendations related to training**

- 1.5.1. The theme of improved guidance and training was evident from all the sources considered in the research and reflects evidence from the good practice examples identified.
- 1.5.2. Therefore, the development of guidance and training needs to be undertaken with consideration of the different professions that are likely to be involved in leading and implementing engagement and design.
- 1.5.3. Principle 17 is that the training of designers, implementers and promoters and those involved in the design process such as access panels needs to convey a greater appreciation of the key aspects pertaining to inclusive design.
- 1.5.4. The report makes recommendations that will support the development of training courses and materials that would help to convey the key aspects to the audiences for the training material.

## **1.6 Conclusion**

- 1.6.1. This report sets out principles and recommendations that would support inclusive design in town centres and busy streets.
- 1.6.2. It is recommended that these principles be embedded in guidance and applied in practice, and that the recommended further research be undertaken.

## 2. Introduction

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### 2.1 Background to the project

- 2.1.1. Transport Scotland (TS), the Scottish Government (SG) and the Department for Transport (DfT) required research evidence and recommendations on methods and approaches to help deliver inclusive design environments within town centres and busy street areas. WSP was commissioned to undertake the research and produce this research report.
- 2.1.2. TS supports Scottish Ministers in prioritising future transport policy and investments, whilst actively promoting sustainable transport and road safety. Within all of these areas of operation, there is a requirement for accessibility and safety to be considered.
- 2.1.3. A specific area of work is required to update current guidance for Scotland on street design to deliver accessible town centres. At a UK level, following the withdrawal of Local Transport Note 1/11: Shared Space, there is a commitment from the DfT to update guidance<sup>2</sup>. TS is therefore working jointly with the DfT and the SG Planning and Architecture Division to review current guidance with regard to making streets fully accessible for all.
- 2.1.4. This research project has been undertaken in parallel with separate research commissioned by the DfT and undertaken by the TRL to review two sets of DfT guidance with the aim of understanding how they need to be updated:
- Inclusive Mobility: A guide to best practice on access to pedestrian and transport infrastructure<sup>3</sup> (published in 2002).
  - Guidance on the use of tactile paving surfaces<sup>4</sup> (published in 1998).
- 2.1.5. Both research studies have been designed to be complementary without significant overlap of content. The outcomes of the parallel research are presented in the TRL Technical Report 'Accessible Public Realm: updating guidance and further research'<sup>5</sup>. (February 2020). That report is summarised in this report under section 3.1.13 and in Appendix E.

### 2.2 WSP inclusive design commission

- 2.2.1. TS, the SG and the DfT appointed WSP (with support from Napier University and KSO Research) to undertake research into methods and approaches to help deliver inclusive street design environments within town centres and busy street areas.

### 2.3 Role of the client group

- 2.3.1. The project was overseen by a Client Group which included membership from TS, the SG and the DfT. The Client Group was consulted in respect of key elements of the proposed research methods prior to the research team undertaking the different stages of the research.

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2 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/732739/ltn-1-11.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/732739/ltn-1-11.pdf)

3 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/3695/inclusive-mobility.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3695/inclusive-mobility.pdf)

4 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/918353/tactile-paving-surfaces.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918353/tactile-paving-surfaces.pdf)

5 <https://trl.co.uk/publications/accessible-public-realm--updating-guidance-and-further-research>

## 2.4 Role of the working group

- 2.4.1. A Working Group was set up by TS prior to the commencement of this research to inform a review of issues related to inclusive engagement and design. The members of the Working Group include key stakeholders including the Mobility and Access Committee for Scotland (MACS), the Disabled Persons Transport Advisory Committee (DPTAC), Disabled People's Organisations, Third Sector Organisations and local government representation.
- 2.4.2. The Working Group agreed the research specification and was informed of the methods and approaches undertaken during regular meetings throughout the research programme.

## 2.5 Structure of the report

- 2.5.1. The structure of the report is as follows.
- Chapter 1: Executive Summary
  - Chapter 2: Introduction
  - Chapter 3: Overview of the Research Approach
  - Chapter 4: Literature Review and Key Findings
  - Chapter 5: Inclusive Engagement - Research Findings
  - Chapter 6: Recommendations related to Inclusive Engagement
  - Chapter 7: Inclusive Physical Design Measures - Research Findings
  - Chapter 8: Recommendations related to Inclusive Physical Design Measures
  - Chapter 9: Recommendations related to Training
  - Chapter 10: Summary

## Appendices

- Appendix A - Literature Review
- Appendix B - Perspectives of Disabled Street Users on Inclusive Engagement
- Appendix C - Perspectives of Disabled Street Users on Inclusive Physical Design Measures
- Appendix D - Designer, Implementer and Promoter Perspectives
- Appendix E - Summary of 'The Accessible Public Realm: Updating Guidance and further Research' TRL Ltd, 2020
- Appendix F - Good Practice Examples of Inclusive Engagement
- Appendix G - Equality Legislation Overview
- Appendix H - Further Research Considered
- Appendix I – Existing Guidance
- Appendix J – Principles and Recommendations for Inclusive Engagement
- Appendix K – Principles and Recommendations for Inclusive Physical Design Measures

### **3. Overview of the research approach**

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#### **3.1 Research aims and objectives**

##### **Overall aims and focus**

- 3.1.1. The primary aim of this research was to provide evidence on methods and approaches that help to deliver inclusive design environments within town centres and busy street areas.
- 3.1.2. The research considered the needs of all street users but with a specific focus on more vulnerable users, including older people, children, and disabled people, including physical, sensory and cognitive and, where relevant, other groups that fall within the 2010 Equality Act definition of 'Protected Characteristics'.
- 3.1.3. The research included two main aspects - evidence on how inclusive engagement approaches can support inclusive design, and evidence on physical design measures that can support inclusive and accessible design.
- 3.1.4. WSP sought a balanced approach to the research between consulting groups with protected characteristics whilst avoiding undertaking 'tokenistic' consultation exercises e.g. with groups with protected characteristics which would have a minimal influence on inclusive street design.
- 3.1.5. Therefore, the primary focus was placed on disabled street users, particularly those with mobility and sensory impairments, to ensure that the engagement with disabled street users was of substance and enabled individual views and opinions to contribute directly to the research.

##### **Good practice examples**

- 3.1.6. This research investigated good practice examples of schemes within Scotland and England where inclusive engagement has been successfully implemented.
- 3.1.7. The examples were identified by participants in the street user focus groups and from engagement with designers, implementers and promoters. This included analysis of the projects identified and the successful inclusive engagement processes applied in these examples.

##### **Inclusive engagement approaches**

- 3.1.8. Effective engagement is an important element in ensuring that the needs of all street users are met during the development of proposals. The research investigated approaches to achieving effective engagement with communities in the development of proposals that support inclusive design in town centres and busy street environments.
- 3.1.9. Particular attention was given to engagement and genuine, effective consultation with disabled people and organisations.
- 3.1.10. The research covered issues such as the context for engagement (through planning / regeneration / community planning processes / Equality Impact Assessments); the timing of engagement; the method and format of engagement, including frequency, the role of Access Panels; and any special requirements such as approaches to effectively engage with hard to reach and seldom heard groups.
- 3.1.11. The research considered the alignment between the current consultation and engagement guidance in respect of aspects raised by the participants and literature review.

- 3.1.12. Conclusions were drawn from the research undertaken and the good practice examples which informed the principles and recommendations on how the guidance and application of guidance can be improved in order to better support inclusive engagement approaches and inclusive design of environments within town centres and busy street areas.

### **Physical design measures**

- 3.1.13. The research considered physical design measures that can support inclusive and accessible design. As mentioned in section 2.1 this was undertaken in parallel to a separate research study by the TRL which is summarised in Appendix E.
- 3.1.14. The TRL research overlapped with the scope of this research. Therefore, the following was removed from this research:
- Delineation - types of delineation and detectability by specific groups, including shared use paths and streets with defined cycle lanes and tracks.
  - Use of materials including type and tonal / colour / textural contrast, taking into account differing light levels and weather conditions.
  - Public transport stops (including floating bus stops) and boarding points.
  - Availability and types of parking located close to shops and amenities.
- 3.1.15. This research investigated how physical design measures can support improved access and provide safe, accessible, attractive and active places for local people and businesses. This has included the following areas:
- Crossings (formal and informal types and regularity).
  - Segregation between pedestrians and vehicles (vertical and horizontal).
  - Level or reduced level surfaces.
  - Obstructions and 'treet clutter' including signs, advertising, street furniture, waste recycling and bollard type fixtures.
- 3.1.16. Conclusions were drawn from the research undertaken which informed the principles and recommendations, alongside recommendations for further research, set out in this report.

## **3.2 Research approach adopted**

- 3.2.1. The research was undertaken in stages with a review undertaken with the Client Group at the end of each stage.
- Stage 1 - A review of existing evidence and literature - an academic review of current evidence and literature available within defined search criteria.
  - Stage 2 - Disabled street user focus groups - a series of focus groups were held with disabled street users to discuss inclusive engagement approaches and physical design features that enable (provide more access to) and disable (provide less access to) users.
  - Stage 3 - Consultation with designers, implementers and promoters - an online survey with a series of one-to-one consultations to understand how designers, implementers and promoters consider inclusive engagement and design.
  - Stage 4 - Reporting.

## **Research brief**

- 3.2.2. The research study approach was based upon the research brief which outlined the following requirements:

### **A review of existing evidence and literature**

- 3.2.3. The research brief was to undertake a Literature Review examining the large volume of evidence and research that has been developed by various organisations on inclusive engagement and inclusive physical design measures in town centres and busy street environments.
- 3.2.4. The research brief was to identify and evaluate the existing evidence base and to examine some of the physical design measures and approaches often used in contemporary schemes. These included level, or reduced level surfaces, use of formal and informal crossing points, delineation, public transport stops and boarding points, speed and volume reduction measures and accident rates in town centre and busy streets environments.
- 3.2.5. When evaluating the evidence base, the research carefully considered coverage of the needs of all street users and in particular evidence covering a wide range of disabilities.
- 3.2.6. The aim of the research was to provide a summary of evidence on how place-led approaches, good placemaking and inclusive design principles can provide beneficial social, environmental, health and economic outcomes. The research was also to highlight any areas of conflict and negative impacts for different types of street users affected to different extents – negatively and positively – by design approaches.

### **User experience and engagement**

- 3.2.7. The research brief focussed on the user experience and perceived levels of accessibility. It was expected that the research team would consult and engage with relevant organisations and individuals in order to gain a comprehensive understanding of evidence and obtain additional views on achieving inclusive design.
- 3.2.8. The research was to include the collecting and analysing of qualitative information such as the views and experiences of street users and in particular vulnerable people who may avoid town centres and busy street environments for reasons such as lack of a perceived ‘safe space’; confusion at unfamiliar environments; volume and influence of traffic; physical inaccessibility including issues such as lack of, or inclusion of kerbs, barriers, footway clutter and other relevant considerations. This information was to be cross-referenced with statistical data on accessibility and the review of the existing evidence base.

### **Impacts and potential benefits**

- 3.2.9. The research brief required the importance of ‘Place’ and adopting a coordinated and holistic approach to be covered in the research and reflected in the analysis of the potential benefits of positive and inclusive design.

### **Legal considerations**

- 3.2.10. The research considered relevant legal duties such as those under equalities legislation, planning and roads legislation and duties on public safety.



### **3.3 Approach to engagement with users and designers**

- 3.3.1. At the outset of the research study the intention was to gather the perspectives of disabled street users through a series of structured interviews. During the Literature Review stage there were a number of requests made to the research team via the client group by members of the working group, who wished to further assist the research team in their understanding of the current issues.
- 3.3.2. This further input took the form of site visits and additional grey research (non-peer reviewed) material. The research team observed a TRL 'Accessible Public Realm' workshop, and meetings were held with the Royal National Institute of Blind People (RNIB), Guide Dogs and with the National Federation of the Blind of the UK (NFBUK).
- 3.3.3. These meetings resulted in the research study being adapted to include a series of focus groups with disabled street users in order to gather their perspectives on inclusive engagement and design.

#### **Focus group approach taken to gather user perspectives**

- 3.3.4. The interaction with the disabled street user groups informed the approach for discussing inclusive engagement and design with the focus groups. The participants were encouraged to attend the focus groups which related to their particular impairment or focus area. This allowed the researchers to gain a level of independent consensus from each disability street user group without influence from other user group perspectives.
- 3.3.5. The focus group facilitators were asked to pay particular attention when 'safety' was mentioned and to ask participants to explain any safety concerns they had.

#### **Designer, implementer and promoter perspectives**

- 3.3.6. The literature review identified that there was a lack of information on the views of designers, implementers and promoters and a lack of information on the barriers they encounter which limits good engagement and design.
- 3.3.7. When this was identified the research study was adapted to include a survey of designers, implementers and promoters.
- 3.3.8. The research team had engaged informally with a small number of designers, implementers and promoters during the initial stages of the research study in order to inform the research approach in respect of engagement with disabled street users.
- 3.3.9. The research team considered a number of research approaches which would reassure designers, implementers and promoters that their comments could be made openly (without risk of retrospective challenge) and to allow the research team to ascertain the level of ability / competence currently within the design community.
- 3.3.10. Following consideration of focus group and detailed online survey methods, an online open questionnaire was incorporated into the study followed up with one-to-one conversations with participants. These supplemented any one-to-one interviews already undertaken.
- 3.3.11. The discussions were held in the knowledge that any feedback would be reported anonymously. However, there was some discomfort for some participants in discussing their experiences.
- 3.3.12. Those interviewees who were more confident in their engagement approach appeared to have existing and good relationships with Access Panels and / or pan-disability organisations, and / or a good level of experience in inclusive engagement.

- 3.3.13. Those less comfortable with their engagement approach believed it was due to a combination of factors, including weaker relationships with Access Panels and / or pan-disability organisations, monopolising of attention by some organisations that were perceived by the interviewee to have strong narrow views, and (in the view of some interviewees) a resulting level of mistrust between stakeholders.

### **3.4 Relationship between findings and recommendations**

- 3.4.1. The main report includes an overview of the research undertaken and the key messages and findings drawn from the research. The details are included within the report appendices.
- 3.4.2. The report details the findings from each element of the research programme and sets out how they were drawn from the research evidence, how these findings were analysed and collated, and how they were considered in relation to current guidance. The principles and recommendations drawn from the findings in response to the research brief and are set out in this report, structured around:
- Inclusive engagement; and
  - Inclusive physical design measures.
- 3.4.3. The report also includes recommendations for proposed further actions e.g. development of guidance or further research.

## 4. Literature review and key findings

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### 4.1 Introduction

- 4.1.1. The Literature Review was led by the Transport Research Institute at Edinburgh Napier University. This chapter provides a summary extracted from the Literature Review included in Appendix A and concludes with an overview of the key findings which were considered in the development of the recommendations.
- 4.1.2. The objective of the Literature Review was to provide evidence of methods and approaches that assist the delivery of inclusive design environments within town centres and busy street areas.

### 4.2 Overview of literature review

- 4.2.1. The focus of the Literature Review was to report on peer reviewed and grey literature (non-peer reviewed) addressing the design of town centres and busy streets in the quest for designs which are acceptable to all vulnerable road user categories. In order to be included in the Review, the papers needed to give some consideration to mobility impairments.
- 4.2.2. The search criteria were broken down as follows:
- Target audiences/populations included in interventions - all adults and children.
  - Study design - prioritising reviews of the literature, but also considering single studies, which included qualitative research.
  - Timescale - January 2008 to September 2019.
  - Geography – a global literature search for papers published in English.

### Literature searches

- 4.2.3. Search terms applied were: inclusive design; shared space; inclusive street design; walk; mobility impairment; sensory impairment; disable; high street; kerb (curb); shopping street; streetscape material; colour (color); texture; surfaces; street delineation; street clutter; tactile pavement / paving; vehicle / pedestrian segregation; disabled parking; bus stop access; severance; pedestrian crossing; traffic speed / volume; accidents; inclusive engagement / consultation; equality engagement / consultation; disability engagement / consultation.
- 4.2.4. These were augmented by over 100 search words and terms suggested by members of the working group. As some of the new search terms duplicated terms in the above list, they were prioritised through discussions within the research team.
- 4.2.5. Search terms subsequently added were: co-design; wayfinding; street design; shared use; shared surface; delineation; disable / disabilities; blind; partially sighted; deaf-blind; deaf; cognitive impaired; road traffic collision / conflict; access; slope; gradient; pedestrianisation; kerb (curb) height; and cycle way.
- 4.2.6. The search engines used were Transport Research International Documentation (TRIDS); Transport Research Board (TRB); ScienceDirect; and Google Scholar. References from studies were also examined to seek additional studies. In addition, grey literature drafted by government departments and agencies and road safety institute reports was also included.

### 4.3 Assessment process

- 4.3.1. The literature review found 38 studies in scope. Given that seven of the studies were reviews of the literature, the total number of individual studies referred to is greater than 38, and some single studies also summarised aspects of the literature in setting their own study in the wider context of the shared space literature. After searches had been undertaken to find studies and abstracts, these were checked to assess whether it was likely that they were in scope or out of scope.
- 4.3.2. A common procedure in identifying and examining a body of literature is to group studies under themes. For this Literature Review the themes are:
- Reviews (7).
  - Single studies - design and use (23), non-visual impairments (2) and engagement and consultation (6).
- 4.3.3. Each theme is drawn on in detail in covering the range of topics identified in the Review, in order to set out a cohesive narrative which seeks to draw together the evidence found.
- 4.3.4. A total of 20 studies were from the UK, four from elsewhere in Europe and 14 outside Europe were included in the literature review. All studies are listed with their full citation in Appendix A.

### 4.4 Summary of key findings

- 4.4.1. At the general level, there needs to be greater recognition of the needs of all users, including people with sight loss (Imrie and Kumar, 2011; Smithies, 2015).
- 4.4.2. The views and feelings of vision-impaired people are not a significant part of the policy-making process (Imrie, 2013).
- 4.4.3. There is a need for clear guidelines on how to prevent the identified issues from occurring in newly designed shared spaces and how to improve existing shared-space schemes (Havik et al, 2015; Audrey, Leonards, Damens, 2017). This is supported by Imrie and Kumar (2011) who state that more detailed guidance is required on the development and implementation of shared space.
- 4.4.4. The seeming lack of consistent standards provides designers with a blank canvas when creating shared-use areas, often meaning that the needs of vulnerable road users, including blind and visually impaired users, are forgotten among the aesthetic details. Shared spaces should not be a uniform material but have distinct safe areas. Boundaries within the shared space should also be present to create an environment that is easily identifiable and understandable to blind and visually impaired users. A consistent approach to designing for blind and visually impaired users should be introduced. This could be achieved by establishing national standards and specifications with appropriate enforcements (Smithies, 2015).
- 4.4.5. Communication emerges as a challenge to designers and implementers. Communication should be improved e.g. between guide-dog trainers and roads / highway authorities. Authorities should consult with blind and visually impaired organisations, seeking their opinions before the detailed design stage (Smithies, 2015). As such, roads / highway engineers should be provided with training opportunities to develop their skills in designing for vulnerable road users (Smithies, 2015).

- 4.4.6. An expectation of general enjoyment of greater pedestrian space for one group comes at the price of a limited expectation of these benefits for another group. This suggests that even within the broad category of those with impaired mobilities, there is not only an accessibility issue, but also a challenge to the equity of the scheme (Tyler, 2017).
- 4.4.7. The 'evidence gaps' need to be addressed, particularly in relation to personal safety issues (Imrie and Kumar, 2011).
- 4.4.8. While the level and quality of research available is not extensive and in depth in relation to persons with an impairment or combination of impairments, the literature does present some aspects in the research that would suggest that there are four key areas with associated key findings.
- 4.4.9. The key findings below (indicated with the relevant "LR" codes) are referenced in the further chapters of this report to indicate where they have informed principles and recommendations. Full details are in Appendix A.

### **Inclusive engagement**

- LR1 - Inclusive design<sup>6</sup> can be better achieved through greater efforts at consultation and engagement.
- LR2 – Engineers and designers should consult with a range of organisations representing users with reduced mobility seeking their opinions on an ongoing basis during the proposal and design stages of all schemes.

### **Inclusive Physical Design Measures**

- LR3 - There is mixed evidence as to whether the introduction of shared space use on high streets and busy streets has increased accidents.
- LR4 - There is research that reports persons with mobility impairment avoid shared space, and most reports relate to visually impaired users.
- LR5 - The evidence shows that there is still some debate on the need for kerbed edges, however there is consensus that detectable demarcation between motorised traffic and pedestrian in 'shared space' is required.
- LR6 - 'Safe Space' areas that are strictly reserved for pedestrians appear to be a well-supported compromise as a design solution and give confidence to the mobility impaired user.
- LR7 - There is evidence which suggests that some measures to support some disabled people can have an impact on users with other impairments and there are limited studies into persons with more than one type of impairment.

### **The need for more research and definition**

- LR8 - There is no agreed definition of 'shared space' in practice and this is reflected in the inconsistent approach to design.
- LR9 - There is a need for guidance on street layout for emerging and existing 'shared space' schemes which should be supported by more research.

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6 The term "accessible design" is used in the literature review report in Appendix A.

## Inclusive Design In Town Centres And Busy Street Areas

- LR10 - There is limited high quality (robust) literature and research on inclusive design from the perspective of the users with mobility and or sensory impairment.
- LR11 - Limited research exists on mobility experiences of persons with cognitive functional limitations.

### **Inclusive design training**

- LR12 – Engineers and designers should have the opportunity to be trained to design for vulnerable road users.

## 5. Inclusive engagement - research findings

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### 5.1 Introduction

5.1.1. The inclusive engagement findings are based on:

- The disabled street user focus groups (detail included in Appendix B), from which key messages were drawn - referenced with the code 'FGE'.
- Online survey of the designers, implementers and promoters (details included in Appendix D), from which key messages were drawn - referenced with the code 'DIP'.
- Consideration of good practice examples (detail included in Appendix F), from which key findings were drawn - referenced with the code 'GP'.

5.1.2. While the research used a combination of methods, it was reliant on the personal perspectives and insights of the participants into inclusive engagement. These perspectives allowed the research to identify consistent themes across groups, whilst acknowledging there may be a variation in perspectives between groups.

5.1.3. This chapter presents the key findings in relation to inclusive engagement. In the following chapter this report derives the principles and recommendations for inclusive engagement from these key findings.

### 5.2 Overview of key findings

5.2.1. The findings on inclusive engagement derived from this research can be summarised under five key themes:

- Theme 1 - Stakeholder identification.
- Theme 2 - The scale and nature of the engagement process, including timing and notification.
- Theme 3 - Accessible engagement.
- Theme 4 - Maintaining a record.
- Theme 5 - Establishing and maintaining a good working relationship.

5.2.2. The findings against each of these themes are summarised below in the remainder of this chapter against the summary of key messages and findings described in Appendices B, D and F.

### 5.3 Inclusive engagement theme 1: stakeholder identification

5.3.1. The key messages pertaining to Theme 1 are:

- FGE2 - While contacting DPOs is a practical route for inviting views on designs, it should not be seen as the only route to access feedback from disabled people. In order to gain more representative input to the process, more local views should also be sought by direct contact with local residents, including those with impairments and those with recent or a temporary disability.
  - This should be via more targeted local activity, such as calls for contributions via written and spoken media, posters in local areas and harnessing networking opportunities in local communities.
  - Input should be proportionate and seeking views from only one interest group or one pan-disability group should be avoided.

- FGE3 - While using internal accessibility officers or equivalents within local authorities may be a useful first step to consulting on the inclusivity of designs, it should never be used alone as a means of 'proof checking' designs.
  - More objective and representative input is required.
- FGE4 - Proactive attempts to engage with older adults in local communities will help to make street design even more accessible and should be pursued as a matter of course.
  - The progressively aging population was seen as a relatively new challenge. The needs of older adults, who represent an increasingly large proportion of the population, should be specifically addressed in any updating of existing guidance or writing of new guidance.
- FGE22 - Engagement activities should include proportionate representation from pedestrians as well as cyclists and vehicle users to ensure that all voices are equally heard.

5.3.2. Interviews with designers, implementers and promoters found that, in their view, Access Panels are particularly successful in allowing people to contribute fully to the project during the initial stages of planning and design. This is contrasted by the views of some disabled street users in the Focus Groups that Access Panels can be 'patchy', with variable levels of representation of different needs, and varying levels of dynamism, funding, interest and buy-in from local authorities across the country.

5.3.3. The feedback from designers, implementers and promoters yielded the key messages that:

- DIP1 - Good practice should be to form an inclusive design working group (in the absence of an active Access Panel) at the project inception stage of any project or programme which may result in alterations to the street design.
  - This working group should then be encouraged to discuss and agree upon subjects such as: how the relevant users are represented, the appropriate forms of engagement that will be undertaken, as well as the timing and scale of engagement activities.
- DIP2 - Collaborative design practices help to ensure that the local community, including disabled and vulnerable users, feel able to influence the design of the spaces and places in which they live, work and play.
  - This approach can also break down the 'them and us' perception, which is often associated with professional designer-led approaches and encourages shared decision making and conflict resolution.

5.3.4. The key findings from the good practice examples include the following:

- GP1 - A common theme to all examples is that the inclusive engagement has been driven by a group formed and maintained by members who are from the disabled community and have a broad interest in supporting accessibility.
- GP2 - The bespoke formal disabled user groups included in the good practice examples have established recruitment and training processes to ensure that their membership is balanced and supports the wider accessible agenda (thereby ensuring a pan-disability focus and reducing the risk of a few 'louder' voices being disproportionately catered to).
  - For example, the Edinburgh Access Panel had a number of participants in the disabled street user focus groups who give wider representative views of different disabilities.



- GP3 – Behaviours: there are a number of factors that have contributed to the success of the good practice examples identified, including:
  - The presence of a strong chairperson / leadership role within the engagement groups.
  - Seeking to avoid a ‘them and us’ culture.
  - Ensuring the groups conduct themselves in a proactive and solution-led manner, as well as being reasonable and considerate of other disabled street users’ needs.
  - Ensuring that welfare needs of participants are in place.
  - A clearly defined meeting etiquette and process including agreement on the manner in which material is to be presented in an accessible manner.

### **5.4 Inclusive engagement theme 2: scale and nature of the engagement process**

- 5.4.1. There was a consensus amongst the focus group participants that they had typically been involved too late in the process i.e. once designs had already been developed. Designs are often drawn up before engagement processes begins and this already limits the opportunity that people have to input to their development, i.e. input is sought ‘after the event’.
- 5.4.2. Initiating engagement before designers put pen to paper was seen as key and ideally at concept stage.
- 5.4.3. The key messages pertaining to Theme 2 are:
  - FGE1 - Engagement should begin as early in the project design process as possible and ideally at the concept stage, before plans are drafted, with early discussions around the broad plans to develop street spaces, and an opportunity for individuals to raise initial concerns which may impact on how plans are subsequently developed.
  - FGE8 - A programme of proportionate and effective engagement should be included as part of the project commissioning and scope with an appropriate allocation of project budget (or equivalent).
  - FGE16 - Engagement should be regarded as a multi-stage process.
  - DIP4 - Working with local stakeholders and the community, including disabled and vulnerable users, can help ensure that the correct scale of engagement and engagement forms for a project are undertaken and at the most suitable times.
  - DIP9 - In order to address the challenge of time and budget constraints, a programme of proportionate and effective engagement should be included as part of the project commissioning and scope.
    - The allocation of an appropriate level of project budget (or equivalent) to remunerate consultees and those supporting consultees for their time and expenses during the engagement process will significantly increase the capacity of voluntary groups and individuals to attend and contribute to engagement events and activities.
  - DIP13 - Sufficient budget needs to be in place at the commissioning stage of a scheme to ensure that an adequate range of engagement approaches and tools can be applied.
    - Guidance on engagement needs to be explicit as to the inclusive engagement requirements to avoid a ‘gap’ between funders, implementers and designers.

- GP5 - The key findings from the good practice examples are that the process of providing feedback to the users through an established disabled user group supports the management of expectations from both the disabled street users and the designers.

5.4.4. The research team have concluded from the feedback and good practice examples that the members of the disabled street user groups seek reassurance that their needs and concerns are being recognised, while the designers seek valued input to the design process.

5.4.5. By ensuring that the design team responds visibly to the comments (e.g. 'you said, we did' reports) it demonstrates that the user group membership views are valued, heard and, if necessary, consulted further upon to collaboratively address issues raised.

### **5.5 Inclusive engagement theme 3: accessible engagement**

5.5.1. The focus group participants raised concerns that designers and planners often offered unrealistic deadlines for people to feed into the process. Further, the participants commented that plans and designs are often not 'realistic' and that what is presented on paper is often very different from the disabled street users' experience of the space i.e. the implications are not apparent on paper, and that producing plans and designs in accessible formats (such as virtual reality, computer visualisation, tactile plans, 3-dimensional models and different coloured plans) was seen as being an 'afterthought' for most planners / designers.

5.5.2. The key messages pertaining to Theme 3 from the disabled street user focus groups are:

- FGE5 - The promotion of consultation and engagement opportunities should be multi-sensory, with consideration given to using television (including subtitles) and radio for reaching a wide audience, in addition to newspapers (printed and audio), social media and printed material, especially in public information spaces, including on public transport and at transport hubs. All printed materials should follow accessibility principles.
- FGE6 - Street user requirements differ - some prefer individual one-to-one interviews, whilst others desire to learn from fully inclusive events about the needs of a wide range of people and to share knowledge. However, the number of people at consultation events needs to be managed to ensure all voices are heard.
- FGE9 - Sufficient warning of upcoming engagement events and activities needs to be provided to allow potential contributors to request that materials and information be translated into appropriate formats, which can take time.
  - Notice for upcoming engagement events should consider the requirements for planning independent travel and the requirement to give advanced notice to assistants and communication professionals.
- FGE10 - Plans should be interpreted into different formats (depending on the type of project this could include computer visualisation, tactile plans, 3-dimensional models and different coloured plans) so that people can independently make an assessment of them instead of being reliant on someone else to interpret on their behalf.
- FGE11 - Producing plans and designs in accessible formats (depending on the type of project this could include Virtual Reality, computer visualisation, tactile

plans, 3-dimensional models and different coloured plans) should be addressed in any development of new guidance, or revision of existing guidance going forward, since there are a multitude of aids and supports already available to make designs more accessible.

- The main perceived issue by the focus groups was that plans and designs in accessible formats are currently underutilised. Indeed, participants stressed that ‘communication’ in itself is not a barrier, rather it was a lack of understanding, creativity and innovation in the application and use of different communication methods that presents problems.
- FGE12 - The use of walk-throughs should be encouraged for disabled street users; however, single use walk-throughs will not provide sufficient insight into the experience of the full range of users or how the street may change in different conditions. Multiple walk-throughs are to be encouraged as well as use of video simulations (with subtitles), where appropriate.
- FGE13 - Designers should seek to maximise use of existing innovations in the presentation of plans and street designs, including adopting walk-throughs and allowing ‘hands on’ exposure to materials for use.
- FGE17 - A range of different ways for people to contribute to the design engagement process should be offered and support put in place to facilitate this (including practical, financial and communication support).
- FGE18 - Prior to carrying out engagement activities, advice should be sought on the full range of communication preferences and needs that are likely to be presented, including advice from communication / language professionals on practical issues around planning costs and support for breaks, etc. Communication strategies to support ongoing engagement should be drawn up.
- FGE19 - When undertaking inclusive engagement, planners and designers should be proactive in identifying communication preferences and needs, rather than seeking to respond to needs on the day or putting in place a standard level of provisions which assumes the needs of the participants.
- FGE20 - When undertaking inclusive engagement, planners and designers should be proactive in identifying suitably accessible venues to accommodate adults with different types of impairment. Again, accessibility needs should be identified early in the process, to ensure suitability of venues.
- FGE21 - New schemes need to be accompanied by wider public awareness raising in relation to how the space should be used. This includes education of all road users - pedestrians, those wheeling, cyclists and drivers - to ensure that the space is used as intended.

5.5.3. The focus group participants commented that the quality of previous engagement experiences was variable but, in general, the experience of most groups was that consultants, or those leading engagement activities, are often unprepared and rely on ‘visual’ methods of communication. Participants stressed the difference between ‘access to’ information and ‘accessible’ information.

5.5.4. The survey feedback from designers, implementers and promoters yielded the key messages that:

- DIP3 - Stakeholders and community representatives should be encouraged and supported to review and assess local places and spaces using a simple and easy to use method such as the ‘Place Standard Tool’. This should be undertaken

early on in the project lifecycle to help agree the scope of the project and inform the project objectives and the development of options.

- DIP5 - Engagement activities which involve the project team going to places where different user groups are based, including disabled and vulnerable users, is often more effective than expecting users to come to meet the project team. This approach often ensures that a more balanced representation of views is achieved and inputs from a wider range of users can inform the project outcomes.

5.5.5. The key findings from the good practice examples are:

- GP6 - In addition to ensuring that all the material is in accessible formats, a key success factor has been the willingness of designers to go to the disabled user group meeting venue. This ensures that the group are fully supported in terms of accessible venues, translation, personal assistance and welfare facilities.

## 5.6 Inclusive engagement theme 4: maintaining a record

5.6.1. The Equality Legislation Overview in Appendix G highlights that the Public Sector Equality Duty (PSED) can be demonstrated by the recording of engagement, appropriate consideration of needs and concerns and how they have been addressed. Maintained records can further inform the with EQIA requirements in the design process.

5.6.2. The key messages pertaining to Theme 4 are:

- FGE7 - Contributions to design processes should be formally recorded, with contributors being given a chance to review notes from meetings to ensure that their views have been accurately captured. Explanations for advice and views that are not taken on board should be provided, as standard.
  - Focus group participants identified that they were typically not told how their inputs to the design process would be used. Participants expressed that they felt that project timescales and budgets restricted the feedback process, and some felt it was due to a lack of professionalism or common decency.
  - This aligns with the findings from the good practice examples.
- DIP6 - All outcomes from engagement events and activities should be recorded in a clear and concise accessible form (simple spreadsheet / word table).
  - These outcomes should be shared with those parties who have taken part in the engagement activities, if they have consented to receiving further communications.
  - At future project stages, the engagement outcomes of previous project stages should be reviewed to ensure that relevant issues are carried forward i.e. 'you said, we did'.
  - This will demonstrate to consultees how previous engagement has helped shape the project to date and will help increase confidence and interest in the process, particularly on longer projects and projects with time gaps between stages.
  - This aligns with the findings from the disabled user focus groups and the good practice examples.
- DIP7 - The approaches to recording and maintaining engagement outcomes should be appropriate to the scale and needs of each project. New and innovative methods for recording and presenting engagement outcomes should be considered, where appropriate, and their success reviewed as part of a process of continuous improvement and learning lessons.

- GP5 - The key findings from the good practice examples include the recording of meetings of the representative disabled street user group as part of meeting etiquette. This is then shared amongst the membership and the designers in a format to suit their requirements. This enables the designers to respond ('you said, we did') and discharge their duties in terms of the Public Sector Equality Duty.

## 5.7 Inclusive engagement theme 5: establishing and maintaining a good working relationship

5.7.1. The key messages pertaining to Theme 5 are:

- FGE14 - Focus group participants provided feedback that awareness has to increase among designers and promoters of the broad range and complexity of different disabilities, ensuring that all disabled street users' views are considered with equal weight to fully ensure inclusive participation.
- FGE15 - Training should be introduced for planners and designers in inclusive design principles, including how to approach inclusive engagement.
  - Focus group participants spoke of negative professional attitudes, arrogance or 'professional snobbery'. There was a shared view that some designers were reluctant to consider the views of street users who they viewed as lacking the technical expertise to provide valid input.
- DIP8 - The EQIA / Access Audit (or similar) should form the central document for demonstrating compliance with the relevant legislation and regulations associated with inclusive design and engagement.
- DIP10 - In order to address the challenge of ensuring a wide representation of disability groups, an effective process is necessary to allow designers and promoters to identify those groups who should be engaged with as part of forming the engagement strategy for a new project.
  - This could be achieved by the maintenance of a live, GDPR compliant mailing list of organisations and community representatives who agree to be contacted early in the project lifecycle.
- DIP12 - In order to address the challenge of negative views and mistrust held between different disabled street users and / or between street users and designers, a collaborative design approach should be used to encourage different groups to consider the needs of all users and resolve potential points of conflict together.
- GP2, GP3, GP4, GP5 - The good practice examples highlight the importance of dedicated disability user groups in larger projects and the benefit from establishing communication and engagement requirements. Within these groups, the selection of membership, application of training and the establishment of a culture of respect and collaboration contributed to a better design process.
  - The good practice examples represent larger projects with longer programmes and larger budgets, which facilitated the investment and development of these groups over a length of time, but the findings from these examples are relevant.

## **5.8 Alignment between findings and existing guidance**

- 5.8.1. There is a wealth of advice and guidance around effective and inclusive engagement. This includes, but is not limited to, the guidance listed in Appendix I.
- 5.8.2. Appendices B, D and F include detailed reviews of the key messages from the focus groups and designers against existing guidance, from which it has been concluded that existing guidance does cover most of the points raised in some form.
- 5.8.3. It is, however, clear from the focus group and designer feedback that despite the presence of existing guidance (spread across a range of different documents) there are gaps in the implementation of the guidance.
- 5.8.4. A level of dissatisfaction was expressed by the disabled street user focus groups with their expectations not being met.
- 5.8.5. Frustration was expressed by designers in relation to a lack of guidance as to what these expectations are and what is required in terms of the scale (number of) and nature (type of) engagement.
- 5.8.6. These requirements are dependent on number of factors, including the type of scheme, how it is being procured and implemented, etc. and this creates difficulties for designers in trying to follow the existing guidance. The outcome of this is that the perception, by disabled street users, of the implementation of and / or effectiveness of existing guidance can be negatively impacted.
- 5.8.7. In conclusion, there is current guidance which covers how to engage with groups. However, it appears that guidance is not always followed for street design projects and there are some specific inclusive engagement requirements for street design projects.

## 6. Principles and recommendation for inclusive engagement

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### 6.1 Overview

- 6.1.1. The development of the principles and recommendations for inclusive engagement approaches builds upon the key messages and findings from the disabled street user focus groups, surveys with designers, implementers and promoters and a review of good practice examples. It includes consideration of the review of key messages and findings against existing guidance.
- 6.1.2. The principles, supporting sub-principles and recommendations are set out in full in Appendix J together with links to the underpinning evidence from this research study.

### 6.2 Principle 1 (inclusive engagement)

- 6.2.1. Principle 1: The individuals and groups representing the views of local disabled street users who will be affected by the proposed changes to the street design should be identified during the planning of the inclusive engagement process.
- 6.2.2. This principle is linked to Theme 1: Stakeholder Identification.
- Sub-principle 1.1: Local disabled street users who make use of the street space, and whose existing level of amenity may be impacted by the proposed changes to the street design, should be included in the engagement.
  - Sub-principle 1.2: The identification of local disabled street users can be achieved through a combination of accessible media promotion and organisations that represent and / or support local street users.
    - Recommendation: Further research is recommended into the development of a GDPR-compliant stakeholder list (including preferred communication methods) to improve stakeholder identification / engagement. The GDPR-compliant mailing list could be passed to the designer (under conditions of use) at the start of a project.
  - Sub-principle 1.3: Input from any one stakeholder group should be proportionate and seeking views from only one interest group should be avoided.
    - Recommendation: It is recommended that more training be given to designers and promoters in respect of the broad range and complexity of different disabilities. This will support a greater appreciation of how disabled street users' perspectives may differ and encourage a wider range of views to be sought.
  - Sub-principle 1.4: The use of internal accessibility officers or equivalents within local authorities to 'proof check' designs instead of undertaking engagement should be avoided.
  - Sub-principle 1.5: Engagement should include proportionate representation from a broad range of local street disabled users, including older adult disabled street users, disabled pedestrians and disabled cyclists to ensure that all voices are heard equally.
    - Recommendation: Further research is recommended into engagement with older adults with age-related disabilities in order to support the inclusive design for lifelong conditions and the needs of an aging population of disabled street users.

- 6.2.3. 'Existing Level of Amenity' refers to the current use of the street space by disabled street users. The engagement process should identify the impact of the proposed street design changes upon this level of amenity and identify proposed mitigation / reasonable adjustments to be incorporated.

### **Evidence**

- 6.2.4. Note that the evidence reference codes are set out in section 5.1.1.
- 6.2.5. This principle and the supporting principles reflect evidence from the literature review, focus group inputs regarding engagement and designer / promoter / implementer interviews (LR1, LR2, LR12, FGE2, FGE3, FGE4, FGE14, FGE15, FGE22, DIP10, DIP21).

## **6.3 Principle 2 (inclusive engagement)**

- 6.3.1. Principle 2: Utilising established local groups (where there are no Access Panels) who represent the views of locals disabled street users will benefit the planning and delivery of inclusive engagement.
- 6.3.2. This principle is linked to Theme 1: Stakeholder Identification and Theme 5: Establishing and maintaining a good working relationship.
- Recommendation: Further research is recommended to examine different approaches to the efficient and effective establishment of such a local group where Access Panels are not in place or inactive.
- 6.3.3. The good practice examples illustrate the collaborative working benefits of the formation of an inclusive design working group (in the absence of an active Access Panel). In areas of regular and / or significant street design development it is important to value, maintain and support local user / stakeholder contribution in the design process, as the re-recruitment and identification of disabled street user representatives can be challenging.
- 6.3.4. The formation of a working group of local disabled street users that supports and values these contributions throughout the project life cycle will improve engagement and will allow for expectations to be set (for both the users and the designers) with regards to the scale and nature of engagement on a project.

### **Evidence**

- 6.3.5. This principle reflects evidence from the literature review, designer / promoter / implementer interviews and good practice examples (LR1, LR2, DIP1, DIP5, DIP7, GP1, GP2).

## **6.4 Principle 3 (inclusive engagement)**

- 6.4.1. Principle 3: Engagement should be undertaken from the start of the design process, ideally at scheme conception.
- 6.4.2. This principle is linked to Theme 1: Stakeholder Identification and Theme 5: Establishing and maintaining a good working relationship.
- Sub-principle 3.1: Local disabled street users should have the opportunity from early on in the design process to provide input to the design process, to outline how they use the space, and to describe their existing level of amenity.
  - Sub-principle 3.2: Engagement should be regarded as a multi-stage process and invite ongoing contributions from those affected by proposed changes.



- Sub-principle 3.3: Working with local stakeholder and the community can help ensure that the correct scale of engagement forms for a project are undertaken and at the most suitable times within the project cycle.

- 6.4.3. This principle emphasises the need to understand the ‘amenity’ and how the scheme may impact upon the ability of disabled street users to use the space in future.
- 6.4.4. Further research could be considered regarding the minimum and recommended scale (number of, timescales) and nature (forms) of engagement that should be undertaken, in relation to the type of project being considered. This research could inform the procurement process and support a proportionate approach to the project type and scale.

### **Evidence**

- 6.4.5. This principle and the supporting principles reflect evidence from the literature review, focus group inputs regarding engagement and designer / promoter / implementer interviews (LR1, LR2, LR12, FGE1, FGE8, FGE16, DIP4).

## **6.5 Principle 4 (inclusive engagement)**

- 6.5.1. Principle 4: The scale and nature of the engagement should inform the project commissioning with budget and timescales established to meet these requirements.
- 6.5.2. This principle is linked to Theme 2: Scale and nature of engagement.
- Sub-principle 4.1: The approach to inclusive engagement should be proportionate to the size and type of project.
  - Sub-principle 4.2: Sufficient budget should be set aside to allow for the full inclusive engagement process (from concept stage onwards).
    - Recommendation: Further research is recommended into the costs for inclusive engagement on completed projects, in order to benchmark reasonable and realistic budgets for engagement on different types of projects.
  - Sub-principle 4.3: The project programme should allow for the identification of stakeholders, time for stakeholders to mobilise and attend engagement events, and time for responses to consultation throughout the engagement.
- 6.5.3. The good practice referenced under Principle 2 reflects an approach wherein the expectations, timescales and requirements can be established collaboratively with a working group of disabled street user representatives.
- 6.5.4. Understanding the full range of communication preferences prior to the procurement of a designer will support budget setting prior to procurement. Alternatively, planning for street design schemes could include a pre-engagement stage in which to scope out the engagement requirements.
- 6.5.5. Timescales should be realistic to allow stakeholders to respond to the consultation process to support stakeholder identification, forward planning (mobilisation) for accessible venue booking, support services including personal assistants, accessible venues and interpreters. The research team found during the recruitment process that participants with different needs had different requirements in terms of timescales and communication, which influenced the timescale for mobilisation from a range between two to six weeks, with a small number responding over eight weeks after the initial contact.

## Evidence

- 6.5.6. This principle and the supporting principles reflect evidence from the literature review, focus group inputs regarding engagement and designer / promoter / implementer interviews (LR1, LR2, FGE8, FGE9, DIP4, DIP9, DIP13).

## 6.6 Principle 5 (inclusive engagement)

- 6.6.1. Principle 5: Media promotion should be multi-sensory and should recognise the limitations of certain media formats to those with sensory impairments.
- 6.6.2. This principle is linked to Theme 3: Accessible engagement.
- Recommendation: Further research is recommended into:
    - i. Determining the response / value of accessible media promotion through local TV, radio, audio newspapers versus DPO spoken media (RNIB Radio) for different project types.
    - ii. Determining the response / value of making a press release to DPOs to promote engagement / stakeholder identification standard practice.
  - Use could be made of participant records from future engagement as to how they became aware of the engagement event and feedback on efficacy of approaches adopted.

## Evidence

- 6.6.3. This principle reflects evidence from the literature review, focus group inputs regarding engagement and designer / promoter / implementer interviews (LR1, LR2, FGE5).

## 6.7 Principle 6 (inclusive engagement)

- 6.7.1. Principle 6: The use of different communication methods can improve access and understanding during the inclusive engagement process.
- 6.7.2. This principle is linked to Theme 3: Accessible engagement.
- Sub-principle 6.1: Inclusive engagement is supported through the provision of different ways of physically interacting with the proposals, such as walk-throughs and material samples.
  - Sub-principle 6.2: Inclusive engagement is supported by facilitating different forms of engagement (e.g. joint events and one-to-one interviews).
  - Sub-principle 6.3: Inclusive engagement is supported by a clear definition of the different communication preferences of the disabled street users to be engaged with and provision for these approaches to be adopted.
- 6.7.3. The format of engagement and an appreciation of communication preferences will support a wider range of disabled people to make an independent assessment of street design proposals instead of being reliant on a third party (i.e. personal assistant) for interpretation.
- 6.7.4. Potential engagement formats include walk-throughs through the site (including multiple walk-throughs at different times of day / varying lighting conditions), the provision of early access and / or separate consultation events, the provision of street design (e.g. paving patterns) material samples, tactile plans and 3D plans of key locations or features.

- 6.7.5. Different engagement approaches may be needed to support different types of local disabled street users. Some may prefer one-to-one interviews, while others may prefer single fully inclusive events covering the needs of a wide range of street users (i.e. seeking the disabled street user perspective and the sharing of knowledge with other types of street users). Multiple approaches should be supported to ensure all views are recorded. The use of skilled and suitably experienced facilitators (with supporting staff) is important as different approaches cannot necessarily be fully anticipated and may require adaptation 'on the day'.
- 6.7.6. Communication preferences could relate to print media, including braille, large print, simplified plans (including coloured and grey scale highlighting key features), Word documents, etc. Consideration should be given to access to print media in advance of the engagement event, and to support for communication support tools including, but not exclusive to, BSL, E-note takers, etc. including provision for relief for supporting staff. Other hard to reach groups of disabled street users may require foreign language support. Local authorities (in order to meet their PSED obligations) should have existing facilities and services to provide support to certain of these elements.

### **Evidence**

- 6.7.7. This principle and the supporting principles reflect evidence from the literature review, focus group inputs regarding engagement and designer / promoter / implementer interviews (LR1, LR2, FGE6, FGE9 to FGE13, DIP3).

## **6.8 Principle 7 (inclusive engagement)**

- 6.8.1. Principle 7: The sourcing of accessible venues that can accommodate participants with a range of impairments (in the group of disabled street users being engaged with) supports inclusive engagement.
- 6.8.2. This principle is linked to Theme 3: Accessible engagement.
- 6.8.3. Accessible venues should ideally be located close to public transport and be accessible by private vehicle (taxi, car) with adequate disabled parking provision.
- 6.8.4. Welfare facilities (with fully accessible toilets, washing and changing facilities) and personal assistant support are viewed as essential, with accessible directions to the venue (i.e. map and text description) and support for personal assistants to meet users at a local rail station or similar.

### **Evidence**

- 6.8.5. This principle reflects evidence from the literature review and focus group inputs regarding engagement (LR1, LR2, FGE17, FGE20).

## **6.9 Principle 8 (inclusive engagement)**

- 6.9.1. Principle 8: Maintaining a record of engagement supports inclusive design and the designer's Public Sector Equality Duty compliance under the Equality Act.
- 6.9.2. This principle is linked to Theme 4: Maintaining a record.

- Recommendation: It is recommended that guidance be updated to ensure designers maintain records which include the design response to inputs from the engagement, including design changes and reasonable adjustments made, or where no action has been taken, in order to inform the EQIA / Access Audit. The EQIA / Access Audit (or similar) should form the central document for demonstrating compliance with the relevant legislation and regulations associated with inclusive design and engagement.

- Sub-principle 8.1: The recorded input from the engagement process should be assessed and responded to (i.e. 'you said, we did').
- Sub-principle 8.2: Engagement input and feedback should be facilitated in the most accessible format for the participant, with associated record keeping.

- 6.9.3. The recording of engagement is a cornerstone of inclusive engagement and design. The level of existing amenity needs to be understood and recorded, along with stakeholder input on the impact of proposals on existing and future amenity, as well as suggestions for enhancing design proposals. Record keeping should include the design response to stakeholder input with regard to the level of amenity and any mitigation proposed.
- 6.9.4. This will demonstrate to stakeholders how previous engagement has helped shape the project to date and help increase confidence in the process and maintain interest, particularly on longer projects and projects with time gaps between stages.
- 6.9.5. The formats should be reasonable, appropriate and accessible to both the receiver and the sender, examples of which are MP3 audio recordings and email utilising text to speech software.
- 6.9.6. In circumstances where a participant cannot submit written input, the designer should record their input into written form (with the participant's permission) and that any response be similarly recorded. The response should be provided in a format agreed with the participant involved (for example using text-to-speech software, support from a participant's personal assistant or an audio recording).

### **Evidence**

- 6.9.7. This principle and the supporting principles reflect evidence from the literature review, focus group inputs regarding engagement, designer / promoter / implementer interviews and good practice examples (LR1, LR2, FGE7, DIP2, DIP6, GP5).

## **6.10 Principle 9 (inclusive engagement)**

- 6.10.1. Principle 9: A collaborative approach that encourages local disabled street users or representatives to consider the needs of other users supports inclusive engagement.
- 6.10.2. This principle is linked to Theme 5: Establishing and maintaining a good working relationship.
- 6.10.3. The good practice examples illustrate the positive contribution of collaboration working, and the benefits are highlighted in the literature reviewed.
- 6.10.4. A collaborative approach to the engagement process, enabling different types of participants to engage with each other and provide design input, would enable identification of potential points of conflict and collective resolution. This would minimise potential negative views and mistrust between participants. Transparent and open recording during the design process records the detail of collaborative engagement and its impact upon the design.

### **Evidence**

- 6.10.5. This principle and the supporting principles reflect evidence from the literature review, focus group inputs regarding engagement and designer / promoter / implementer interviews (LR1, LR2, FGE14, DIP16).

## 7. Inclusive physical design measures - research findings

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### 7.1 Introduction

- 7.1.1. The research findings in relation to inclusive physical design measures were based upon the following elements of the research undertaken:
- The Literature Review (Appendix A).
  - Perspectives from the disabled street user focus groups (Appendix C – referenced with the code ‘FGD’).
  - Perspectives from designers, implementers and promoters (Appendix D – referenced with the code ‘DIP’).
  - Further research considered as part of this study (Appendix H – referenced with the code ‘H’).
- 7.1.2. The principles, supporting sub-principles and recommendations are set out in full in Appendix K, together with links to the underpinning evidence from this research study.
- 7.1.3. Through the analysis of the inputs from the elements above, with respect to disabled street users with different impairments and the physical design features, key findings were identified which have informed the principles and recommendations.
- 7.1.4. The key findings drawn from the Literature Review are summarised in Chapter 4 (LR3 to LR12).

### 7.2 Disabled street user focus group input (‘FGD’)

#### Overview of the user group format

- 7.2.1. The disabled street user focus groups considered the impact of inclusive physical design features against the framework of different categories of impairment and physical design features.
- 7.2.2. The impacts on access for the following categories of impairment were considered against the physical design features:
- Hearing impairment.
  - Visual impairment.
  - Deaf / blindness.
  - Reduced mobility.
  - Learning disabilities / non-visible disabilities.
- 7.2.3. The physical design features considered were.
- Crossings.
    - Crossing types - uncontrolled and controlled crossing of carriageways.
    - Segregation between pedestrians and vehicles / level or reduced level surfaces.
    - Footways - kerbed footways.
    - Cycle track – cycle track adjacent to the carriageway and / or footways.

- People orientated streets - street types found in town centres and busy streets relating to different level of demarcation as well as vehicle flow and speed.
- Obstructions and 'street clutter'.
  - Supporting vehicles - disabled parking, tricycle parking, etc.
  - Street features / 'street clutter' - bollards, A-frame signage, seating, cycle parking, litter bins, etc.

### **Additional research notes – disabled street user focus groups**

- 7.2.4. The following notes provide additional information with regards to disabled street users that was considered by the research team and that should be considered in any current and future guidance pertaining to inclusive engagement and design.

### **Degree of Impairment and Personal adaptation**

- 7.2.5. Whilst the descriptions of the individual participants' impairments have been standardised in the reporting of the focus group inputs, the research has drawn out distinctions between different degrees and / or types of impairment where possible.
- 7.2.6. The degree of an individual impairment is a combination of the level of personal adaptation the individual has achieved to support their own mobility as well as the external support they may have, including the use of a personal assistant.
- 7.2.7. When considering the research findings, a level of caution has to be applied by the reader in order to not generalise disability as it is very personal to the individual. The difference within impairment categories should be appreciated. Further, appreciation of the needs of those with multiple impairments, and the stage in the life where an impairment presents itself, be it at birth or later in life, is essential in considering inclusive design.

### **Learning disability and non-visible disability**

- 7.2.8. The disabled street user focus groups included a number of participants representing disabled street users with cognitive impairments e.g. dementia, and non-visible disabilities e.g. learning difficulties. Upon analysis of the inputs drawn from the focus groups there appeared to be a paucity of feedback specific to these disabilities.
- 7.2.9. The only unique aspect that was raised by this group of disabled street users was the importance of colour and tonal contrast in pavement design and that paving patterns can have an impact on access. Paving patterns can cause confusion and / or disorientation for this group of disabled street users.
- 7.2.10. This specific aspect of design falls outside the scope of this research but it has been noted here for the record.

### **Disabled street user focus group inputs – key messages**

- 7.2.11. The disabled street user focus group discussions were analysed and the following sections summarise the key messages summarised from the focus groups.

## Crossings

### Informal (uncontrolled) crossings

- **FGD1** - Unmarked courtesy crossings are considered the option that gives the least access to disability groups, with visually impaired participants expressing a high level of discomfort, and avoidance of such facilities.
- **FGD2** - Raised continuous footways - there is a level of acceptance from disabled street users if designed correctly, with a clear distinction between the carriageway and footway, with contrasting and tactile paving to define the area.
- **FGD3** - Pedestrian refuge islands are helpful but need to be designed to an appropriate width and not be too narrow. However, some consideration needs to be given in refuge island design to ensure that it is apparent that there is another carriageway to cross for those who are visually impaired / blind, i.e. the tactile paving should not be laid across the full depth of the refuge.
- **FGD4** - Dropped kerbs are helpful but need to be appropriately located and designed to comply with standards for maximum gradients, crossfall and kerb upstand. Otherwise they become more of a barrier than a help to disabled people.

### Formal (controlled) crossings

- **FGD5** - Zebra crossings are preferred over courtesy crossings by non-visually impaired focus group participants. However, visually impaired focus group participants expressed a high level of discomfort and avoidance of these facilities, similar to their experience of courtesy crossings.
- **FGD6** - Signal controlled crossings are considered by all users as the option that presents most access to disability groups, although visually impaired participants still expressed a level of discomfort with such facilities as they required assurance (by listening) that vehicles had stopped.
  - Additional concerns were raised by visually impaired participants on some older traffic signal installations with poor location and orientation of the push button unit. A few participants with reduced mobility expressed a preference for the push button unit to be located on a level area rather on the slope at the dropped kerb.

### Crossings (general)

7.2.12. Based on the collective feedback from the focus groups in relation to formal and informal crossings, a number of key messages were identified.

- **FGD7** - User preference for the type of pedestrian crossing is influenced by an individual's level of confidence, ability and any personal adaptation, including their familiarity or otherwise with the local street environment. All disability groups preferred signalised crossings, with visually impaired users expressing that they experience the least amount of discomfort with signalised crossings.
- **FGD8** - There is a level of acceptance to the use of non-signalised crossings on town centre / busy streets by disabled street users who were not visually impaired. In addition, visually impaired street users would consider refuge islands and continuous footways when familiar to them, although this is dependent on the traffic and pedestrian flow and a good standard design arrangement (tactile paving / kerb edges, i.e. any kerb edge running parallel to a carriageway).

- These crossings become more acceptable when disabled street users are escorted (personal adaptation) by a personal assistant / carer.
- **FGD9** - Tactile paving and kerb edges, i.e. any kerb edge running parallel to a carriageway (representing good standard design arrangement) improve the level access / comfort when street users interact with a crossing in a town centre / on a busy street.
- The research has shown that the standard requirement at a crossing<sup>7</sup> should include dropped kerbs, suitable slope / camber, tactile paving in the correct orientation, colour and contrast and a minimal kerb upstand at the dropped kerb (6mm maximum)<sup>8</sup>. Furthermore, at a signalised crossing the pole position and push button unit orientation must be correct and pedestrian detection to extend the crossing time is beneficial.
- **FGD16** - Colour and tonal contrast are essential for street features and pavement in all weather conditions, and paving patterns need to be given consideration.

### **Segregation between pedestrians and vehicles / level or reduced level surfaces**

- **FGD10** - Footways - from the collective feedback, it is evident that clear, straight demarcated pedestrian footway / pavement areas that are free from obstacles are essential for disabled street users.
- **FGD11 – Cycle tracks** - the provision of kerbed demarcation increases the level of access for visually impaired and users with reduced mobility (in particular) with all groups expressing the most comfort / least anxiety.
- **FGD12** - People Orientated Streets - from the collective feedback, the provision of some form of kerb in town centre / busy street areas is required to support access by a wide range of disabled street users.
  - There is lack of consensus on the kerb height, with some informed participants referring to research quoting 60mm. There is agreement that a kerb is considered appropriate with tactile (paving) edging being insufficient.
- **FGD13** - People Orientated Streets - the same message was repeated as for footways and cycle tracks: to support disabled access in town centres / busy street areas, the pedestrian area needs to be free from obstruction and clearly demarcated. This minimises the level of discomfort in accessing these spaces.
- **FGD14** - The provision of Level Surface streets with tactile demarcation can be considered in exceptional circumstances with low flow (vehicles and wheeled modes) / low speed conditions after consultation with local disabled street users, in particular the visually impaired. Attention needs to be paid to the street design as well as to the wider traffic management / strategy.
  - It should be acknowledged that this option does present a level of discomfort to visually impaired street users and may impact upon them adversely if not designed correctly and / or if the low vehicle flow / low vehicle speed situation is not achieved.
  - Therefore, it is essential that consultation is undertaken with local disabled street users that could be impacted upon as there may be locations where

7 Excluding raised continuous footways as referenced in FGD2

8 BSI 8300-1:2018: Design of an Accessible and Inclusive Environment. Part 1: External Environment – Code of Practice



level surface streets may be considered to support access for people with reduced mobility, i.e. historical streets.

- **FGD15** - Vertical segregation between pedestrian street users and vehicles, including pedal cycles, is required in a town centre / busy street environment to support access for all disabled street users.
  - This segregation ensures vehicles are located in predictable positions and provides a level of comfort to pedestrians.
  - This segregation can be achieved by a form of kerb demarcation which creates a tactile / 'step off' level change that informs the pedestrian they have entered a different street space.
- **FGD16** - In town centres / busy streets the formation of a horizontal segregated, unobstructed, pedestrian corridor is required between the building line and some form of demarcation to vehicles.
  - This should ideally have at least 2.0 metres (1.8 metres is required for two wheelchairs to pass) clear effective width and should have no moveable street features. Participants in the focus group suggested the demarcated pedestrian corridor should not exceed 4.0 metres to ensure the visually impaired are not disorientated
  - Wider pedestrian areas can be provided outside this demarcated area for those with no visual impairment.
  - It is essential for street features and pavement to have colour and tonal contrast in all weather conditions, and paving patterns need to be given consideration.
  - Disabled streets users in the focus groups did not express a specific preference for the location of the corridor within the space between the carriageway and the building line. However, the corridor needs to be straight and demarcated in a way that can be detected by the disabled street user.
- **FGD17** - Within a town centre / busy street environment determining a standard kerb height requires careful consideration as this can impact on the level of access for other street users.
  - Kerb height impacts on the slope / camber to dropped kerbs and reduces the effective level width at the top of slope which will impact on those with mobility impairment.
  - Additional to these considerations (presented by the disabled street user focus groups) is cycle pedal clearance height on a cycle track adjacent to a footway: if the kerb is too high, the cycle track width would need to be wider, as a cyclist will cycle further away from the kerb. This can result in reduced footway width.
- **FGD18** - Successful street design that results in an increased number of pedestrians in that area can potentially have an indirect impact on access for disabled street users who find these areas become too demanding / challenging to interact with.
- **FGD19** - Surface maintenance and building quality / standards are key considerations impacting on inclusive access.

## Obstructions and ‘street clutter’

- **FGD20** - Within town centre / busy street environments, all street features should be outside / away from the pedestrian clear corridor and be appropriately placed with some form of demarcation.
- **FGD21** - Within town centre / busy street environments, consideration should be given to locating cycle racks and waste bins in the carriageway, but this should not be at the expense of disabled parking.
- **FGD22** - Within town centre / busy street environments, street features that support pick up and drop off by support vehicles improve access for disabled street users. Features that facilitate support vehicles (e.g. charge points) are considered potential obstacles and could impact on access for disabled street users.
- **FGD23** - It is essential to properly regulate the use and location of moveable temporary street features, e.g. domestic waste wheelie bins on footways (post collection) or tables and chairs. Erratic and / or unpredictable placement of moveable street features negatively impact on access for disabled street users.
- **FGD24** - The regulation of A-frame advertising boards in the cities of Edinburgh and Perth was welcomed and well received by disabled street users. Similar approaches to the regulation of A-frames and other temporary moveable street furniture are required if a clear pedestrian corridor through town centre / busy street environments is to be delivered in practice.

## Commentary on demarcation in ‘shared space’ environments

- 7.2.13. The disabled street user focus groups raised a significant amount of feedback on the role of the kerb, in particular in relation to ‘shared space’ as a design concept and with its association with ‘level surface’ physical design features and the absence of kerb demarcation.
- 7.2.14. ‘Shared space’ is based on influencing how street users use the spaces and is not dependent on a level surface as illustrated by the Table 2-1 of the withdrawn LTN 1/11: Shared Space guidance.
- 7.2.15. The feedback from disabled street user focus groups was that all disabled street users prefer a form of kerb demarcation when there is a level of motorised vehicle traffic in the same space.
- 7.2.16. The conclusion drawn by the research team is that the LTN 1/11: Shared space guidance did not provide comprehensive guidance as to when ‘level surface’ streets can be considered and this has led to inconsistent application of design features such as kerbs.
- 7.2.17. The detectability and predictable nature of the streetscape is a key principle in supporting access and supporting disabled street user comfort / anxiety in these spaces which is depended on suitable forms of demarcation.

## 7.3 Designer, implementer and promoter input

7.3.1. The input from designers, implementers and promoters was based upon a series of online survey questions and follow-up interviews. The survey questions were not structured around specific physical design measures or disability groups, and hence provide supporting input to the specific physical design measures explored with the disabled street user focus groups. Full details of the research undertaken are included in Appendix D.

7.3.2. The views of the designers, implementers and promoters reflected 'informed designers' which represented 25% of all respondents. These are designers, implementers and promoters who demonstrated (in the assessment of the research team through the interview) a sufficient depth and breadth of appreciation of the needs (and how to make reasonable adjustment to support engagement) and concerns (understanding of the main issues) of disabled street users, and of the value of working collaboratively with disabled street users to achieve inclusive design.

7.3.3. The following sections summarise the key messages drawn from the designer, implementer and promoter surveys.

- **DIP11** - In order to address the challenge of outdated guidance and practice, updated design guidance which has the broad support of different disability groups and users is necessary to allow designers to make more informed design decisions.
  - The new guidance should also aim to reduce the burden on disability groups and users to provide similar feedback on similar issues on each project they are consulted on. This will allow more focus and attention to be given to the consideration of, and feedback on, new and innovative design features.
- **DIP14** - In England and Scotland, the policy position is clear that the needs of pedestrians should be considered first when making decisions on street design. On this basis, street features which reinforce this priority should be given the greatest consideration when making design decisions relating to town centres and busy streets.
- **DIP15** - Schemes which reduce segregation between vehicles and pedestrians through the use of techniques such as level surfaces should only be considered appropriate where vehicle speeds and volumes are 'perceived' as low.
  - Even if these criteria are met there should be provision for clear pedestrian-only movement corridor(s) within the space with tactile or other types of demarcation, i.e. planters, barriered seating, etc.
  - In other circumstances, i.e. where vehicle speed and / or volumes are perceived as 'high' then a form of demarcation is required. Further consideration needs to be given to the definition of a 'low flow / low speed' situation.
- **DIP16** - A collaborative design approach between designer and street users which helps to identify the requirements and location of different types of street furniture is recommended to maintain the pedestrian clear corridor. This approach can help ensure that the use of street furniture is rationalised in terms of number and location and best meets the needs of the people most likely to use it and benefit from it.
- **DIP17** - There remains a lack of guidance on how to decide which measures to implement when two or more required elements are in opposition with each other.

- An example of a situation where requirements are in opposition to each other is the location of a push button at a signalised crossing: to support the visually impaired the button needs to be correctly orientated but the position of the pole on the slope is not ideal for the people with reduced mobility who may be concerned that they could roll or fall onto the carriageway while waiting to cross.
- **DIP18** - Undertaking a post-implementation project review can be an important part of the inclusive design process and hand over to the client. This ensures that promoters and designers are able to take forward the lessons learned about what worked well and what could have been improved. This helps to inform subsequent design projects. Including the disability groups and users engaged during the design phase in the review allows their views on the engagement, design process and outcomes to be considered as well as building on these relationships for the next project.
- **DIP19** - There is a need to understand the interactions of continuous footways and bus stops and bypasses and how they impact disabled and vulnerable street user groups.
- **DIP20** - There should more widely available inclusive engagement training for designers and all those involved in the decision-making process to encourage a fuller understanding of the needs of communities and groups with a wide range of different disabilities and the various needs associated with both visible and non-visible disabilities.
- **DIP21** - There is a need for clearer guidance on both inclusive engagement approaches and inclusive physical design measures to aid designers and to increase the confidence of vulnerable users that a space is safe and easy to use.

## 7.4 Overview of the further research considered

- 7.4.1. In addition to the Literature Review and research evidence collated from disabled street users and designers, implementers and promoters, further research was considered (outlined in detail in Appendix H). This further research covered subjects that could not be considered as part of the qualitative approach adopted for this study (i.e. user or designer perspectives) and was not captured within the search criteria of the Literature Review.
- 7.4.2. This further research supplemented the Literature Review and the engagement with disabled street users, designers, implementers and promoters and was focussed on the following:
- Factors when considering segregation between pedestrians and cyclists.
  - Shared space – the impact on safety.
  - Shared space – the impact on level of comfort: ‘users versus avoiders’.
  - Pedestrian crossing intervals.
- 7.4.3. Following analysis of the further research considered a number of key findings were identified (as included in Appendix H).
- **Key message H1** - Sharing a town centre or busy street space between pedestrians and cyclists should be considered in the light of the pedestrian demand / density. At higher levels of pedestrian demand / density, segregation is advised in order to avoid negatively impacting on disabled street user access. An alternative route which allows cyclists to bypass these areas during high pedestrian demand periods should be provided.

- **Key message H2** - Further research is required into the accidents associated with existing 'shared space' sites or similar design concepts within the UK.
  - The research needs to include specific reference to vehicle speeds and flows, as well as the form and nature of the design, including consideration of level surfaces and kerbs with associated tactile paving.
- **Key message H3** - Disabled street users may adapt their behaviour and potentially avoid an area in response to feelings of discomfort resulting from higher pedestrian demand / density, i.e. an area that is comfortable for a disabled street user to access at a lower level of pedestrian demand may not be comfortable at a higher pedestrian demand / density.
- **Key message H4** - More formal and informal crossings are needed overall.
- **Key message H5** - Consideration should be given to relocation / rationalising existing crossing facilities with regards to walking distance without rest in terms of detours for current users and that any proposal that increases the walking distance to a crossing needs to consider rest facilities to support older and disabled users, but without creating an obstruction.

### 7.5 Common themes identified - inclusive physical design measures

7.5.1. Following analysis of the research inputs from all the sources set out in section 7.1, two themes were drawn from the research inputs that fall outside of the framework of specific disability groups and / or physical design features and are of overarching importance to the implementation of inclusive design.

- **Theme 1 - Consistency in approach.**
- **Theme 2 - The influence of feeling 'unsafe' on access for disabled street users.**

#### **Inclusive design theme 1: the need for consistency in approach**

- 7.5.2. An overriding theme from across the disabled street user focus groups regarding inclusive physical design measures was the importance of consistency in approach and in the application of street design (LR8, FGD25, DIP18, DIP20, DIP21).
- 7.5.3. From the perspective of disabled street users, 'consistency in approach' supports and improves access. Consistency further improves the confidence of disabled street users that journey can be made and successfully completed in areas that are less familiar to them. From the perspective of designers, implementers and promoters, consistency will improve collaborative engagement through the design process (**DIP2**) and increase the potential for designs to support greater diversity in the use of space by disabled street users.

#### **Inclusive design theme 2: the influence of feeling 'unsafe' on access**

- 7.5.4. In advance of the focus groups meeting, the research team found (through initial engagement with disabled street users, and attendance at other events as set out in section 3.3.2) that safety concerns were regularly raised in discussions about disabled street users' interaction with street features.

- 7.5.5. When this subject was further explored it was evident that the disabled street users 'feel unsafe' and they are concerned their needs (in relation to this perception of lack of safety) are not being met.
- 7.5.6. It is of course worth noting that disabled pedestrians are not the only road users who feel unsafe when trying to negotiate existing street design and modify their behaviour as a result – parents have been found to do the same in relation to their children's independent mobility as pedestrians.
- 7.5.7. It is also important to note that perceived road danger does not always accord with objective measures of danger, such as recorded numbers of accidents, as shown in Rothman et al (2015)<sup>9</sup>. This further implies that planning for inclusive streets requires planning to reduce perceived as much or more than actual road danger.
- 7.5.8. This was explored when raised in focus groups and it was found this related to a 'level of confidence' by disabled street users in their interaction with the street which can be referred to in research / street guidance as 'user comfort' (see FGD8).
- 7.5.9. 'User comfort' is an important aspect to consider when discussing the impact on access to town centres / busy street areas due to the provision or lack of certain street features. The impact on access is not only a function of the street design but also on the degree of disability and the level of personal adaptation.
- 7.5.10. Hence any design proposal that impacts upon their existing level of amenity, or would require additional personal adaptation, needs to be considered as part of the inclusive design process. The disabled street users may have to consider what 'reasonable adjustment' they need to implement to support their level of comfort / feel safe to access the street beyond what can be reasonable applied in street design.

## 7.6 Alignment of key findings and messages with current guidance

- 7.6.1. This research study recognises that there is a significant amount of design guidance currently available. Whilst the research is not a review of the current design guidance it acknowledges existing and emerging guidance and recommends that any future guidelines should take these into consideration.
- 7.6.2. This research study acknowledges that other standards, and guidance, are used in street design, this includes the Traffic Signs Manual<sup>10</sup>, Designing Streets and the Design Manual for Roads and Bridges<sup>11</sup> as well as number of guidance documents that have been applied by local government organisations.
- 7.6.3. Existing guidance considered is included in Appendix I.
- 7.6.4. Further research relating to the update to guidance on inclusive mobility and tactile paving has been recently published<sup>12</sup> and a summary of the findings has been included in Appendix E to this report.

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9 Rothman, L., Buliung, R., To, T., Macarthur, C., Macpherson, A., & Howard, A. (2015). Associations between parents' perception of traffic danger, the built environment and walking to school. *Journal of Transport & Health*, 2(3), 327-335.

10 <https://www.gov.uk/government/publications/traffic-signs-manual>

11 <https://www.standardsforhighways.co.uk/dmrb/>

12 <https://www.gov.uk/government/publications/accessible-public-realm-updating-guidance-and-further-research>

- 7.6.5. The conclusion from the review of the alignment between the findings and existing guidance is that the majority of aspects are covered to some extent by existing guidance. However, the guidance is spread across multiple documents leading to inconsistency in the application of guidance (and in the perception of the effectiveness of guidance by disabled street users).
- 7.6.6. In conclusion, there appears to be a gap in the use of the guidance for street design projects and there are some specific requirements for street design projects.

## **7.7 Summary of inclusive physical design measures**

- 7.7.1. Conclusions and recommendations on inclusive physical design measures are set out in Chapter 8.

## 8. Recommendations related to inclusive physical design measures

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### 8.1 Introduction

- 8.1.1. The development of the recommendations for inclusive physical design measures builds upon the key messages and findings from the Literature Review, disabled street user focus groups, surveys with designers, implementers and promoters and further research. It includes consideration of the review of key messages and findings against existing guidance.
- 8.1.2. The recommendations are based on action needed to address the conclusions of the research undertaken whilst building upon the existing guidance.
- 8.1.3. The principles, supporting sub-principles, and recommendations are set out in full in Appendix J with accompanying links to the evidence from this research study underpinning each principle and sub-principle.
- 8.1.4. It should be noted that all the principles need to be considered collectively, i.e. not in isolation, in order to recognise the inter-relationship between maintaining the existing level of amenity for disabled street users and the opportunity to improve the level of amenity for all disabled street users.

### 8.2 Principle 10 (general principle – inclusive physical design measures)

- 8.2.1. Principle 10: Consistency in the approach to and design of street features in town centres and busy street areas supports access for all street users, increases the confidence of disabled street users and minimises feelings of discomfort and / or feeling unsafe.
- Recommendation: It is recommended that guidance embeds the importance of consistency in the approach to (including engagement to inform the design) and the design of street features and the need to consider the impact of any proposals on the existing level of amenity of disabled street users, as well as seeking opportunities to enhance the level of amenity.
- Sub-principle 10.1: Undertaking an EQIA where changes to physical design features are proposed will support the identification of changes to the existing level of amenity for disabled street users. It will allow action to be taken to best support access for disabled street users.
- Recommendation: Further research is recommended into the training of designers (and those who contribute to design) to better equip designers undertaking EQIAs to appreciate the perspectives and needs of street users with different abilities.
- It is recommended that guidance should encourage the completion of EQIAs, setting out how undertaking EQIAs supports the Public Sector Equality Duty.
- Sub-principle 10.2: Consistent monitoring and evaluation will inform better design and support access for disabled street users by incorporating lessons learned and good practice.
- Recommendation: Further research is recommended into the standardisation of the monitoring and evaluation of street design schemes. This should include consideration of requirements for baseline surveys (including street user perception and health and wellbeing) and categorisation of street design into standard categories in order to allow comparisons between different locations and project scales.



- 8.2.2. Some guidance does refer to the PSED under the Equality Act (for example the Traffic Signs Manual Chapter 6), but guidance could be enhanced to include the importance of EQIAs when considering the potential impact on the existing level of amenity for street users.

### **Evidence**

- 8.2.3. Note that the evidence reference codes are set out in section 7.1.1.
- 8.2.4. This principle and the supporting principles reflect evidence from the literature review, focus groups on inclusive engagement, focus groups on inclusive design, designer / implementer / promoter interviews, further research and good practice examples (LR1 to LR12, FGE1, FGE2, FGE7, FGD1 to FGD25, DIP14, DIP16 to DIP21, H3, GP4, GP5).

### **Commentary on pedestrian design guidance**

- 8.2.5. There may be benefit in further research into the value of a single pedestrian design guide to draw together existing guidance (and updates to guidance) and include the principles and recommendations from this research.
- 8.2.6. A new consolidated pedestrian design guide could include engineering detail to replace / update Inclusive Mobility, pedestrian elements of 'Roads for all - Good practice guide for roads' and Traffic Signs Manual (Chapter 6). There are common concerns and issues shared by disabled and non-disabled street users which can be addressed by pedestrian design guidance which can support greater consistency in the application of good design principles. The guidance can outline specific detail to address the concerns and issues of disabled street users.
- 8.2.7. The new guidance would incorporate guidance on accessible street design (informed by all the key principles recommended from this research report). This would need to be aligned with the emerging research on tactile paving guidance and inclusive mobility.
- 8.2.8. The research highlighted the importance of consistency in approach, in material choice and surface quality of the streetscape and a design guide document would support this.
- 8.2.9. The availability of recent design guidance for cycle infrastructure and how it should be delivered highlights the current lack of an equivalent single national pedestrian design guidance document, including engineering detail to replace / update existing guidance.
- 8.2.10. This perspective aligns well with the 'Pedestrian Environment' mentioned in the DfT 'The Inclusive Transport Strategy: Achieving Equal Access for Disabled People'<sup>13</sup>, Scotland's Accessible Travel Framework Delivery Plan<sup>14</sup> and Transport Scotland's National Transport Strategy (NTS2)<sup>15</sup> in relation to reducing inequalities and the prioritising sustainable transport, i.e. walking, wheeling and cycling.
- 8.2.11. A pedestrian design guide would embed approaches that support access for all street users. By supporting the consistency of good street design and clarifying the requirements for inclusive design measures it support access for disabled street users.

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13 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/728547/inclusive-transport-strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728547/inclusive-transport-strategy.pdf)

14 <https://www.transport.gov.scot/publication/scotland-s-accessible-travel-framework-delivery-plan-for-2019-2020/>

15 <https://www.transport.gov.scot/media/47052/national-transport-strategy.pdf>

- 8.2.12. The design guidance should incorporate existing guidance and incorporate the recommended principles identified in this report (prioritised over existing guidance). This guidance should highlight the importance of consistent in approach in terms of design, material, maintenance and build quality.

### 8.3 Principle 11 (crossings – inclusive physical design measures)

- 8.3.1. Principle 11: The type of and frequency of pedestrian crossings (controlled and uncontrolled) can improve access, safety and enhance the confidence of disabled street users in town centres and on busy streets.

- Recommendation: It recommended that as part of the Site Assessment outlined in Traffic Signs Manual Chapter 6 that the ‘level of amenity’ of existing disabled street users is observed and that this should inform the considerations of crossing location, type and regularity (taking into consideration demand and reasonable walking distances to existing and preferred crossing facilities).

The design should be developed with consideration of the outcomes of the Site Assessment and the principles presented from this research.

It is recommended that guidance should be expanded to incorporate this principle.

- Sub-principle 11.1: Street features included at all crossings which are conspicuous, legible, comprehensible and credible from the perspective of the disabled street user, whilst maintaining access, especially for disabled street users with reduced mobility, will support access for disabled street users.

- Recommendation: Further research is recommended into:
  - i. The design of continuous footways.
  - ii. Pedestrian refuge island design detail for facilities of less than 2m wide (between kerbs) where no tactile separation is currently required. Further research is recommended to inform if change to current guidance is required, with some form of non-tactile to differentiate between the two stages of crossing the street (i.e. crossing both lanes).

- 8.3.2. The Traffic Signs Manual update has guidance on the inter-relationship between kerb height, camber / slope to the drop kerb and the level footway clearance at the top of camber / slope.

- 8.3.3. Research on continuous footways is required to determine how well users, particularly disabled streets users, can understand and navigate continuous footways. It is also needed to understand the behaviour of drivers and cyclists at continuous footways in different conditions (e.g. day / night, varying traffic conditions and pedestrian demand).

- 8.3.4. The research should also consider the extent to which design components impact on understanding and behaviour e.g. use of contrasting surfacing materials, defined kerblines, tactile paving, ramps, etc. Aligned with the research could be an investigation into the respective use and behaviour at raised entry treatments to understand how the types of measures compare in their level of amenity for disabled street users.

- Sub-principle 11.2: Signal controlled crossings are the preferred crossing type by all disabled street users and provide the highest degree of confidence to disabled street users.
- Recommendation: It is recommended that guidance should be expanded to incorporate this principle, and to include the following considerations as part of the design following the Site Assessment under TSM Chapter 6:
  - i. A signalised crossing should by default be considered in new installations or the upgrading of existing facilities subject to TSM Chapter 6 guidance regarding demand, minimum distance between junctions, etc.
  - ii. Further signalised crossings can be considered subject to TSM Chapter 6 guidance regarding demand, minimum distance between crossings, etc.
  - iii. Signalised crossings provide the least discomfort to visually impaired street users.
  - iv. Zebra crossings can complement signalised crossings in town centres / busy streets to provide an improved level of crossing amenity.
  - v. Zebra crossings are preferred over courtesy crossings by non-visually impaired disabled street users. Visually impaired street users experience a high level of discomfort and avoid zebra crossings.
  - vi. Courtesy crossings are considered the option which gives the least access to disability groups, with visually impaired participants expressing a high level of discomfort with and avoidance of such facilities.

8.3.5. The provision of a signalised crossing (standalone or part of a signalised junction) could be considered if there is not currently one available within reasonable walking distance and / or if it presents an opportunity to improve access and / or the level of amenity for existing disabled street users.

8.3.6. Design consideration: The provision of a non-signalised pedestrian crossing should not be inhibited if there is an existing or proposed signalised crossing (standalone or part of a signalised junction) that supports existing disabled street users identified as part of the Site Assessment.

### **Evidence**

8.3.7. This principle and the supporting principles reflect evidence from the literature review, focus groups on inclusive engagement, focus groups on inclusive design, designer / implementer / promoter interviews and further research (LR1 to LR7, FGE1, FGD1 to FGD9, FGD19, DIP1, DIP14, DIP19, H4, H5).

## **8.4 Principle 12 (crossings – inclusive physical design measures)**

8.4.1. Principle 12: Regular rest locations with clear wayfinding and directions improve access for disabled street users to crossings.

8.4.2. Rest locations improve access for pedestrians with mobility needs and support all street users to access crossing opportunities. Rest locations should be at regular intervals, aligned with 'walking distances' as outlined in Inclusive Mobility section 2.4. Rest Location street features should not impact on other principles such as demarcated pedestrian clear corridors.

## Evidence

8.4.3. This principle and the supporting principles reflect evidence from the focus groups on inclusive design and further research (FGD20, H4, H5).

## 8.5 Principle 13 (segregation – inclusive physical design measures)

8.5.1. Principle 13: Disabled street user access is conditional on physical street design features that are conspicuous, legible, comprehensive and credible.

- Recommendation: It is recommended that guidance outlines the importance of the physical street features in supporting the confidence of disabled street users in accessing an area.

8.5.2. For example, a clear demarcated pedestrian corridor will be conspicuous, legible, comprehensive and credible to the disabled street user supporting their confidence in accessing the street with respect to their level of adaptation / personal support. For a visually impaired street user this could be achieved in the provision of detectable edges (i.e. kerbs, tactile paving) and tonal colour contrast between street features (in all weather conditions).

- Sub-principle 13.1: All disabled street users value some form of kerb demarcation to define the pedestrian place and demarcate it from the vehicle place (including cyclists).
  - Recommendation: Further quantitative research is recommended to define the kerb height provision with and without tactile demarcation taking into consideration all types of disabled street users. The research approach should consider the level and type of disability, the level of personal adaptation and degree of personal assistance as well as street conditions. The research should seek to identify the kerb height that support access for the majority of users (i.e. 85%ile of street users).

8.5.3. This research considered the available research and concluded that a firm recommendation on kerb height cannot be made without further research on kerb height in 'real world' conditions with a broader range of disabled street users.

8.5.4. PAMELA<sup>16</sup> research concluded that kerb heights of 60mm and above were detectable when stepping up and stepping down and induced the greatest confidence in what they were and what they signified. Kerb heights of less than 40mm appeared to result in less consistent detection rates and thus consideration should be given to avoiding them if possible. PAMELA states that kerb edge profile is unlikely to make a significant difference as long as the kerb face is approximately vertical.

8.5.5. The PAMELA research identified a need for further research in the form of epidemiological tests to determine if 50mm kerbs would be a problem in the wider population of people who are blind or partially sighted.

8.5.6. The recommended research could be supplemented with consideration of a monitoring and evaluation study of known sites where a kerb has been implemented, categorised by street type, street features, dimensions, pedestrian / cyclist / vehicular demand and vehicle speeds.

- Sub-principle 13.2: The provision of a demarcated pedestrian clear corridor of a minimum width of 2 metres clear of obstructions provides a 'safe area' for

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16 Refer 11. Tyler 2017, Appendix A1 – Literature review

pedestrians and supports access for disabled street users in busy streets / town centres.

- Recommendation: It is recommended that guidance should include a requirement in town centres and busy streets for a horizontally segregated pedestrian clear corridor or zone which is demarcated from cyclists and vehicles.
- Further research is recommended into the maximum width of demarcated clear pedestrian corridors. Based on focus group inputs to this research the suggested maximum width of the demarcated clear pedestrian corridors is 4 metres.
- Sub-principle 13.3: The provision of Level Surface streets with tactile demarcation can be considered in exceptional circumstances with low flow (vehicles and wheeled modes) / low speed conditions after consultation with local disabled street users, in particular the visually impaired.
- Recommendation: The provision of Level Surface streets with tactile demarcation may be retained in exceptional circumstances. This could be accompanied by additional support to improve the accessibility of these areas such as one-way traffic flow or restricting vehicle access.

This is likely to be mainly on historical streets and should be restricted to 'low flow / low speed' locations. In the absence of detailed quantitative research it is suggested that the definition of 'low flow / low speed' locations in Manual for Streets of 100 vph / under 10 mph is adopted. Where these flows / speeds are exceeded, kerb demarcation is required.

Further research is recommended to define 'low flow / low speed' conditions in town centres and busy street areas.

- 8.5.7. The research team has included this sub-principle to ensure that the application of level surface streets can be retained in exceptional circumstances. This is to support access to historical and / or narrow streets.
- 8.5.8. As with other principles these should not be viewed in isolation. In considering level surface streets Principle 15 is a key consideration along with consideration around the restriction / banning of cycles and scooters in these locations during peak periods of pedestrian demand.

### **Evidence**

- 8.5.9. This principle and the supporting principles reflect evidence from the literature review, focus groups on inclusive design, designer / implementer / promoter interviews and further research (LR3 to LR7, FGD4, FGD10 to FGD21, FGD23, FGD24, DIP15, DIP16, H2).

## **8.6 Principle 14 (segregation – inclusive physical design measures)**

- 8.6.1. Principle 14: The segregation of pedestrians and cyclists in town centres and busy street areas supports access for disabled street users.
- Sub-principle 14.1: Kerbed demarcation to cycle tracks supports access for disabled street users. The provision of some form of kerb demarcation reduces anxiety, promotes confidence and increases the level of access.

- 8.6.2. This research supports that pedestrian density / demand and duration should be the principle upon which segregation between pedestrians and cyclists is determined (for example in level surface environments). There is a point of pedestrian demand beyond which sharing the space is not advisable and an alternative route which allows cyclists to bypass these areas during high pedestrian demand periods should be provided.
- 8.6.3. Kerbed demarcation to cycle tracks increases the level of access for visually impaired and those users with reduced mobility in particular.
- 8.6.4. The principle of segregation is supported in new guidance - LTN 1/20 sets out: “On urban streets, cyclists must be physically separated from pedestrians and should not share space with pedestrians”.

### **Evidence**

- 8.6.5. This principle and the supporting principles reflect evidence from the literature review, focus groups on inclusive design, designer / implementer / promoter interviews and further research (LR3 to LR7, FGD4, FGD10 to FGD13, FGD15, FGD17, DIP16, H1).

## **8.7 Principle 15 (use of materials – inclusive physical design measures)**

- 8.7.1. Principle 15: Colour and tonal contrast of street features and pavements in all weather conditions supports access for all street users.
- Recommendation: It is recommended that guidance reflects the requirement for colour and tonal contrast in town centre and busy street areas, with examples and suggested approaches to assessing tonal and colour contrast.  
  
e.g. Paving patterns should be given careful consideration as these can cause confusion.  
  
e.g. Bollards should be constructed in a contrasting colour or illuminated, wherever possible.
  - Sub-principle 15.1: Material textures can be used to differentiate between the footway and the carriageway but should not present an obstacle or trip hazard or present differently in wet weather or lower light.
  - Sub-principle 15.2: The maintenance of surfaces and build quality / standards supports access for all street users. This is good practice which is highlighted in current guidance including Designing Streets.

### **Evidence**

- 8.7.2. This principle and the supporting principles reflect evidence from the focus groups on inclusive design, designer / implementer / promoter interviews and further research (FGD2, FGD8, FGD9, FGD10, FGD14, FGD16, FGD17, FGD19, DIP16).

## **8.8 Principle 16 (obstructions / street clutter – inclusive physical design measures)**

- 8.8.1. Principle 16: Within town centres and busy street areas all street features should be outside / away from the demarcated pedestrian clear corridor.

- Recommendation: It is recommended that guidance embeds the importance of demarcation of clear pedestrian corridors in enabling inclusive access for disabled street users.

8.8.2. There could be consideration regarding the value of common guidelines to ensure consistency of approach and adherence with good practice in all areas of the country, not just large urban areas, but also smaller and more rural / remote communities. Development of standard arrangements must be evidence-based and informed by the experiences of disabled street users.

- Sub-principle 16.1: Street features that support pick up and drop off (PUDO) by support vehicles improve access for disabled street users in town centres and busy street areas.
  - Recommendation: It is recommended that guidance conveys the importance of considering the needs of disabled users with regards to pick up and drop off (PUDO) facilities. This relates to providing clear kerbside access and to other considerations such as the provision of wayfinding to these PUDO areas and ensuring their close proximity to destinations.
- Sub-principle 16.2: Regulation of moveable temporary street features could support access for disabled street users.
  - Recommendation: Further research is recommended into the regulation of the use and location of moveable temporary street features (e.g. domestic waste wheelie bins) on footways and its efficacy in supporting access for disabled street users.

8.8.3. The regulation of A-frame signage in the cities of Edinburgh and Perth was welcomed and well received by disabled street users. Similar approaches to the regulation of A-frames and other temporary moveable street furniture are required if a clear pedestrian corridor through town centre / busy street environments is to be delivered in practice.

### **Evidence**

8.8.4. This principle and the supporting principles reflect evidence from the focus groups on inclusive design, designer / implementer / promoter interviews and further research (LR3 – LR7, FGD20, FGD22, FGD24, DIP16).

## 9. Recommendations related to training

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### 9.1 Introduction

- 9.1.1. This chapter sets out recommendations for the training of designers, implementers and promoters.
- 9.1.2. These recommendations have been drawn from the research evidence described in Chapters 5 and 6 of this research report, and support the recommended principles on inclusive engagement and inclusive physical design measures described in Chapters 6 and 8.

### 9.2 Findings from the research undertaken

- 9.2.1. The theme of improved guidance and training was evident from all the sources considered in the research and reflects evidence from the good practice examples identified.
- Literature Review (LR12) – Engineers and designers should have the opportunity to be trained to design for vulnerable road users.
  - Disabled Street User Focus Groups (FGE15) - Training should be introduced for planners and designers in inclusive design principles, including how to approach inclusive engagement. This training should include current technical advances and products to aid accessibility as well as coverage of equalities legislation.
  - Interviews with Designers, Implementers and Promoters (DIP20) - There should be more widely available inclusive engagement training for designers and all those involved in the decision-making process, to encourage a fuller understanding of the needs of communities and groups with a wide range of different disabilities and the various needs associated with both visible and non-visible disabilities.

### 9.3 Principles in relation to training

- 9.3.1. Training for designers, implementers and promoters will contribute to the success of developing and supporting good inclusive design practice at all stages of design development. The challenge is to develop and implement training (reaching a sufficiently broad part of the designer community) that is practical and applicable, and that ultimately seeks not to limit the designer but to liberate the design process.
- 9.3.2. The development of any course developed by one professional perspective will lose the insight and appreciation that another profession would bring. When considering the different professions in the development of street design, which is illustrated by ‘Link and Place’ (Jones 2008<sup>17</sup>) these are Transport Planners, Urban Planners, Traffic Engineers and Urban Designers. This ‘team composition’ (as outlined in the DfT Mixed Priority Routes Guidance<sup>18</sup>) contributed to the formation of Manual for Streets<sup>19</sup> and was considered a key attribute to successful mixed priority schemes.
- 9.3.3. Therefore, the development of guidance and training needs to be undertaken with consideration of the different professions that are likely to be involved in leading and implementing engagement and design.

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17 <https://core.ac.uk/download/pdf/82126115.pdf>

18 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/329223/ltn-3-08\\_Mixed-priority-routes.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/329223/ltn-3-08_Mixed-priority-routes.pdf)

19 <https://www.gov.uk/government/publications/manual-for-streets>



- 9.3.4. Principle 17: The training of designers, implementers and promoters and those involved in the design process such as access panels needs to convey a greater appreciation of the following key aspects pertaining to inclusive design:
- The PSED outlined under the Equality Act 2010 requires the design process to support the existing disabled street user's level of amenity and to seek opportunities to enhance this level of amenity. An understanding of the principles of inclusive engagement, recording, responding and undertaking EQIAs are functions of these duties.
  - That the level of access is not only function of the street design but also relates to the individual person and their access needs.
  - The importance of understanding how different street features can impact both negatively and positively on the level of access for disabled street users with different impairments, and the value of engagement with those affected to collaboratively understand and develop an agreed design.
  - The requirements (both in terms of timeframes and budget) for inclusive engagement such that projects are appropriately scoped and budgeted at the commissioning stage. This should include consideration of the time and budget requirements for arranging and booking accessible venues, for the provision of plans in accessible formats, communication tools, engagement tools (such as walkthroughs), interpreters, personal assistance, etc.
  - The different accessible communication methods and physical engagement tools (and their effectiveness) for disabled street users with different impairments.
  - The skills and knowledge required to undertake Equality Impact Assessments informed by an appreciation of the perspectives and needs of disabled street users with different impairments.

## 9.4 Recommendations in relation to training

- 9.4.1. The development of specific training material is outside the scope of this research study, but the following recommendations will support the development of training courses and materials to support the principles set out in section 9.3.
- Training material should include detailed information on good practice case studies and inclusive engagement principles.
  - Training material should include detailed examples (ideally with practical demonstration) of how street design materials can be shared with disabled street users in an accessible way, including walk-throughs, 3D visualisations, material samples, etc. The training should highlight the advantages and limitations of the different approaches.
  - Training material should include examples of enabling and disabling street features (from the perspective of their impact in enabling or hindering access for disabled street users) and illustrate the impact on a range of disabled street users with different impairments. The material should represent the impact on disabled street users from their perspective.
  - Training material should be of a high standard to allow for it be delivered in a consistent manner that supports the individual in acquiring the knowledge and skills to support positive and co-operative engagement with disabled street users.

- Professional institutions should require a minimum level of training on inclusive design process for compliance to Engineering Council chartership or Transport Planning Professional status.
- Access Panels / Design Panels should require a minimum level of training on inclusive design process to better support designers.

9.4.2. Further research is recommended into the development of training materials / courses and the identification of the most appropriate delivery mechanisms to support the principles set out above. Further research should engage with professional bodies and disability design advisory groups to support the training development.

## 9.5 Potential training approaches

9.5.1. The research team has identified some potential training approaches and resources that could support the development of an appreciation of the complex and personal nature of disability, as well as inclusive design challenges:

- In the one-to-one discussion with designers, reference was made to attendance at a workshop presented by an Access Consultant. The Consultant presented video footage of various disabled street users negotiating a street environment which the designers found very insightful and he reflected that it had changed his perspective as a designer.
- Similarly, the RNIB has produced the video 'Getting Around London With Visual Impairment'<sup>20</sup> in which the street user explains the challenges of the streetscape.
- Strathclyde Partnership for Transport's 'School Transport Pick Up and Drop Off' (PUDO) assessment developed by MVA Consultancy<sup>21</sup> included training and definition manuals, a training video on the key principles of the assessment process and videos of the training examples.

9.5.2. A similar approach could be taken with other DPOs co-producing a suite of videos, with the same streetscapes being negotiated by a range of disabled street users with different impairments and levels of adaptation / personal assistance. This could form the basis of a standard training course. Additional videos can be considered to give background information on particular disabilities and explore methods of communicating.

9.5.3. The training should be designed in order to develop a strong basic appreciation of the access needs of disabled street users from their perspective.

9.5.4. Careful consideration should be given on form and format of the course, as this will impact on the quality of the training and the resulting actions based upon this training. A key consideration is how to upscale the training, either through a web-based approach (with a potential reduction in the quality of training) or through a longer 'train the trainers' course which would allow the training to be delivered more broadly whilst maintaining the quality of training and engagement with the material.

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20 [https://www.youtube.com/watch?time\\_continue=2&v=nILU4BmexTc&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=2&v=nILU4BmexTc&feature=emb_logo)

21 TEC "Developing the SPT School transport PUDO assessment process" McDonald, Camp (Campopiano), Scott (June 2008)

## 10. Summary

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### 10.1 Overview and methodology

- 10.1.1. Transport Scotland (TS), the Scottish Government (SG) and the Department for Transport (DfT) required research evidence and recommendations on methods and approaches to help deliver inclusive design environments within town centres and busy street areas.
- 10.1.2. The primary aim of this research was to provide evidence on methods and approaches that help to deliver inclusive design environments within town centres and busy street areas. The research included two main aspects - evidence on how inclusive engagement approaches can support inclusive design, and evidence on physical design measures that can support inclusive and accessible design.
- 10.1.3. The research drew on the following sources and approaches, the full details of which are included under the relevant appendices and summarised in this research report:
- A Literature Review.
  - Perspectives from disabled street users through a series of focus groups on inclusive engagement and inclusive physical measures.
  - Perspectives from designers, implementers and promoters through an online survey and a series of follow-on interviews.
- 10.1.4. This research investigated good practice examples of schemes within Scotland and England where inclusive engagement has been successfully implemented. In addition, further research was considered to supplement the literature review and the qualitative inputs from the user and designer perspectives.
- 10.1.5. The research has established principles that will support the delivery of more inclusive design, derived from analyses of the evidence. The recommendation of this report is that these principles be reflected in guidance, supported by further research as recommended in this report.

### 10.2 Conclusions – inclusive engagement

- 10.2.1. The findings derived from this research can be summarised across five key themes:
- Theme 1 - Stakeholder identification.
  - Theme 2 - The scale and nature of the engagement process, including timing and notification.
  - Theme 3 - Accessible engagement.
  - Theme 4 – Recording.
  - Theme 5 - Establishing and maintaining a good working relationship.
- 10.2.2. A review of the alignment between current guidance and the principles related to inclusive engagement concluded that existing guidance does cover the majority of points raised in some form.
- 10.2.3. However, it is clear from the focus group and designer feedback that despite the presence of the existing guidance (spread across a range of different documents) there remains a gap between what has been implemented as part of street design projects and the expectations of disabled street users and designers, with some specific requirements for street design projects to be addressed.

### **10.3 Conclusions - inclusive physical design measures**

- 10.3.1. The perspectives of disabled street users with respect to inclusive physical design measures were sought in relation to specific design features and their impacts on people with different impairments.
- 10.3.2. The physical design features considered by the disabled street user focus groups were:
- Crossings - uncontrolled and controlled crossing of carriageways.
  - Segregation between pedestrians, cyclists and motor vehicles.
  - Obstructions and 'street clutter'
- 10.3.3. Two key themes were drawn from the research that are of overarching importance to the implementation of inclusive design.
- Theme 1 - Consistency in approach.
  - Theme 2 - The influence of feeling 'unsafe' on access and use of areas by disabled street users.
- 10.3.4. Most aspects of physical design measures are covered to some extent by existing guidance. However, the guidance is spread across multiple documents, leading to inconsistency in its application and the perception of a lack of effectiveness of guidance by disabled street users.

### **10.4 Principles and recommendations related to inclusive engagement and inclusive physical design measures**

- 10.4.1. The research has established principles that will support the delivery of more inclusive engagement and more inclusive physical design measures. Further details relating to the series of 16 principles (supported by sub-principles) with associated recommendations are set out in Appendix J (inclusive engagement) and Appendix K (inclusive physical design measures).
- 10.4.2. It is a recommendation of this research study that these principles be reflected in guidance, supported by further research as recommended in this report.

### **10.5 Principles and recommendations related to training**

- 10.5.1. The theme of improved guidance and training was evident from all the sources considered in the research and reflects evidence from the good practice examples identified.
- 10.5.2. Therefore, the development of guidance and training needs to be undertaken with consideration of the different professions that are likely to be involved in leading and implementing engagement and design.
- 10.5.3. Principle 17 is that the training of designers, implementers and promoters and those involved in the design process such as access panels needs to convey a greater appreciation of the key aspects pertaining to inclusive design.
- 10.5.4. The report makes recommendations that will support the development of training courses and materials that would help to convey the key aspects to the audiences for the training material.

# Appendix A

## Literature Review



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## **Appendices**

Appendix A.1 – Literature Review Report

## 11. Overview of literature review

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### 11.1 Background

- 11.1.1. Transport Scotland (TS), the Scottish Government (SG) and the Department for Transport (DfT) require research evidence and recommendations on methods and approaches to help deliver inclusive design environments within town centres and busy street areas.
- 11.1.2. This Appendix to the main research report entitled “Inclusive Design in Town Centres and Busy Streets Areas” summarises the findings of the Literature Review undertaken by Napier University. The Literature Review represents Stage 1 of the research study into inclusive design engagement and physical design measures described in the “Inclusive Design in Town Centres and Busy Streets Areas” report.
- 11.1.3. The complete Edinburgh Napier University Literature Review report is included under Appendix A.1.

### 11.2 Overview of literature review methodology

- 11.2.1. The Literature Review was undertaken by the Transport Research Institute at Edinburgh Napier University.
- 11.2.2. The focus of the Literature Review is to report on peer reviewed and grey literature (non-peer reviewed) addressing the design of town centres and busy streets in the quest for designs which are acceptable to all vulnerable road user categories. This means that papers included needed to have given some attention to those with mobility impairments in order to be included in the Review.
- 11.2.3. The search criteria are broken down as outlined below:
  - Target audiences / populations included in interventions = all adults and children.
  - Study design = prioritising reviews of the literature, but also including single studies, including qualitative research.
  - Dates = January 2008 to September 2019.
  - Geography = global literature search for papers published in English.

#### Literature searches

- 11.2.4. Search terms developed by the consultant academic were: inclusive design; shared space; inclusive street design; walk; mobility impairment; sensory impairment; disable; high street; kerb (curb); shopping street; streetscape material; colour (color); texture; surfaces; street delineation; street clutter; tactile pavement / paving; vehicle / pedestrian segregation; disabled parking; bus stop access; severance; pedestrian crossing; traffic speed / volume; accidents; inclusive engagement / consultation; equality engagement / consultation; disability engagement / consultation.
- 11.2.5. These were augmented by over 100 search words and terms suggested by members of the working group. Some of the new search terms duplicated terms in the above list. In order to attempt to utilise these additional search terms, they were prioritised through discussions within the research team.
- 11.2.6. Search terms subsequently added were: co-design; wayfinding; street design; shared use; shared surface; delineation; disable / disabilities; blind; partially sighted; deaf-blind; deaf; cognitive impaired; road traffic collision / conflict; access; slope; gradient, pedestrianisation, kerb (curb) height, cycle way.

- 11.2.7. Search engines used were TRIDS; TRB; ScienceDirect; and Google Scholar. References from studies found were also examined in seeking additional studies. Grey literature was also included such as those drafted by government departments and agencies and road safety institute reports.

### **11.3 Assessment process**

- 11.3.1. Thirty-eight studies were found to be in scope in this Literature Review. Given that seven of the studies were reviews of the literature, the total number of individual studies referred to is greater than 38. Some single studies also summarised aspects of the literature in setting their own study in the wider context of the shared space literature. After searches had been undertaken to find studies and abstracts, these were checked to assess whether it was likely that they were in scope or out of scope. This involved reading the abstracts and then accessing the full study to read if the abstract suggested that it might be in scope. Seventy studies were read in full.
- 11.3.2. A common procedure in identifying and examining a body of literature is to group studies under themes. For this Literature Review the themes are:
- Reviews (7).
  - Single studies - design and use (23);
  - Single studies - non-visual impairments (2).
  - Single studies - engagement and consultation (6).
- 11.3.3. Each theme is drawn upon in detail in covering the range of topics identified in the Review, in order to set out a cohesive narrative which seeks to draw together the evidence found.
- 11.3.4. Twenty studies were from the UK, four from elsewhere in Europe and 14 from beyond Europe. All studies are listed with their full citation in the main report (Appendix A.1).



## 12. Summary and conclusions

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### 12.1 Summary of the literature review findings

- 12.1.1. There is an array of findings from the Literature Review. At the general level, there needs to be greater recognition of the needs of all users, including people with sight loss (Imrie & Kumar, 2011; Smithies, 2015). The views and feelings of visually impaired people are not a significant part of the policy-making process (Imrie, 2013). There is a need for clear guidelines on how to prevent the identified issues from occurring in newly designed shared spaces and how to improve existing shared-space schemes (Havik et al, 2015; Audrey, Leonards & Damens, 2017). This is supported by Imrie & Kumar (2011) who say that more detailed guidance is required on the development and implementation of shared space.
- 12.1.2. The seeming lack of consistent standards provides designers with a blank canvas when creating shared-use areas, often meaning that the needs of vulnerable road users, including blind and visually impaired people, are forgotten among the aesthetic details. Shared spaces should not be a uniform material, but distinct safe areas. Boundaries within the shared space should also be present to create an environment that is easily identifiable and understandable to blind and visually impaired people. A consistent approach to designing for blind and visually impaired people should be introduced. This could be achieved by establishing national standards and specifications with appropriate enforcements (Smithies, 2015).
- 12.1.3. Communication emerges as a challenge to designers and implementers. Communication should be improved (e.g. between guide-dog trainers and roads / highway authorities). Authorities should consult with blind and visually impaired organisations, seeking their opinions before the detailed design stage (Smithies, 2015). As such, roads / highway engineers should be provided with training opportunities to develop their skills in designing for vulnerable road users (Smithies, 2015).
- 12.1.4. More broadly, a challenge is an expectation of general enjoyment of greater pedestrian space for one group comes at the price of a limited expectation of these benefits for another group. This suggests that even within the broad category of those with impaired mobility, there is not only an accessibility issue, but also a challenge to the equity of the scheme – which would strike at one of the three pillars of sustainability. How would equity be delivered? (Tyler, 2017).
- 12.1.5. The ‘evidence gaps’ need to be addressed, particularly in relation to personal safety issues (Imrie & Kumar, 2011).

## 12.2 Literature review conclusions

12.2.1. The following points represent the main conclusions of the Literature Review:

1. An overall issue is that shared space is contested with claims that disabled users are ignored (Thomas, 2008; Imrie & Kumar, 2011; Imrie, 2013). However, there are studies providing examples of how accessible design can be better achieved through greater efforts at consultation and engagement, especially with groups representing the physically, sensory, and mentally impaired users (Jayakody et al, 2018; Kardacharak, Wilson & Dunn, 2016; Gendron, 2018).
2. There is no agreed definition of 'shared space' (Imrie & Kumar, 2011; Moody & Melia, 2014) and this is reflected by an inconsistent approach to shared-space design (Smithies, 2015). This may be the result of extending the shared space concept beyond implementation in low flow residential areas, to its use in busy urban areas and shopping streets, which has not been thought through (Matthews, Hibberd, Speakman, 2015).
3. There is a clear gap in research into the design of the layout of shared space streets (Kaparios et al, 2012). There is a need for clear guidelines in newly designed shared spaces and how to improve existing shared-space schemes (Havik et al, 2015; Audrey, Leonards & Damens, 2017). More detailed guidance is required on the development and implementation of shared space (Imrie & Kumar, 2011).
4. There is limited high quality (robust) literature on inclusive design aspects from the perspective of those with mobility and / or sensory impairments. In the literature it has been noted that quality scores of most of the articles were low. This might indicate limitations in the methods used and their lack of standardisation (Gamache et al, 2019).
5. There is a paucity of research-based knowledge about the mobility situation of persons with cognitive functional limitations (Gamache et al, 2019) and this is reflected in previous broader transport research.
6. There is evidence that measures which may benefit some users such as visually impaired people can disadvantage other users, e.g. tactile blisters by disrupting the gait of older pedestrians near to crossings. The same is likely of other measures such as the risks that kerbs can for some users be a trip hazard (Naumann et al., 2011 in Norgate, 2012). Only a few of the articles considered more than one type of physical disability (motor, visual or hearing) (six out of 40), meaning that most recommendations were made for individual impairments and not all users (Gamache et al, 2019).
7. There is mixed evidence as to whether the introduction of shared use on high streets and busy streets has increased accidents, but there is a significant number of studies reporting that mobility impaired users are avoiding these areas, noting that most reports are from visually impaired people, e.g. Matthews, Hibberd, Speakman (2015), Tyler, (2017).
8. While the debate about kerb edges is still contested by some, there appears to be a consensus that if not providing kerb edges, then clearly detectable alternative demarcation between motorised traffic and pedestrians is needed (e.g. Havik et al, 2012; Hammond & Musselwhite, 2013).
9. Highway engineers should be provided with training opportunities to develop their skills in designing for vulnerable road users (Smithies, 2015).

10. Highway authorities should consult with a range of mobility impaired organisations, seeking their opinions before the detailed design stage of any proposed shared use scheme is taken forward (Smithies, 2015). It is important, therefore, that this consultation is an ongoing process throughout the design, construction and early operation phases of any implementation (Edquist & Corben, 2012).
11. 'Safe space' areas that are strictly reserved for pedestrians appear to be a well-supported compromise as a design solution and an example of a feature which gives mobility impaired users confidence to engage and move through the shared space (Rombol Nyvig, 2008; Havik et al, 2012; Norgate, 2012; Parkin & Smithies, 2012; Karndacharuk, Wilson & Dunn, 2014).

### **12.3 Key findings to be considered in subsequent stages**

- 12.3.1. While the level and quality of research available is not extensive and in depth in relation to persons with impairments or combinations of impairments, the literature does present some key findings that should be considered further as part of the research study. These are (with reference to the conclusions set out under section 2.2):

#### **Inclusive engagement:**

- LR1 - Inclusive design<sup>22</sup> can be better achieved through greater efforts at consultation and engagement (pt1).
- LR2 - Engineers and designers should consult with a range of organisations representing users with reduced mobility seeking their opinions on an ongoing basis during the proposal and design stages of all schemes (pt10).

#### **Inclusive physical design measures:**

- LR3 - There is mixed evidence as to whether the introduction of shared space use on high streets and busy streets has increased accidents (pt7).
- LR4 - There is research that reports persons with mobility impairment avoid shared space, and most reports relate to visually impaired users (pt7).
- LR5 - The evidence shows that there is still some debate on the need for kerbed edges, however there is consensus that detectable demarcation between motorised traffic and pedestrians in 'shared space' is required (pt8).
- LR6 - 'Safe Space' areas that are strictly reserved for pedestrians appear to be a well-supported compromise as a design solution and give confidence to the user with reduce mobility<sup>23</sup> (pt11).
- LR7 - There is evidence which suggests that some measures to support some disabled people groups can have an impact on users with other impairments (pt6) and there are limited studies into persons with more than one type of impairment.

#### **The need for more research and definition:**

- LR8 - There is no agreed definition of 'shared space' and this is reflected in the inconsistent approach to design (pt2).

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22 The term "accessible design" is used in the literature review report in Appendix A1.

23 The term "mobility impaired" is used in Appendix A.1.

- LR9 - There is a need for guidance on street layout for emerging and existing 'shared space' schemes which should be supported by more research (pt3).
- LR10 - There is limited high quality (robust) literature and research on inclusive design from the perspective of the users with mobility and or sensory impairment (pt4).
- LR11 - Limited research exists on mobility experiences of persons with cognitive functional limitations (pt5).

### **Inclusive design training:**

- LR12 - Engineers and designers should have the opportunity to be trained to design for vulnerable road users (pt9).

# Appendix A.1

## Literature Review Report





Part of Edinburgh Napier University

**Inclusive design on the high street. A literature review of shared space.**

Report

Author	Adrian Davis
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## **Background**

Transport Scotland is working with the Department for Transport and the Scottish Government Planning and Architecture Division to review current guidance on what makes streets fully accessible for all. This follows the withdrawal and commitment by the Department for Transport to update the Local Transport Note 11/1: Shared Space.

Transport Scotland, the Scottish Government and the Department for Transport have appointed WSP (with support from Napier University and KSO Research) to undertake research into methods and approaches to help deliver inclusive street design environments within town centres and busy street areas.

## **Aims of the research**

The aim of the research is to propose recommendations and key principles on how inclusive engagement approaches, coupled with physical design measures, can provide an inclusive environment for pedestrians / users of our high streets and busy street areas.

The research will present good practice examples ('Case Studies') of schemes within Scotland and England where inclusive design principles have been successfully implemented and which illustrate the principles and recommendations of this research (approaches to inclusive engagement).

## **Stage approach**

The research will be undertaken in stages, with the outcome of each stage informing the subsequent stage. By following this staged approach, it will allow the research team to re-evaluate and reconsider the direction of the document at the end of each stage.

This report forms part of the Stage 1 report of the Inclusive Design in Town Centres and Busy Street Areas study.



## **Introduction**

The objective of the research project is to provide evidence on methods and approaches that help to deliver inclusive design environments within town centres and busy street areas.

The focus of the Literature Review is to report on peer reviewed and grey literature addressing the design of town centres and busy streets in the quest for designs which are acceptable to all vulnerable road user categories. This means that papers included needed to have given some attention to those with mobility impairments in order to be included in the Review.

Target audiences/populations included in interventions.

All adults and children.

## **Study design**

Prioritising reviews of the literature, but also including single studies, including qualitative research.

## **Dates**

January 2008 to September 2019.

## **Geography**

We searched the global literature for papers published in English.

## **Literature searches**

Search terms developed by the consultant academic were: inclusive design; shared space; inclusive street design; walk; mobility impairment; sensory impairment; disable; high street; kerb (curb); shopping street; streetscape material; colour (color); texture; surfaces; street delineation; street clutter; tactile pavement/paving; vehicle/pedestrian segregation; disabled parking; bus stop access; severance; pedestrian crossing; traffic speed/volume; accidents; inclusive engagement / consultation; equality engagement / consultation; disability engagement / consultation.

These were augmented by over 100 search words and terms suggested by members of the key stakeholders' group. Some of the new search terms duplicated terms in the above list. In order to attempt to utilise these additional search terms they were prioritised through discussions within the research team.

Search terms subsequently added were: co-design; wayfinding; street design; shared use; shared surface; delineation; disable/disabilities; blind; partially sighted; deaf-blind; deaf; cognitive impaired; road traffic collision/conflict; access; slope; gradient, pedestrianisation, kerb (curb) height, cycle way.

Search engines used were TRIDS; TRB; ScienceDirect; and Google Scholar. References from studies found were also examined in seeking additional studies. In addition, grey literature was also included such as those drafted by government departments and agencies and road safety institute reports. As well as searching for studies through references and citations in studies found.

## 13. The literature review in context

### Introduction

There is a range of terminology associated with inclusive design and this Literature is focused on a specific geographically contained aspect of it, that is, shared street space on high streets or otherwise busy streets. Coupled with this is the additional specific focus on the ability or not of mobility impaired people to be able to negotiate shared use space with no less confidence that if it were any pavement area where the design enables them to have mobility into and through that space. As Norgate (2012)<sup>24</sup> states, in terms of designing shared space, one of the requirements is that ‘the scheme should be comfortable to use and accessible to disabled.’

This focus is reflected in the array of search terms that have been gathered, prioritised and tested. As reflected in the Literature Review, a challenge has been to identify studies that meet these criteria in order to be accepted as within the scope. A coda is that while there is a significant literature addressing urban shared space (often local high streets) much of this does not include more than cursory reference to impaired mobility e.g. Hamilton Baillie, 2008; Anvari, et al, 2015,<sup>25</sup> Brookfield, Tilly, 2016,<sup>26</sup> Hso, C., Lee, T., 2017;<sup>27</sup> [Ruiz-Apilánez et al, 2017](#)<sup>28</sup>, Friesen, 2017;<sup>29</sup> Sukaryavichute, E., Prytherch, D. 2018.<sup>30</sup>

In setting out the landscape within which the shared space literature resides, we begin with Inclusive Design and draw on studies which are not necessarily in scope for the Literature Review itself either by date or focus or both. Inclusive Design is a design philosophy with the aim of considering the needs and capabilities of the whole population. A central tenet of the philosophy is that through considering the full diversity of users, a better product will result. Inclusive Design aims to engender greater awareness of the fact that it is ‘normal to be different’ and that great heterogeneity exists in people’s capabilities and must be accounted for in good product design. The importance of Inclusive Design is increasing as the populations in many Western countries, including the UK, are ageing.<sup>31</sup> In general, heterogeneity increases with age and thus, as the population becomes older, the needs and capabilities of users become ever more diverse.<sup>32</sup>

Like design for special needs, inclusive design requires in-depth insight into how particular groups of people interact with and experience the designed environment. Yet, whereas design for special needs focuses on addressing the needs of these particular groups only, inclusive designs seeks resonance between their needs and the needs of the entire population. Heylighen and colleagues cite Pullin and Newell who describe design resonance as a situation:

“where the needs of the people who have a particular disability coincide with particular able-bodied users in particular contexts”.

24 Norgate and other studies included in the Review appear with their dates in brackets e.g. Norgate (2012). Those not included in the Review appear as referenced Footnotes.

25 Anvari, B., Bell, M., Sivakumar, A., Ochieng, W. 2015. Modelling shared space users via rule-based social force model, *Transportation Research Part C*, 51: pp. 83-103.

26 Brookfield, K., Tilley, S. 2016. Using Virtual Street Audits to Understand the Walkability of Older Adults’ Route Choices by Gender and Age, *International Journal of Environmental Research & Public Health*, 13.

27 Hsu, C., Lee, T. 2017 Evaluating the perceptions of road users in different scenarios of shared spaces, *Journal of the Eastern Asia Society for Transportation Studies*, 12: pp. 1210-1217.

28 Ruiz-Apilánez, B., Karimi, K., García-Camacha, I., Martín, R., 2017. Shared space streets: design, user perception and performance, *Urban Design International*, 22(3): 267-284.

29 Friesen, M. 2017 The contested public space of shopping streets: The case of Købmagergade, Copenhagen, *Journal of Landscape Architecture*, 12(2): pp. 18-31.

30 Sukaryavichute, E., Prytherch, D. 2018. Transit planning, access, and justice: Evolving visions of bus rapid transit and the Chicago street, *Journal of Transport Geography*, 69: 58-72.

31 Hamilton-Baillie, B. 2008. Towards Shared Space, *Urban Design International*, 13: 130-138.

32 Johnson, D., Clarkson, J., Huppert, F. 2010. Capability measurement for Inclusive Design, *Journal of Engineering Design*, 21(2-3) pp. 275-288.

For example, navigating pavements with a pram or trolley resonates with navigating them with a wheelchair as both benefit from dropped kerbs. Similarly, communicating in a noisy environment resembles the condition of people who are deaf or speech impaired.<sup>33</sup> By contrast, the relative absence of traffic noise, may be a missing cue for the blind and partly sighted in being sure of where they are. A busy street, researchers note, may be indicated by the sound of street traffic and the frequent use of vehicle horns, while the sound of buses indicates a main street. The sound of people entering or leaving a shop provides information about the presence of shops and may indicate a commercial street. Sounds produced by the interactions of pedestrians with different ground textures are also cited as helpful for determining an environment.<sup>34</sup>

In the context of design, capability refers to an individual's level of functioning, along a given dimension from very high ability to extreme impairment, which has implications for the extent to which they can interact with products. Drawing on Martens (2018),<sup>35</sup> the World Health Organisation (WHO) recognises disability "as a complex interaction between features of a person's body and features of the environment and society in which he or she lives." This definition underlines the notion that disability is not simply a characteristic of a person, but rather of the relationship between the particular abilities of a person and the functionalities of his or her environment. In line with this definition, travel impairment should be viewed as a result of human-environment interaction. Thus, people become 'travel impaired' because the transport system does not provide the functionalities necessary to enable people with a particular set of abilities to use the system, thereby limiting their accessibility to destinations. Given the functionalities of the existing transport system, persons may experience three main types of travel-impairments:

- A motor-related impairment (e.g., an impairment resulting from the interaction between a person experiencing difficulty in walking and a poorly accessible transport vehicle).
- A sensory-related impairment (e.g., an impairment resulting from the interaction between a person's limited vision or hearing and a public transport hub that lacks the appropriate specification).
- Cognition-related impairments (e.g., an impairment resulting from the difficulty in comprehending written materials and poorly designed information systems at public transport stops).<sup>36</sup>

Historically, the design response to questions of capability has often been to accommodate users between the 5th and 95th percentiles of ability. However, this effectively encourages designers to ignore up to 5% of people on each specific capability dimension considered. Given that multiple capabilities are required for interaction with most, if not all, products and that different people tend to populate the extremes of different capability domains (i.e. the group of people who have strength capabilities below the 5th percentile are likely to be different to the group of people who have vision capabilities below the 5th percentile), designing with the 'majority' of users in mind across multiple capability demands often results in products that are difficult or impossible to use for many people. For example, a product that excludes 5% of people on the basis of vision, 5% on the basis of hearing and 5% on the basis of dexterity is highly unlikely to exclude 5% of people overall; rather it is more likely to exclude 10–15% of potential users.

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33 Haylighen, A., van der Linden, V., van Steenwinkel, I. 2017. Ten questions concerning inclusive design of the built environment, *Building and Environment*, 114: pp. 507-517.

34 Koutsoklenis, A., Papadopoulou, K. 2011. Auditory cues used for wayfinding in urban environments by individuals with visual impairment, *Journal of Visual Impairment and blindness*, 105(10): pp. 703-714.

35 Martens, K. 2018. Ageing, impairments and travel: Priority setting for an inclusive transport system, *Transport Policy*, 63: pp. 122-130.

36 World Health Organisation, 2011. World Health Organization (WHO) International Classification of Functioning, Disability and Health. WHO: Geneva

Several authors have pointed out that inclusively designed outdoor spaces play a key role in the engagement of older people in social life. In this context, Elizabeth Burton and Lynne Mitchell introduced the concept of ‘streets for life’ as a mechanism for achieving the goals of inclusive design at the neighbourhood scale and enabling outdoor environments to be as dementia-friendly as possible.<sup>37</sup> To this end, they advance six key design principles:

- familiarity,
- legibility,
- distinctiveness,
- accessibility,
- comfort and
- safety.

For example, the diversity of people living with dementia and the varied environments they inhabit generate considerable complexity in designing signage that will actively support their abilities and reduce their disabilities.<sup>38</sup> For wheelchair users there are other considerations. The most dominant parameter preventing wheelchair mobility is surface condition (material of surface type and the quality of the surface).<sup>39</sup> Other parameters need to be considered in route calculation such as pavement signs, maximum degree of slope along the path, number of crosswalks and crosswalk types.

In this context of ‘shared space’, however, it is argued by some, to create disabling situations for people with a visual impairment, older people, and people with dementia.<sup>40</sup> Attitudes towards shared space vary amongst the public, however.<sup>41</sup>

The Department for Transport (DfT) guideline on shared spaces in urban street environments defines a shared space as:

“A street or place designed to improve pedestrian movement and comfort by reducing the dominance of motor vehicles and enabling all users to share the space rather than follow the clearly defined rules implied by more conventional designs.”<sup>42</sup>

This then needs to be reflected in the UK Disability Discrimination Act 2005<sup>43</sup> which states that ‘It is unlawful for a provider of services to discriminate against a disabled person’. This is taken from part 3 of the Act on discrimination in relation to goods, facilities and services. In addition, all of those involved in the planning, design and delivery of public realm schemes need to be aware of the requirements of the Equality Act 2010.”<sup>44</sup>

There are wider policy and practice movements with broader ambitions that just transport. Reviewing ‘State of the Art’ development of Design for All in the Scandinavian countries (Denmark, Norway, Sweden and Finland), researchers note that over the past ten years, that as a society they have come to realize that legislation is needed when it comes to pursuing an inclusive society, partly because changing governments pursue varying political priorities and agendas.<sup>45</sup> Therefore, it may be helpful to introduce legislation in certain areas, although

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37 Burton, E., Mitchell, L. 2006. *Inclusive Urban Design: Streets for Life*. Architectural Press.

38 Grasham, M. et al, 2019 Developing evaluation of signage for people with dementia, *Housing, Care and Support*, 22(3): 153-161.

39 Kasemsuppacorn, P., et al, 2012. Understanding route choices for wheelchair navigation. *Disability & Rehabilitation: Assistive Technology*, 10(3): pp. 198-210.

40 Haylighen, A., Van der Linden, V., Van Steenwinkel, I. 2017. Ten questions concerning inclusive design of the built environment, *Building and Environment*, 114: pp. 507-517.

41 Reid, S., Kocak, N., Hunt, L. 2009. DfT Shared Spaces Project—Stage 1: Appraisal of Shared Space. London: MVA Consultancy.

42 Department for Transport, 2011. Local Transport Note 1/11 — Shared space. London.

43 [Disability Discrimination Act 2005](#). Elizabeth II Chapter 50. Part III: Discrimination in Relation to Goods, Facilities and Services. Her Majesty’s Office, London. UK.

44 Chartered Institution of Highways and Transportation, 2018. *Creating better streets: Inclusive and accessible places*. Reviewing shared space. London: CIHT.

45 Bentdixen, K., Benkzton, M. 2015. Design for all in Scandinavia, *Applied Ergonomics*, 46: pp. 248-257.

legislation alone does not automatically lead to Design for All products or solutions or even encourage companies, organisations etc. to implement Design for All as part of their strategy. It might instead lead to a situation based on the lowest common denominators. But political decisions and initiatives are essential for implementing Design for All.

In addition, Universal Design is the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people, regardless of their age, size, ability or disability.<sup>46</sup> Urban design comes from an architectural origin but in many ways strongly overlaps with inclusive design.

With a broader remit than shared space, and in terms of engagement and consultation, Rebernik et al (2019)<sup>47</sup> describe a model for engagement in urban design, underpinned by ethnography. They note that this may be time-consuming and demands full dedication from city governments. Although well recognized as qualitative research methodology, ethnography is still an unusual approach in urban planning, design and governing practice. The fact that it is a highly time-consuming approach is its main weakness. Yet, the authors claim, it represents a highly applicable and firm complementary framework to serve urban planning and design researchers and practitioners in establishing closer connections with citizens, gaining their trust, enhancing their engagement and, finally, gaining an overall deeper understanding of their needs. Especially when it concerns understanding the (disabled) citizens' needs and how they use a space, what motivates them to use it and what prevents them from using it, the methodology proposed can go far beyond current practice, offering a way for governments to make informative and responsive decisions. It may be particularly helpful given the evidence provided in this Literature Review body of work as to weaknesses in engagement and consultation in the development and design of shared space.

Specifically, urban ethnography and the digital dimension are combined by encouraging the participants involved to engage with a few of selected mobile apps, such as EthnoAlly (<http://cloud.mobility.deustotech.eu/ethnoally>), Way-CyberParks (<http://cyberparks-project.eu/app>), WheelMap (<https://wheelmap.org>) and Google Maps (<https://www.google.com/maps>), the most frequently used. The principles of digital ethnography are used as a modern approach to complement traditional ethnographic techniques, such as participant observation, interviews, focus groups and diary writing.

In further describing the broader landscape within which the specifics of this Literature Review are set there are a number of other issues which are important to highlight. These are that:

- It is often not possible to identify studies which just address 'high/busy streets' and inclusive street design and impaired mobility.
- Often studies mention 'shared space' in passing but address the experience of those with mobility impairments within a broad brush approach to mobility in the urban environment in general e.g. Sze, N., Chistiansen, K. 2017, Nillies, M., Kaparias, I. 2018.<sup>48, 49</sup>
- Some important shared street studies are focused on residential areas including at least one published in 2015 addressing Scotland.<sup>50</sup>
- Much of the literature focuses on walking for the non-disabled in shared use space in the context of 'reclaiming' space from motorised traffic.

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46 Ahmed, M., Ergenoglu, A. 2012. An assessment of street design with Universal Design principles: Case in Aswan/As-Souq, *Megaron*, 11(4): 616-625.

47 Rebernik, N., Marusic, B., Bahillo, A., Osaba, E. 2019. A 4-dimensional model and methodological approach to inclusive urban planning and Design for ALL, *Sustainable Cities & Society*, 44: 195-214.

48 Sze, N., Chistiansen, K. 2017 Access to urban transportation system for individuals with disabilities, *IATSS Research*, 41: 66-73.

49 Nillies, M., Kaparias, I. 2018. Investigating the relation of highway design standards with network-level walkability: The case study of Luxembourg, *International Journal of Transportation Science and Technology*, 7(5): pp. 254-263.

50 Curl, A., Ward Thomson, C., Aspinall, P. 2015. The effectiveness of 'shared space' residential street interventions on self-reported activity levels and quality of life, *Landscape & Urban Planning*, 139: pp. 1117-125.

- In terms of evaluation methods, there are a limited number of methods that consider disabled pedestrians as unique street users who have specific needs and require specific facilities<sup>51</sup> although several are included as in scope for the Literature Review (the Indicators of Accessibility and Attractiveness of Pedestrian Environments developed by Moura, F., Cambra, P., Goncalves, A. 2017, and the ethnographic approach proposed by Rebernik, N., et al 2019).
- There have been some contributions from transport professional institutions to debates regarding shared space. The Chartered Institution of Highways and Transportation made a recent contribution, albeit echoing some of the research findings reported in this Literature Review, and their report was particularly informed by case studies.<sup>52</sup> It is of note that few of the schemes reviewed could point to a set of formal design objectives including headline objectives such as inclusive design and ease of movement, nor statutory duties such as the Equality Act 2010 or Traffic Management Act 2004.

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51 Asadi-Shekari, Z., Moeinaddini, M., Shah, M. 2013. Non-motorised Level of Service: Addressing Challenges in Pedestrian and Bicycle Level of Service, *Transport Reviews*, 33(2) pp.166-194.

52 Chartered Institution of Highways and Transportation, 2018. Creating better streets: Inclusive and accessible places. Reviewing shared space. London: CIHT.

## 14. Findings from the literature review

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### Assessment process

Thirty-eight studies were found to be in scope in this Literature Review. Given that seven of the studies were Reviews of the literature, the total number of individual studies referred to is greater than 38, and some single studies also summarised aspects of the literature in setting their own study in the wider context of the shared space literature. After searches had been undertaken to find studies and abstracts, these were checked to assess whether it was likely that they were in scope or out of scope. This involved reading the abstracts then accessing the full study to read if the abstract suggested that it might be in scope. Seventy studies were read in full.

A common procedure in identifying and examining a body of literature is to group studies under themes. For this Literature Review the themes are:

- Reviews (7).
- Single studies:
- Design and use (23).
- Non-visual impairments (2).
- Engagement and consultation (6).

Each theme is drawn on in detail in covering the range of topics identified in the Review in order to set out a cohesive narrative which seeks to draw together the evidence found.

Twenty studies were from the UK, four from elsewhere in Europe and 14 from beyond Europe. All studies are listed with their full citation in Appendix 2.

### Overview

In the Commission for Architecture and the Built Environment's (CABE) view, streets that are designed to give all users more freedom in the way they use them are more civilised. They also, quite intentionally, remove the presumption that drivers have right of way among users because of the unpredictability that this creates. CABE note that research by Guide Dogs has examined the difficulties experienced by blind and partially sighted people and people with physical disabilities in independently navigating shared space street designs. It explored how to delineate 'safe space' if a traditional kerb was not used and more recently investigated a range of potential delineators used or proposed in UK shared space schemes. The research found that none of the current designs, in the forms tested, met the needs of both blind and partially sighted people and people with mobility impairments.

Hamilton-Baillie (2008) stated that shared space was an approach that was still in its infancy at that time, and there remained many barriers to overcome, observations to be made, evaluations to be conducted and experience to be gained. Questions remained as to what extent shared space can help resolve busier streets and intersections. He suggested that creativity and development is required to improve perceptions of safety and navigational aids for the visually impaired. The relationship between visual clues (such as apparent road widths, signs, kerbs and road markings) and driver behaviour were little understood. He noted that here remained unease and concern amongst some older citizens and amongst the blind and partially-sighted.

Similarly, Edquist and Corben, (2012) note that 'Shared space' is an approach to road design that is growing in popularity around the world. The idea is that instead of being segregated into their own sections of pavement, vehicles, pedestrians and cyclists are free to move through the space more or less at will, negotiating right of way with other road users via eye contact and social norms. In theory, the increased perceived risk of such a situation causes road users to slow down and be more aware and considerate of other road users. However, concerns have been raised that vulnerable pedestrians (particularly those with

visual impairments) are not able to negotiate such spaces safely, and may be forced to avoid them, thus reducing their mobility. In addition, Norgate (2012) notes that the introduction of shared space has not addressed factors relating to the degree of unfamiliarity of space, which are issues for tourists/visitors who are visually impaired. This is a repeated concern among other studies so, for example, that Hautekier (2016) notes that faced with a non-familiar environment, to move independently is a big challenge and requires a high level of skills. That's why, in this situation, to capitalize on known planning or predictable elements is essential.

What is evident in the literature about the shared space concept is the shift towards recognising a street as a destination. Karndacharuk, Wilson, Dunn, (2014) note that while the term 'place making' within a public space, including streets, is widely used in the fields of architecture and urban design, recognising and operating a street as a place is not a straightforward process. Kaparios et al (2012) in their study focusing particularly on UK experience including Exhibition Road in Kensington, London, state that it has been concluded that there is a clear gap in research into the design of the layout of shared space streets. Moody and Melia (2014) suggest that there is no agreed definition of 'shared space'.<sup>53</sup>

Edquist and Corben, (2012) also note that many concerns have been raised about the safety of shared spaces for vulnerable pedestrians. In particular, visually impaired pedestrians are not able to make eye contact with other road users, and if space negotiation in shared spaces is truly on this basis then these users are at an obvious disadvantage. Blind and visually impaired pedestrians use the kerb to navigate and determine where the 'safe' footpath is and where they are stepping into the space where vehicles may be present. Removal of kerbs (in level surface or 'shared surface' implementations of shared space) removes an important guidance tool and leaves these pedestrians unable to determine when they are in potential danger (Childs, Thomas, Sharp, & Tyler, 2010), as well as unable to respond to visual signals from other road users who may not realise they cannot be seen.

There is a 'believability gap' in that the evidence to support shared space does not necessarily convince its potential users that they will be safe and free from danger and harm, according to Imrie and Kumar (2011). They note that most local authorities they consulted were developing shared space schemes but not fully shared surfaces as features delineating pavements and roads are retained, though such delineations are not always able to be detected by people with sight loss. There is, they believed (2011), insufficient evidence to support some of the positive claims made for shared space projects, and some doubt about the relevance of accident statistics that claim to demonstrate their safety. It may be argued that shared space policy is one-dimensional insofar as it is focused on achieving technical design standards and does not address issues of behavioural change.

Thomas (2012) for Guide Dogs says that it is supportive of some of the ideas behind the 'shared space' concept, such as streets that are attractively designed and 'civilised', but it is very concerned by the creation of 'shared surfaces' for drivers, cyclists and pedestrians in the name of 'shared space'. Guide Dogs calls upon government to do the following.

- a. Demonstrate its commitment to social inclusion, and to meet its disability equality duty in regulations, guidance, planning policy and decisions which impact on the pedestrian environment.
- b. Ensure that professionals involved in the design, development and monitoring of streetscape and public space schemes take into account the requirements of disabled people.
- c. Ensure that all parties consult with disability organisations at all stages in the process of developing streets and public places.

In similar vein, Bates (2016) notes that all UK guidance documents issued by the DfT emphasise that streetscape layouts must be fully inclusive and accessible to everyone, in accordance with the Public Sector Equality Duty. However, the shared space theory

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53 As have others, including the CIHT. See Reference 21.



itself assumes that all pedestrians are fit and able to see where they are going, so the requirements of blind and vulnerable people who cannot share the roadway with vehicles is completely ignored. As a result, an increasing number of town centres are now being redeveloped in contravention of DfT guidance, even ignoring the sharing principles and the low traffic volumes and speeds expounded in the shared space theory which they purport to follow. Bates concludes that carriageways that are shared by both pedestrians and vehicles are of course welcome, so long as there are alternative safe routes for vulnerable pedestrians to use.

Interestingly, Jayakody et al (2018) state that the objective of inclusive design was identified as a measure to counter the main criticism of shared street streets, which is the difficulties encountered by older people and people with special needs. They report that even though the need was identified through the literature, a specific set of design factors could not be identified to achieve this objective due to the lack of literature covering this aspect in relation to shared space streets. Rather they identify key aspects from their own research.

Asadi-Shekari, et al (2019) have developed a Pedestrian Level of Service (PLOS) model to account for pedestrians with disabilities. Up until this work no PLOS models existed which took account of pedestrians with disabilities. Results show that the 'main facilities' have the highest association with inclusive pedestrian-friendly streets, followed by 'convenience facilities' and 'encouragement facilities'. Among the main facilities, a ramp has the highest association, followed by a curb ramp, sidewalk pavement, tactile pavement, driveway, width of sidewalk and bollard. Among convenience facilities, drinking fountains have the highest association, followed by rubbish bins, toilets and a lift. Among encouragement facilities, lighting has the highest association, followed by the landscape, trees and seating areas. The researchers PLOS model also shows that important encouragement facilities, such as lighting and seating areas, are inadequate on the street, while the main facilities and convenience facilities also need some improvement.

In some countries with little prior experience of shared space, but through learning from the evidence of those nations where shared space has been applied, there has been nervousness among visually impaired user group representative organisations. In Quebec, Canada, those representing the visually impaired, including the World Blind Union (based in Toronto), have been very reluctant to support the concept, especially when there is no clear demarcation between the sidewalk and the roadway (Gendron, 2018).

## Design and use aspects

Norgate (2012) points out that given that one hallmark of the shared space schemes is 'level' surfaces, it has been acknowledged that: "level surfaces, especially in busier settings, can create significant problems for blind and partially sighted people who often use kerbs to define comfort space and to navigate by. Where a level surface is desirable therefore, it may be necessary to implement mitigating measures" (DfT, 2011: p. 40). The Local Transport Note (DfT, 2011) described forms of appropriate demarcation with flexibility 'dependent on circumstance', citing as examples tactile paving, bollards or other street furniture. Linked with this challenge is the differing needs of different users.

Hautekier (2016), citing the Royal College of Art Helen Hamlyn Center and Atkin, (2010), says that for a person with a visual residue, the colour contrast is the best source of information. For someone using a white cane for detection, auditory and tactile information predominate. As for the owner of a Guide Dog, the only source of tactile information comes from foot-tracking and feeling of descent and ascent transmitted by the harness of the dog when level changes. Havik et al (2015) observed whether, in a real-life situation, if and how a Shared-Space design influences the mobility performance of Visually Impaired people. Independence was only affected for the blind participants and not for the participants with low vision. The results of the study therefore do not imply a serious accessibility threat for the latter group. Within the blind group, however, it appeared to be in particular those using a guide dog

who encountered most difficulties in the Shared-Space design: these were the participants showing the largest differences in independence Shared-Space locations and conventional locations. A limitation was the small number of guide dog users in the study (n = 5).

Edquist and Corben (2012) highlight that deaf and hearing impaired pedestrians may be similarly disadvantaged as visually impaired pedestrians in shared spaces as they are not able to hear cars coming up behind or beside them. Hearing impairments may be less visible than vision impairments, as hearing impaired pedestrians do not have obvious aids such as canes or guide dogs, so other road users are less likely to be aware of and compensate for these pedestrians' inability to hear.

Importantly, Gamache et al, (2019) notes that it was found in their Review that only a few of the articles considered more than one type of physical disability (motor, visual or hearing) (6 out of 40), meaning that most recommendations were made for individual impairments and not all users. Therefore, the recommendations found might in fact hinder some users by only being applicable/generalizable to one group. Few studies have addressed the same designs, determining how well they help, hinder or do not hinder (but do not help) persons with different impairments. The UCL researchers investigating minimum kerb height also added that, interestingly, it was generally true that delineators that worked for visually-impaired people were problematic for mobility-impaired people and vice versa (Childs et al, 2009).

### **General points**

Havik et al (2012) report some positive consequences of the implementation of Shared Space for the visually impaired. These include low speed limits, spaciousness, and good lines of sight that accommodate a good overview of the situation. This latter point implies that visually impaired pedestrians are visible for other road users. Moreover, a good line of sight can also be helpful for those individuals who have some remaining vision.

An interesting finding from research in Quebec, Canada, regarding shared space has been that the vast majority of experts and officials are willing to introduce the zones alongside inclusion in the Highway Safety Code of a 'caution principle', according to Bruneau, Morency (2014). This considers that all users must pay attention to other users, especially the most vulnerable ones. Experts also believed that pedestrians and bicyclists should have priority over motorized vehicles. They agreed that shared space zones could be introduced, but inside a pilot-project frame only, since there is comprehensive fear around the concept, especially for pedestrians who are visually impaired.

However, in CABE's overall assessment (2008), if principles of inclusive design are considered from the outset of a project, and written into the design brief, then shared spaces can work for all users, including visually impaired people. Good shared space, for instance, will use design clues that still help the visually impaired. And 'safe zones', which are demarcated areas located near building lines, can help visually impaired people navigate shared spaces without fear.

Similarly, Jayakody et al (2018) review criticisms of shared streets and suggest that to mitigate issues related to shared spaces, more emphasis on design solutions are required. They suggest that the question will then be, "is it possible to plan and design the Shared Space Streets with due consideration on all the groups of users including children, older people, disable people, cyclists, young people, and families etc., without excluding any category of the society?" As such, 'inclusive design' can be considered as one of the main contributory factor for designing a successful Shared Street Space.

Specific design aspects are now discussed in more details.

## Subjective (perceived) safety

Based on the subjective experiences of the visually impaired taking part in a field trial, Havik et al (2015) report that while the Shared-Space locations were evaluated more negatively than the conventional sites, the subjective safety was higher than expected. Although the conventional locations were rated higher than the Shared-Space locations, the safety comfort scores at both location types were at the high end of the scale,<sup>54</sup> indicating that participants did not feel very anxious or unsafe at any of the locations. Their findings thus do not confirm the Shared-Space-related safety concerns found in a 2010 Guide Dogs for the Blind study.

Kaparias et al. (2012) found that pedestrians feel most comfortable sharing space in conditions which ensure their presence is clear to other road users – that is, conditions involving low vehicular traffic, high pedestrian traffic, good lighting and provision of pedestrian-only facilities. It was found that young men were the most comfortable sharing space, whereas people with disabilities and older people were more negative. Kaparias et al. (2012) produced similar findings for speed and volume of traffic, both significantly reducing the willingness of all pedestrians to share space with vehicles.

Referring to the MVA Consultancy work for the Department for Transport, across all the MVA sites, reported in Moody and Melia (2014), negative associations among mobility impaired users were found with traffic volumes, (as well as kerbs and ‘colour contrast between carriageway and footway’). Across most of the sites, pedestrians gave way to vehicles more often than vice versa. Higher vehicle flows were associated with a lower propensity of drivers to give way, whereas higher pedestrian flows were associated with a higher propensity for vehicles to give way.

A study undertaken in Hereford, UK, used street accessibility audits followed by focus groups with three groups of pedestrians selected as especially vulnerable road users, including one comprised of blind or partially sighted participants, Hammond and Musselwhite (2013). Vulnerable pedestrians were no more likely to worry about safety on the street and findings from the focus groups with vulnerable groups suggested that in general people felt safety had improved in Widemarsh Street following the introduction of shared space. There was a feeling that vehicles still dominated the street, but in general people were not concerned by this, especially in terms of safety. Hence, there was a need to be aware of traffic, but people tended to feel traffic was far slower than before shared space was introduced.

Brown and Norgate (2019) report that evidence from five UK sites, testing shared space streets, suggested that blind and visually impaired participants’ independent mobility was compromised in shared space. At times participants felt unsafe, disoriented and shocked, which is entirely at odds with the original aspirational intention behind shared space streets.

Edquist and Corben (2012) further note that it is important that the space does not look like a typical street and invite rapid vehicular movement. Design options to avoid this include limiting the area of straight road and/or visibility ahead for vehicles, pavement designs that suggest movement along pedestrian desire lines rather than vehicle desire lines, and the use of surfaces that are uncomfortable for vehicle occupants when driven over at high speeds (although these surfaces must be acceptable to mobility- and vision impaired pedestrians).

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54 Judgements were given on a scale of 1 to 5, where 1 indicated that the characteristic can theoretically cause no hindrance, and 5 indicated that the characteristic can cause insurmountable hindrance to the orientation and the independent mobility of visually impaired persons and their feeling of safety when walking in the environment.

## Kerbs and levels

Kerbs, no kerbs, and kerb height are assessed by different review authors. Norgate cites research reported by Thomas (2011) arising from the pedestrian accessibility movement and environmental laboratory (PAMELA) in University College London, UK, which showed that when both bullnose and chamfer kerbs, with heights between 20 mm and up to 120 mm, were tested with 36 participants, no-one failed to detect kerbs higher than 60 mm (see Childs et al, 2009 below). However, US data finds that among older adult pedestrian injuries, nearly a quarter of pedestrians injured by a fall reported that a kerb was involved, and that adults aged over 80 years were more likely than those aged 65– 69 years to have a fall involving a kerb (Naumann et al., 2011) reported in Norgate (2012). Moreover, Parkin and Smithies (2012) cautioned that the UCL controlled environment of the laboratory conditions should be combined with complementary field data, which accounts for the many and varied additional stimuli and navigational aids which go to make up the tool kit of resources used for navigation.

Norgate (2012) also reports on a Guide Dogs set of recommendations where it is stated that in pedestrianised zones and open spaces, reference points should be provided to assist blind and partially sighted people. Often this is achieved through different types of 'delineation'. Three particular approaches to achieving delineation are physical delineation (e.g. kerb, unless at a crossing point when it needs to be dropped), surface differentiation (e.g. tactile guidance paths) or visual contrast (e.g. a band and/or changes of colour) at surface level. Edquist and Corben (2012) note that it is important that all surfaces used are suitable for mobility-impaired pedestrians, and that safe edge space and the vehicle carriageway are delineated by tactile surfaces easily perceived by the visually impaired.

From field experiments in The Netherlands it was noted by Havik et al, (2012) that kerb edges or clearly detectable alternative demarcation between motorized traffic and pedestrians are needed. It is important that in the absence of traditional kerbs, alternative structures are put in place that can be detected by visually impaired persons, with either the foot or the long cane. Ideally, the alternative demarcation will also be detectable by guide dogs.

There was concern, from older people, wheelchair users and blind and partially sighted people, about the kerbs in the shared space design (Hammond and Musslewhite, 2013). The layout in Widemarsh Street, in Hereford, has a kerb in place that is much smaller than is found in a traditional layout, which also varies in height along the street. Vulnerable pedestrians across all the focus groups disliked this. People cited stories where they themselves, or others they knew, had tripped and fallen as a result of the kerb. It was this kerb height issue (50mm high) more than anything else that made people wary of the street and in some cases even put people off using the street altogether. The kerb edge problem was further compounded by poor contrast in material colour. The issue of the elimination of the kerb in shared space has long been cited as a problem for blind and partially sighted pedestrians who use a long-cane or a guide dog for navigation. However, findings from this research suggest blind and partially sighted people concluded that a kerb was not necessary but that a tactile edge could be used instead.

At the tactile level, Houtekier (2018)<sup>55</sup> refers to detectability at the foot rather than using the cane. To do this, a difference in height of 5 mm allows good tactile detection while avoiding the risk of obstacles. Edquist and Corben (2012) note that it is important that all surfaces used are suitable for mobility-impaired pedestrians, and that safe edge space and the vehicle carriageway are delineated by tactile surfaces easily perceived by the visually impaired.

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55 A set of guidelines were developed from this work in Montreal in French (thus out of Scope). Contact has been made with agencies in Montreal and a summary version is expected to be available during Stage 2 of the project.

Safe edge space should be reserved for pedestrian usage by the use of kerbs with regular dropped crossing points or raised tables, or by the placement of street furniture, lighting, bollards, drainage channels, tactile delineators, trees and other vegetation say Edquist and Corben (2012). If the latter option is chosen, care must be taken that street furniture and other objects do not create an obstacle for pedestrians in wheelchairs and mobility scooters, and visually impaired pedestrians must be satisfied that they are able to detect the tactile delineators and safely navigate through the space.

In New Zealand three study areas that were transformed into shared spaces in the city centre of Auckland. Karndacharuk, Wilson, Dunn, 2013 reported that the design of the shared space considered the needs of the visually impaired, mobility impaired, and all other road users (including young and old) by placing a tactile delineator band 600 mm wide between the central shared zone and the marked accessible route (pedestrian- and mobility scooter-only zone). This accessible route on either side of the street was a minimum of 1.8 m wide. The two zones are demarcated by 600 mm-wide tactile delineator bands to warn the visually impaired about the possibility of moving vehicles. One conclusion was that shared spaces fundamentally creates a road environment in which there is enhanced priority for pedestrians (including the visually and mobility impaired) to safely move around and interact with the surrounding environment.

Sauer and Mastraglio (2017), drawing on US case studies and the literature, report that many case studies used kerbless design to update street geometry and meet the Americans with Disabilities Act (ADA) compliance. For example, levelling the street's surface may remove tripping hazards, which expands available travel paths for mobility-limited and vision-impaired users, as noted by a focus group of vulnerable road users who identified mobility benefits of improved navigation, better quality and more manoeuvrable paving treatment, and fewer areas for vehicles to obstruct pedestrian movement on kerbless streets.

Tyler (2017), discussing the planning and implementation for the shared space scheme in Exhibition Road, Kensington, London, notes that it was implemented with corduroy paving (which was one of the better performers in the PAMELA laboratory tests) used to distinguish between the part of the street where traffic was encouraged to pass and the rest of the street. Corduroy paving was both reasonably well detected by the visually-impaired group and reasonably possible to cross by the mobility-impaired group – but some members of each group failed the detection/mobility test, so it is not a fully successful solution.

Corduroy paving is one of the UK's standard tactile surfaces, but this application is not typical. Tyler notes that normally corduroy paving is set at the top and bottom of a stairway to alert visually-impaired people of the presence of the stairs. In Exhibition Road, it is laid along the whole length of the street, thus it can be approached at any angle.

## Colour and tone

There is also the issue of colour and tones, and which the DfT local transport note (DfT, 2011 ref 19), pointed out that tonal (colour) contrast enables partially sighted users to perceive boundaries such as the edge of the carriageway. However, this report also acknowledges that complicated surface patterns can lead to disorientation. Jenness and Singer (2008), reported by Norgate (2012), studied 50 adults (aged 24–92 years) with some remaining useful vision but with limited visual acuity or visual field, and showed that detectable warning colours contrasting with pavement colour by a minimum luminance contrast of 60% could be seen from a distance of 244 m by around 92% of pedestrians under daylight conditions. The recommendation was that on dark pavements (e.g. asphalt) lighter coloured detectable warnings with a high reflectance index needed to be used to offer 'light-on-dark' contrast as opposed to 'dark-on-light' contrast.

## Crossings

For crossing area, Rumboll Nyvig (2008) suggest that signal controlled crossings with audible signals are the preferred crossings for blind and partially sighted people. In a traditional street network where perhaps most street crossings are signal controlled, sufficient crossing opportunities may exist. But in a shared space environment it would also seem reasonable that blind and partially sighted people should be able to cross the street in places other than at junctions. Research in Leeds (UK) found that the experience of a number of visually impaired stakeholders and their advocates was that they felt that informal crossings were a good idea, yet expressed concern that in some cases they were being applied in areas where the vehicle flow was too high for them to function effectively Matthews, Hibberd, Speakman (2015). Regarding the informal 'crossing', in a field experiment in the UK, Brown and Norgate (2019) reported that participants expressed a need to identify a given point to cross through having access to distinctive markers or navigational cues. In this respect, under the current design the key feature of shared space was compromising the participant's independent mobility.

Houtekier (2018) says that crossings must be fully recognizable, for example using a direction mark: the beginning and the end of the zone are fully detectable with the cane or the foot, as well as the guidance line indicating the direction to take while replacing the border at the perpendicular of which the person with a visual disability is usually placed to make an online crossing. In addition, the crossing distance must be as short as possible (Houtekier (2018) citing Havik and Melis-Dankers, 2013).

Moody and Melia (2014) report on a case study which provided evidence from a high traffic volume shared space – Elwick Square zone, in Ashford. The ring road accommodates two-way vehicle movements and is subject to a 20 mph speed limit. There is very little sign of segregation between modes, with all users occupying a largely unmarked level surface with no vegetation or street furniture (apart from lamp standards) in the main part of the square. The square also accommodates traffic flows of approximately 11,000 movements per day and up to 850 movements per hour, presenting an opportunity to analyse the use of shared space in an area of high traffic flow.

Video recordings found that most pedestrians tended to use the informal 'courtesy crossings', lengthening their route and diverting their desire line away from the natural continuation of the carriageway at the centre of the square. In 72% of the conflicting movements, the pedestrian initially gave way to the vehicle. In 20% of instances the vehicle subsequently gave way, leaving 52% of conflicting movements where the pedestrian waited at the edge of a zone, until the traffic had moved on. Although most pedestrians treated the courtesy crossings like zebra crossings, most drivers did not treat them in this way, initially giving way in only 37% of conflicting movements with a pedestrian.

For those with non-visual impairments there were also concerns regarding crossings. This is addressed in that section (below).

## Entering and exiting shared space

Entering and exiting a shared space area needs some consideration. Havik et al (2012) note that the fact that an individual is entering an area where different rules apply for vehicular traffic and social interaction can be crucial to know. Even though visually impaired persons do not have to behave differently themselves, it can be helpful to know that they are no longer walking on a traditional kerb and that other people will (supposedly) pay more attention to them. Parkin and Smithies (2012) report that there is evidence supporting the views of Methorst et al. (Methorst, R., Gerlach, J., Boenke, D. & Leven, J. (2007) who suggest that the boundaries of the Shared Space should be clearly marked to drivers. No other studies addressed this aspect.

## Road casualties and speed

In terms of evidence for the efficacy of the shared space schemes, Norgate (2102) reports that whereas some studies have sought and found evidence for reductions in road casualties, others have focused on perceptions of users towards pedestrian comfort and driver willingness to reduce road speed.

Karndacharuk, Wilson, Dunn, (2014) reported on the Elliott Street shared space in New Zealand and vehicle speeds. This incorporates a safe zone for vulnerable users, a designated space for temporary trading activities and legal signs at the entry and exit points. Research revealed the importance of active land-use frontage, the number of pedestrians and the design that encourages pedestrian and vehicle interactions in the space. These factors contributed to the reduction in vehicular operating speeds, which were 16 and 21 km/h for the mean and 85th percentile speeds, respectively. Based on the design features and the vehicular speed outcomes, the scheme most similar to Elliott Street in New Zealand is New Road in Brighton in the UK. Both schemes achieved a similar result of reducing vehicular dominance in speed and volume as well as utilising the street space as a place. Moreover, perception surveys of the New Road scheme indicated an overwhelming support from the general public and businesses. It is noted below in the Engagement and Consultation section that the Brighton scheme was adapted after engagement with visually impaired users.

With regards to collision data, Edquist and Corben, (2012) found data for eighteen road spaces using Shared Space principles to a greater or lesser extent (mostly in the Netherlands or Britain). The limited data available so far suggests that crash rates are not consistently either higher or lower than comparable traditional environments. Many of the crash evaluations suffer from problems such as limited data collection times, the lack of a comparison site or control data to account for wider trends, failure to collect exposure data, and failure to collect injury data for collisions not involving vehicles (i.e. pedestrian-cyclist collisions, single-cyclist and pedestrian fall incidents). These limitations constrain the conclusions that can be drawn about the effects of Shared Spaces on safety.

Havik et al (2015) reported that in their study of locations in the Netherlands, although shared-space design does not necessarily require smooth pavement gradients, these are often implemented. Without detectable tactile demarcation between the pavement and the street, blind pedestrians unlike sighted pedestrians cannot make a voluntary decision to leave the pavement and walk on the street. The absence of detectable demarcation in many shared spaces can therefore lead to the highly undesirable situation of blind pedestrians walking in the middle of the street without knowing it and possibly without being able to react adequately to approaching vehicles. These situations occurred 28 times in the Shared-Space locations (vs eight times in the conventional locations), representing nearly 25% of all interventions. This number of potentially dangerous situations is considerable and represents a major concern for the accessibility of Shared Spaces. There was not sufficient data to be able to report on traffic casualties and mobility impaired people in comparison to the pre-shared space street.

Matthews, Hibberd, Speakman (2015) reported on a 2010 survey of 500 visually impaired people (TNS-BMRB, 2010).<sup>56</sup> In terms of accident rate, 7% of those who had used a shared surface area reported that they had been involved in an accident, with a further 42% experiencing a near-miss. Worryingly, 81% felt that their independent mobility would be negatively affected by the introduction of shared surfaces. In fact, this reflects a more general concern amongst their stakeholders that the relatively low number of reported incidents between visually impaired individuals perhaps disguises the underlying impact of such areas on the mobility of these individuals. Of the 61% of respondents who had experienced a shared surface environment, 44% reported actively seeking alternative routes to avoid a shared space area, with a further 18% being reluctant to use the area. This is also

56 TNS-BMRB, 2010. The impact of shared surface streets and shared use pedestrian/cycle paths on the mobility and independence of blind and partially sighted people. Report JN: 197369.

reported by Smithies (2015). By contrast, Sauer and Mastaglio (2017) note that of the US case studies they reviewed, none reported injury-related pedestrian crashes. Vehicle speeds posted for shared or kerbless streets were usually 15 to 20 mph in their case studies.

An interesting footnote to this issue comes from Karndacharak, Wilson, Dunn (2016) who explored the safety of shared space users in city centre streets in Auckland, New Zealand. They interviewed experts and reported that the responses included that:

“There will inevitably be an incident in a shared space, but (we) need to remember that such incidents happen in all streets. The (shared) spaces were not implemented for safety reasons, but were designed to be no less safe than a conventional street.”

Another expert touched upon a balancing act in designing a shared space from a road safety perspective as follows:

“Safety is most important but you cannot have a totally risk-averse mentality when designing these spaces – very important to differentiate the perception of a lack of safety with an actual lack of safety”.

### **Safe Areas within shared space**

Parkin and Smithies (2012) suggest that there should be safe areas within shared space which remain reserved for pedestrians. This is reported by Karndcharuk, Wilson, Dunn, (2014) as a call from visually impaired users to include a ‘safe space’ area free from sharing with vehicles, and also by Guide Dogs (Thomas 2008) and as noted by Norgate (2012) reporting on another report from Guide Dogs in 2011. Safe space is also a recommendation made by Smithies (2015).

Havik et al, (2012), from a Dutch perspective, with a quarter of all trips in The Netherlands being made by bicycle, ask: How to deal with cyclists in the pedestrian area? They report that in The Netherlands the introduction of ‘safe zones’, ‘safe spaces’ or ‘comfort spaces’ for pedestrians has also been recommended to avoid this potential problem. These ‘safe spaces’ are described as zones that are strictly reserved for pedestrians; although not delineated by a traditional kerb, they should be clearly detectable by visually impaired users. As the Rambol Nyvig report for Guide Dogs (2008) states, the inclusion of safe spaces would be considered the equivalent of the footway and would not prevent motorists, cyclists and pedestrians from sharing the larger part of the street.

### **Car parking space**

Designated parking places or a no-parking zone is raised in Dutch research in shared space areas by Havik et al, (2012). A clear parking policy with either carefully designated parking places or a no-parking zone should be part of the shared space design. Part of the case against car parking in shared space is that a clear view across the area by the sighted (including drivers and cycle users) and partially sighted can, however, be disturbed by parked cars. Edquist and Corben (2012) recommend that Disabled Parking should be available close enough (without defining this) to allow access to destinations within the shared space area for pedestrians with limited mobility.

### **Assessment tools for shared space**

In order to assist policy makers, designers and architects in developing accessible shared space areas, researchers Havik et al (2015) developed a shared-space Guide. This guide is freely accessible through the internet ([www.visio.org](http://www.visio.org) or <http://www.eccolo.nl/shared-space>). The researchers add that it provides practical information with respect to designing shared space areas that are also accessible by people with a visual impairment. Furthermore, it contains a checklist of important issues during the design process.



Almeida (2016) presents the development and piloting of SeGAPe (Seniors' Group Assessment of Pedestrian Environment), a participatory instrument to evaluate and rate the quality of streets for walking from the viewpoint of older adults in a Portuguese urban context. SeGAPe was developed following an extensive review of literature on walkability, and instruments and methods to conduct street audits.

The Community Street Review, commissioned by New Zealand governmental agencies and developed by transportation and health experts, was identified as a useful template "where a community street audit and a rating system are combined," creating an easy-to-use "nationally recognized standard for measuring walkability using peoples' perceptions". The Street Segment form comprises a total of 27 questions, and the Crossing form comprises a total of 23 questions. Together these covered overall categories of: Walkability, Efficiency, Obstacles, Safety from Traffic, Safety from Falling, Comfort and Effort, Orientation, Safety from Crime, Destinations and Pleasantness (Almeida, 2016).

Regarding usability, in terms of inclusive design, it should be noted, however, that as the pilot study did not involve participants with severe mobility or sensory limitations or significant frailty, SeGAPe's usability remains to be verified with more impaired participants.

Moura, Cambra, Goncalves (2017) present a participatory walkability assessment framework for distinct pedestrian groups, which was named IAAPE (Indicators of Accessibility and Attractiveness of Pedestrian Environments) and that aims to support urban planning and design for more walkable environments. Among the many output possibilities from the IAAPE tool, the researchers extracted those aiming to illustrate the usefulness of the assessment framework for the cases of senior [pedestrians](#) and persons with mobility [impairments](#), when compared to fitter adults. Cane use, wheelchair use, and baby buggy use were three impairments used.

The evaluation of individual key-concerns is aggregated into single walkability scores that are differently composed and weighed depending on the pedestrian group and trip motive. A main conclusion here is that improving in the pavement quality is important for Seniors, in order to improve the overall walkability in the area (although also important for impaired mobility pedestrians), whereas making the walking infrastructure more accessible is paramount for impaired mobility pedestrians.

## Autistic Spectrum Disorder

Cowan et al (2018) states that navigating a shared zone relies heavily on social interaction, particularly eye contact. Eye contact is also important in road crossing situations as it allows for the quick and efficient detection of hazards which is important to maintaining pedestrian safety. Given the environmental demands of shared zones, it could be assumed that the social difficulties associated with Autism Spectrum Disorder (ASD) could result in difficulty for individuals with ASD in communicating their intent and perceiving and interpreting the intent of other road users in shared zones.

Earl et al (2018) report that participants with cognitive impairment are failing to comprehensively process and assign importance to visual stimuli when in the shared zone. This study also found that individuals with Autistic Spectrum Disorder (ASD) had shorter fixation durations, in both locations, and on traffic relevant and non-traffic relevant objects. This could be due to atypical visual perception or [hypersensitivity](#) to environmental stimuli, which are both characteristics for individuals with ASD. These findings contribute to the paucity of research examining shared zones (streets), which has allowed for suitable recommendations and [environmental adaptations](#) to be suggested for current and future planning of shared zones.

Earl et al (2018) add that the current literature suggests that the core impairments of ASD, particularly in the area of social processing may lead those with ASD to experience difficulty in road crossing at uncontrolled crossing points such as a shared zone (street). An

individual with ASD may have difficulty or fail to prioritise the eye contact of other individuals. Furthermore, they may have difficulty following and interpreting the gaze of another person. For people with ASD, differences in patterns of eye contact in a shared zone may lead to missing or misinterpreting the gaze cues of other users, in particular drivers, or failing to accurately convey their own intentions when crossing traffic placing them at increased risk of collision.

### Engagement and Consultation

Norgate (2012) reported on a UK initiative, the 'Streets ahead' campaign by Guide Dogs UK. This advocated the need for inclusive principles to underpin the design of both new and existing streetscapes. In addition, this was to be achieved alongside moves to equip blind and partially sighted people with the tools to engage in communication with local authorities, engineers, architects and town planners, so as to ensure consultations are effective in taking their needs into account. Edquist and Corben (2012) noted that high levels of consultation with local stakeholders are vital, particularly with vulnerable groups. It is important that this consultation is an ongoing process throughout the design, construction and early operation phases of any implementation, not just a token community meeting once the design has already been created. Shared spaces are not just another traffic countermeasure; they are a new way of thinking about streets. Similarly, Imrie (2013) says that stakeholder engagement plays a pivotal role in the development of shared space. He notes that the Department for Transport (2011, p. 22)<sup>57</sup> says that schemes are more likely to be successful if engagement is inclusive, involving a wide cross-section of the community.

Previous survey reports by Thomas (2008) highlight the 'before and after' surveys of shared space in New Road, Brighton, UK, which aired concerns by blind and partially sighted users that shared space would reduce independence, be more difficult to navigate and negatively affect their confidence. As noted above, the local council was responsive to this feedback and subsequently engaged in initiatives that sought to introduce the concept of a 'safe space' in which there was spatial segregation of vehicles from pedestrians.

Through Imrie and Kumar's (2011) survey of local authorities in England there was little evidence of involvement of people with sight loss at strategic levels of policy making relating to the determination of the broad principles and the scope of shared space policy. Rather, people with sight loss become aware of shared space schemes at the later stages of the policy process and are usually drawn into consultation only prior to the implementation of programmes. The involvement of Guide Dogs in commenting on specific shared space policies appears to have been influential in changing aspects of design detail and outcomes. There was evidence of changes to details of shared space policy and practice as a result of consultation (note above New Road, Brighton). Such changes were, primarily, at operational rather than strategic levels, and related to small-scale, specific details of design. Moreover, Imrie and Kumar (2011) reported that there was little evidence of policy officers, councillors, or consultees disseminating the outcomes of consultation to people with sight loss throughout the local boroughs.

Parkin and Smithies (2012) report that visually impaired people use a rich catalogue of techniques for navigating and that these techniques need to be widely known and understood by designers. Such an understanding, coupled with creativity, will allow designers to construct spaces which are not only interesting to 'look at', but also rich in their offering of attributes which allow for easy navigation. This requires engagement.

Matthews, Hibberd, Speakman (2015) note that the misinterpretation by designers that the implementation of a shared space requires a shared surface. In particular the removal of kerbs results in the absence of a well-established and crucial means for visually impaired people to orient themselves and navigate, in addition to aiding in the identification of a crossing point (e.g. a dropped kerb). They state that there is a misunderstanding of

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57 DfT (2011). Shared space, local transport note, 1/11. London: DfT.

the capabilities of the visually impaired pedestrian within shared spaces. For example, stakeholders mentioned apparent assumptions that all visually impaired pedestrians had sufficient residual sight to identify that they were in a shared space area, can navigate without kerb delineation of the roadway, and are able to detect vehicle presence, vehicle movement, and their desired crossing start and end points. There was, according to mobility-impaired users, but notably from visually impaired users, an over-reliance on eye contact to manage pedestrian-vehicle interactions in shared space.

Tyler (2017) discussed proposed design for a scheme was to create a pleasant environment for people in the street by eliminating kerbs and vertical infrastructure and removing the overt separation between traffic and pedestrians. The issue brought to the attention of the local authority was that visually-impaired people would find it very difficult to have confidence in the safety of the street, as they would not know where the traffic would be. Researchers in the PAMELA facility were asked to test possible methods for differentiating zones where traffic might be and zones where traffic would not be present, where these methods did not involve a vertical obstruction to the vista of an open space (see Childs et al, 2009). Accordingly, 24 different designs of tactile paving were installed in the laboratory and tested by two groups of people: visually-impaired people and mobility-impaired people. The laboratory was set up with a set of delineators arranged so that participants could approach them at right angles or at an angle, and they were instructed to stop when they believed they had detected the change in surface.

In Quebec, Canada, the introduction of shared space brought about a collaborative research approach which played a key role in bringing together stakeholders from different backgrounds to address a clearly defined issue lacking in proven solutions (Gendron, 2018). In the end, this collaborative research exercise helped all participants gain new knowledge and a deeper understanding of three key aspects of the universal accessibility of shared streets: impacts on professional practices; existing sustainable mobility issues, including issues relating to the pedestrian dimension of shared streets; and impacts of design decisions on the mobility of persons with functional limitations.

In Auckland, New Zealand, in catering for the visually impaired, the shared space design team consulted with the Royal New Zealand Foundation of the Blind (Kardacharak, Wilson, Dunn, 2016). They were originally concerned about “loss of kerbs and straying onto the carriageway”. Extensive consultation on pavement materiality and design prototypes, especially the ‘accessibility zone’ with tactile delineators, led to the satisfaction of the disability user groups, the researchers report.

Beyond the remit of shared streets, Lowe et al (2015)<sup>+58</sup> address engagement and consultation with regards to the expansion of the Metrolink light rail system in 2008. Transport for Greater Manchester (TfGM) established a consultative group entitled the Disability Design Reference Group (DDRG) at the outset to support this major civil engineering project. This step was also a means of helping TfGM to comply with the requirements of the Equality Act (2010). TfGM established the DDRG, which comprises disabled people with a range of impairments, ethnic backgrounds and ages from across the Greater Manchester region. Lowe et al (2015) note that the DDRG enabled TfGM to discharge its legal and ethical duties by providing a means of influencing the next generation of inclusive design by anticipating and proposing practical solutions in relation to gaps in existing accessibility guidance and standards.

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58 In discussion with the project manager this study was included as it was assessed to have merit and added value for this Review despite being out of scope.

## Findings

There is an array of findings from the literature. At the general level there needs to be greater recognition of the needs of all users, including people with sight loss (Imrie and Kumar, 2011; Smithies, 2015). The views and feelings of vision-impaired people are not a significant part of the high level policy-making process (Imrie, 2013). There is a need for clear guidelines on how to prevent the identified issues from occurring in newly designed shared spaces and how to improve existing shared-space schemes (Havik et al, 2015; Audrey, Leonards, Damens, 2017). This is supported by Imrie and Kumar (2011) who say that more detailed guidance is required on the development and implementation of shared space.

The seeming lack of consistent standards provides designers with a blank canvas when creating shared-use areas, often meaning that the needs of vulnerable road users, including the blind and visually impaired, are forgotten among the aesthetic details. Shared spaces should not be a uniform material, but distinct safe areas and boundaries within the shared space should be present to create an environment that is easily identifiable and understandable to the blind and visually impaired. A consistent approach to designing for the blind and visually impaired should be introduced. This could be achieved by establishing national standards and specifications with appropriate enforcements Smithies, (2015).

Communication emerges as a challenge to designers and implementers. Communication should be improved e.g. between guide-dog trainers and highway authorities. Authorities should consult with blind and visually impaired organisations, seeking their opinions before the detailed design stage (Smithies, 2015). As such highway engineers should be provided with training opportunities to develop their skills in designing for vulnerable road users (Smithies, 2015).

More broadly, and a challenge, is an expectation of general enjoyment of greater pedestrian space for one group comes at the price of a limited expectation of these benefits for another group. This suggests that even within the broad category of those with impaired mobilities there is not only an accessibility issue, but also a challenge to the equity of the scheme – which would strike at one of the three pillars of sustainability. How would equity be delivered? (Tyler, 2017).

“The ‘evidence gaps’ need to be addressed, particularly in relation to personal safety issues” (Imrie and Kumar, 2011).

## Literature review conclusions

1. An overall issue is that shared space is contested with claims that disabled users are ignored (Thomas, 2008; Imrie and Kumar, 2011; Imrie, 2013). However, there are studies providing examples of how accessible design can be better achieved through greater efforts at consultation and engagement, especially with groups representing the physically, sensory, and mentally impaired users (Jayakody et al, 2018; Kardacharak, Wilson, Dunn, 2016; Gendron, 2018).
2. There is no agreed definition of ‘shared space’ (Imrie and Kumar, 2011; Moody and Melia, 2014) and this is reflected by an inconsistent approach to shared-space design (Smithies, 2015). This may have been the result of the extension of the shared space concept beyond implementation in low flow residential areas, to its use in busy urban areas and shopping streets and which has not been thought through (Matthews, Hibberd, Speakman, 2015)
3. Kaparios et al (2012) conclude that there is a clear gap in research into the design of the layout of shared space streets. There is a need for clear guidelines in newly designed shared spaces and how to improve existing shared-space schemes (Havik et al, 2015; Audrey, Leonards, Damens, 2017). More detailed guidance is required on the development and implementation of shared space (Imrie and Kumar, 2011).

4. There is a limited highly quality (robust) literature on inclusive design aspects from the perspective of those with mobility and or sensory impairments. In the literature it has been noted that quality scores of most of the articles were low. This might indicate limitations in the methods used and their lack of standardization (Gamache et al, 2019).
5. There is a paucity of research-based knowledge about the mobility situation of persons with cognitive functional limitations (Gamache et al, 2019), and this is reflected in previous broader transport research.
6. There is evidence that measures which may benefit some users such as visually impaired can disadvantage other users e.g. tactile blisters by disturbing the gait of older pedestrians near to crossings. The same is likely of other measures such as the risks that curbs can for some users be a trip hazard (Naumann et al., 2011 in Norgate, 2012). Only a few of the articles considered more than one type of physical disability (motor, visual or hearing) (6 out of 40), meaning that most recommendations were made for individual impairments and not all users (Gamache et al, 2019).
7. There is mixed evidence as to whether the introduction of shared use on high streets and busy streets had increased accidents but there are a significant number of studies reporting that mobility impaired users were avoiding these areas, noting that most reports were from the visually impaired e.g. Matthews, Hibberd, Speakman (2015), Tyler, (2017).
8. While the debate about kerb edges is still contested by some there appears to be a consensus that if not kerb edges than clearly detectable alternative demarcation between motorized traffic and pedestrians are needed (e.g. Havik et al, 2012; Hammond and Musselwhite, 2013).
9. Highway engineers should be provided with training opportunities to develop their skills in designing for vulnerable road users (Smithies, 2015).
10. Highway authorities should consult with a range of mobility impaired organisations, seeking their opinions before the detailed design stage of any proposed shared use scheme is taken forward (Smithies, 2015). It is important, therefore, that this consultation is an ongoing process throughout the design, construction and early operation phases of any implementation (Edquist and Corben, 2012).
11. 'Safe space' areas that are strictly reserved for pedestrians appears to be a well-supported compromise as a design solution and an example of a feature which gives mobility impaired users confidence to engage and move through the shared space Rombol Nyvig, 2008; Havik et al, 2012; Norgate, 2012; Parkin and Smithies, 2012; Karndacharuk, Wilson, Dunn, 2014).

## Limitations

One limiting factor in this Literature Review is that the five search engines selected and agreed produced a limited find in terms of included studies and this raises the question as to the value of investing in a more exhaustive search. A more exhaustive search might also involve expanding the inclusion criteria as well as search terms. Secondly, despite expanding on the search terms significantly, no search strategy is likely to find all studies and especially given the time resource allocated. However, it should be noted that after additional search terms were included the new searches themselves found very few new studies but did largely find again studies already captured using the smaller original list of search terms. This give some confidence that the searches were reasonably effective in locating studies.

In addition, there is a real issue of external validity to consider, i.e. the extent to which the results of a study can be generalized to and across other situations, people, stimuli, and times. This includes evidence from other countries and cultures where, for example, mores and norms of behaviour are different. A question which then arises is: to what extent can

'successful interventions' from such locations be imported to a UK environment and culture? (i.e. external validity). Lastly, focusing only on studies reporting in the English language is clearly another limitation albeit that the risks associated with external validity may be consequently reduced.

## Annex A - Included studies – summary points

No.	Authors and year	Summary points	Location
	Reviews		
1	CABE, 2008.	If principles of inclusive design are considered from the outset of a project, and written into the design brief, then shared spaces can work for all users, including visually impaired people. Good shared space, for instance, will use design clues that still help the visually impaired. And ‘safe zones’, which are demarcated areas located near building lines, can help visually impaired people navigate shared spaces without fear.	<b>UK</b>
2	Edquist, J., Corben, B. 2012.	The project aimed to review collision data from existing Shared Space implementations around the world. Where possible, information was also gathered on other important factors such as perceived safety, accessibility and amenity for pedestrians, cyclists and vehicles. Collision data was available for eighteen road spaces using Shared Space principles to a greater or lesser extent (mostly in the Netherlands or Britain). The limited data available so far suggest that crash rates are not consistently either higher or lower than comparable traditional environments.	<b>Europe</b>
3	Norgate, S. 2012.	Overall, it is apparent from the content of three key sources (DfT, 2011; Guide Dogs UK, 2012; WHO, 2007) that their statements are not entirely aligned. In particular, the Guide Dogs UK ‘Streets ahead’ campaign has pulled the pedestrian into the foreground and has devised a number of principles and interventions which can promote the safe and independent mobility of blind and partially sighted pedestrians.	<b>UK</b>
4	Karndacharuk, A., Wilson, D. J., Dunn, R. 2014.	This comparative review highlights the importance of achieving a low-speed environment via design with a provision of safe zones for the visually impaired, space reallocation for pedestrians and street furniture for the ‘staying’ activity to enable a shared street to perform multi-functions, especially to create a sense of place.	<b>New Zealand</b>

No.	Authors and year	Summary points	Location
5	Houtekier, C. 2016.	<p>The review aims to answer three questions: 1) How are the streets be a barrier to travel people with visual impairment? 2) From the point of view of the person with a visual impairment, what skills in orientation and mobility are identified in the writings as compromised or transformed into a shared street? 3) Are there solutions of replacement to respond to the loss of benchmarks and accessibility what can these changes represent?</p> <p>The assertions from the literature are intended to supply answers in a way that categorises on the one hand, issues related to orientation and mobility and development and, on the other hand, the possible solutions according to components of a shared street and the concerns of planning and safety specialists in universal accessibility.</p>	<b>Canada</b>
6	Asadi-Shekari, Z., et al 2019.	<p>The researchers' study sought to develop innovative Pedestrian Level of Service models, which explain and evaluate inclusive streets for walking, focusing on universal micro-level design factors for a wide range of street users, in particular disabled people, while considering pedestrian perceptions of their environment.</p>	<b>Malaysia</b>
7	Gamache, S. et al, 2019.	<p>In this Review, 41 articles were reviewed. The scope of the pedestrian infrastructures discussed in the articles was large. It was found that only a few of the articles considered more than one type of physical disability (motor, visual or hearing) (6), meaning that most recommendations were made for individual impairments and not all users. Therefore, the recommendations found might in fact hinder some users by only being applicable/ generalizable to one group. Additionally, individuals with intellectual, psychological and cognitive impairments should also be considered in future research for a more global approach of public health.</p> <p>Finally, the quality scores of most of the articles were low. This might indicate limitations in the methods used and their lack of standardization.</p>	<b>Canada</b>



No.	Authors and year	Summary points	Location
	<b>Single studies: Design and use</b>		
8	Ramboll Nyvig for Guide Dogs for the Blind, 2008.	<p>Drawing on international experience including from Denmark the project identified four potential design approaches to be tested:</p> <p>The kerb is reintroduced in the street design in a form that is compatible with the shared space concept.</p> <p>Instead of a kerb, a textured area is introduced between the shared space and the safe space.</p> <p>A route indicated by tactile paving – the guidance path surface – is provided.</p> <p>Instead of a division between the 2 “spaces”, other measures are applied to guide blind and visually impaired pedestrians - e.g. a central delineator.</p> <p>In addition, attention is given to the need for signed or non-signalled crossings in shared space areas.</p>	<b>UK</b>
9	Hamilton Baillie, 2008	<p>Draws on case studies e.g. Norrköping, Sweden, there remains unease and concern amongst some older citizens and amongst the blind and partially-sighted. Whatever its shortcomings, as an example of shared space Skvallertorget in Norrköping demonstrates that traffic signals, road markings, kerbs, crossings and barriers are not essential elements that have to be tolerated as an unfortunate necessity for the maintenance of safety and efficiency of movement. A distinctive, coherent and integrated piece of public space can successfully serve the needs of passing traffic without such disruptive, expensive and disfiguring components.</p> <p>Shared space is an approach that is still in its infancy, and there remain many barriers to overcome, observations to be made, evaluations to be conducted and experience to be gained. Questions remain as to what extent shared space can help resolve busier streets and intersections. Creativity and development is required to improve perceptions of safety and navigational aids for the visually impaired. The relationship between visual clues (such as apparent road widths, signs, kerbs and road markings) and driver behaviour remains little understood.</p>	<b>UK</b>

No.	Authors and year	Summary points	Location
10	Thomas, C. 2008.	<p>Guide Dogs believes that ‘shared surfaces’, without clearly identified pedestrian footways and controlled crossings, pose a threat to all vulnerable road users, including those with physical, sensory or cognitive impairments.</p> <p>The statement calls upon government to do the following.</p> <p>Demonstrate its commitment to social inclusion, and to meet its disability equality duty in regulations, guidance, planning policy and decisions which impact on the pedestrian environment.</p> <p>Ensure that professionals involved in the design, development and monitoring of streetscape and public space schemes take into account the requirements of disabled people.</p> <p>Ensure that all parties consult with disability organisations at all stages in the process of developing streets and public places.</p>	<b>UK</b>
11	Childs, C., et al 2009.	<p>Since some local authorities want to reduce the kerb height from the traditional 120mm and 30mm is too low, Guide Dogs asked UCL’s Accessibility Research Group to run tests to determine what kerb height could be reliably detected by blind and partially sighted people. The experiments took place in May and June 2009 at the University College London’s Pedestrian Accessibility Movement and Environment Laboratory (PAMELA).</p> <p>For confidence that a kerb is detectable by blind and partially sighted people, it is recommended to install a kerb of 60mm or greater.</p>	<b>UK</b>
12	Right of Way and Road Safety: Inclusive Mobility, 2010.	<p>Research demonstrates the access needs of pedestrians with disabilities and highlights the efficacy of pedestrian safety audits to implement necessary improvements. The study proposes amendments/ additions to the existing standards and guidelines of regulatory authorities.</p>	<b>India</b>

No.	Authors and year	Summary points	Location
13	Havik, E., Melis-Dankers, B., Steyvers, F., Kooijman, A. 2012.	<p>An aim of the inventory was to assess the consequences that a Shared-Space street layout can have for the accessibility for visually impaired persons. Assessment of compatibility with the accessibility guidelines showed that none of the locations met all of the selected accessibility guidelines relevant for visually impaired persons.</p> <p>Guidelines that were violated at nearly all locations included a clearly marked and obstacle-free walking route, sufficient route guidance, and tactile warnings. Moreover, the expert group judged the level of hindrance the registered characteristics could cause to the orientation and independent mobility of visually impaired persons and their feeling of safety when walking in the environment. Based on these judgements, and on the observed frequency of the characteristics, the authors were able to identify several accessibility problems for visually impaired persons that can result from the implementation of a Shared-Space design as found in the Netherlands.</p>	<b>Netherlands</b>
14	Parkin, J., Smithies, N. 2012.	Blind and visually impaired people use many tactile and sensory clues to help them locate themselves and navigate; the value of tactile paving will depend on the extent to which it adds value relative to the other navigation clues used by blind and partially sighted people.	<b>UK</b>
15	Kaparias, I. et al 2012.	It has been discovered that a certain discomfort towards shared space exists amongst the elderly and disabled road users, as these seem to feel an increased threat from vehicles in such environments.	<b>UK</b>
16	Karndacharuk, A., Wilson, D., Dunn, R. 2013.	A pedestrian performance analysis of three study areas that were transformed into shared spaces in the city centre of Auckland was presented. The design of the shared space considered the needs of the visually impaired, mobility impaired, and all other road users (including young and old) by placing a tactile delineator band 600 mm wide between the central shared zone and the marked accessible route (pedestrian- and scooter-only zone). This accessible route on either side of the street was a minimum of 1.8 m wide. The two zones are demarcated by 600 mm-wide tactile delineator bands to warn the visually impaired about the possibility of moving vehicles.	<b>New Zealand</b>

No.	Authors and year	Summary points	Location
17	Bruneau, J., Morency, C. 2014.	Experts believed that pedestrians and bicyclists should have priority over motorized vehicles. They agreed that Zones could be introduced, but inside a pilot-project frame only, since there is comprehensive fear around the concept, especially for pedestrians visually impaired.	<b>Canada</b>
18	Moody, S., Melia, S. 2014.	For highway engineers and transport planners who need to take decisions on shared space, it would seem that reducing both the speed and volume of traffic is key to achieving pedestrian benefits.	<b>UK</b>
19	Havik, E. et al, 2015.	Within the blind group it appeared to be in particular those using a guide dog who encountered most difficulties in the Shared-Space design; these were the participants showing the largest differences in independence (percentage of routes without interventions) between Shared-Space locations and conventional locations.	<b>Netherlands</b>
20	Matthews, B., Hibberd, D., Speakman, K. 2015.	Whilst there appears to be a reasonable degree of consensus regarding the aims of shared space, the ways in which it is implemented and the implications for visually impaired people, and other vulnerable road users, clearly need to be revisited. Perhaps a more collaborative approach, fostering user-led, co-designed accessible streetscapes offers the best hope of moving toward resolving these conflicts and, in doing so, speeding up the transition to street accessibility for all.	<b>UK</b>
21	Smithies, N. 2015.	The author noted that the lack of consistent standards provides designers with a blank canvas when creating shared-use areas, often meaning that the needs of vulnerable road users, including the blind and visually impaired, are forgotten among the aesthetic details.	<b>UK</b>
22	Almeida, M. 2016.	The Seniors' Group Assessment of Pedestrian Environment tool aims to be a practical, systematic method to assist in conducting a structured assessment of walkability conditions and improvement opportunities, acknowledging older citizens' experience and directly engaging them in the planning process of age-friendly urban public spaces. Limited testing with impaired users.	<b>New Zealand</b>

No.	Authors and year	Summary points	Location
23	Bates, D. 2016.	There is often no attempt to discriminate between people who are totally blind and those who have some degree of usable sight. Official guidance given to UK streetscape designers by the Department for Transport emphasises the value of colour contrast to help visually impaired people, and this general emphasis may have helped to create the occasional but mistaken impression that blindness is synonymous with visual impairment.	<b>UK</b>
24	Earl, R. et al. 2016.	Shared zones are claimed to increase driver awareness and safety and reduce congestion, but the implications on participation and safety for those with visual and cognitive impairments is yet to be extensively explored.	<b>Australia</b>
25	Moura, F., Cambra, P., Goncalves, A. 2017.	Among the many output possibilities from the IAAPE tool, the researchers extracted those aiming to illustrate the usefulness of the assessment framework for the cases of senior <a href="#">pedestrians</a> and persons with mobility <a href="#">impairments</a> , when compared to fitter adults. Cane use, wheelchair use, and baby buggy use were three impairments used.	<b>Portugal</b>
26	Sauer, C., Mastaglio, B. 2017.	Many case studies used curbless design to update street geometry and meet the Americans with Disabilities Act (ADA) compliance. For example, levelling the street's surface may remove tripping hazards, which expands available travel paths for mobility-limited and vision-impaired users, as noted by a focus group of vulnerable road users who identified mobility benefits of improved navigation, better quality and more manoeuvrable paving treatment, and fewer areas for vehicles to obstruct pedestrian movement on curbless streets.	<b>US</b>

No.	Authors and year	Summary points	Location
27	Tyler, N. 2017.	<p>This paper discusses the potential conflicts that can arise when trying to design a transport system to be sustainable, safe and accessible. The paper considers first the overarching vision that drives such an aim and how that determines choices for design and implementation of such schemes. Using the example of a shared space project, Exhibition Road in London, to illustrate how these issues come to arise and how research could help to resolve them, the paper then considers how science is able to support better design and implementation,</p> <p>In accessibility terms, accessibility has been achieved for most of the population, both pedestrians and vehicle occupants. However, whether it has worked well for people with mobility problems is much more in doubt and further research is needed to establish who is – and, importantly, who is not – using the space. That this involves researching people who do not do something, rather than counting those who do.</p>	<b>UK</b>
28	Jayakody, R., Keraminiyage, K., Alston, M., Dias, N. 2018.	<p>The shared space concept has been criticised for its practical issues when implemented in some parts of the world. Such issues include difficulties faced by aged people and people with disabilities, harassments faced by the cyclists, etc. This paper explores the methods and approaches that can be used to harness potential advantages of the concept and to overcome its practical issues and criticisms through a detail evaluation of design driven use of space in three case studies within United Kingdom.</p>	<b>UK</b>
29	Gendron, P. 2018.	<p>In an effort to better respond to the needs of all users as the city moves toward improved sustainable mobility for all, the City of Montreal Transportation Branch teamed up with the Nazareth and Louis-Braille Institute's Interdisciplinary Rehabilitation Research Centre (CRIR-INLB) to develop and implement a collaborative research process bringing together engineers, urban designers, rehabilitation experts and mobility impaired persons to identify the universal accessibility parameters to guide the development of new shared streets and the reconfiguration of existing spaces as shared streets.</p>	<b>Canada</b>

No.	Authors and year	Summary points	Location
30	Brown, K., Norgate, S. 2019.	Overall, evidence suggested that participants' independent mobility was compromised in this safe space. At times participants felt unsafe, disoriented and shocked, which is entirely at odds with the original aspirational intention behind safe spaces. Informal crossings were perceived as a particular challenge, where the safe space design is specifically built around the principles of visually mediated negotiations, which directly impacts individuals who have lost sight. The perceived lack of demarcation between the 'traditional' carriage and any safe spaces was also a concern.	<b>UK</b>
	<b>Autistic Spectrum Disorder</b>		
31	Cowan, G. et al, 2018.	Theory of mind is defined as having the ability to attribute mental states not only to oneself, but to other people. It allows for an individual to anticipate what others will do in a given situation. Requirements for problem-solving include <a href="#">orientation</a> , attention, <a href="#">memory</a> , perception, and higher-level cognitive function. A deficit in one or more of these areas may have significant impact on an individual's ability to safely and confidently participate in a shared zone, and by extension, their community.	<b>Australia</b>
32	Earl, R. et al, 2018.	Eye contact may play a role within a shared zone in allowing pedestrians and drivers to communicate their intent to one another, in order to avoid collision and maintain safety, particularly of pedestrians. In individuals with autism spectrum disorder (ASD), gaze processing may be impaired at one or more levels. An individual with ASD may have difficulty or fail to prioritise the eye contact of other individuals. Furthermore, they may have difficulty following and interpreting the gaze of another person.	<b>Australia</b>
	<b>Engagement and consultation</b>		
33	Imrie, R. Kumar, M. 2011.	Most local authorities consulted are developing shared space schemes but not fully shared surfaces as features delineating pavements and roads are retained, though such delineations are not always able to be detected by people with sight loss. There is, at present, insufficient evidence to support some of the positive claims made for shared space projects, and some doubt about the relevance of accident statistics that claim to demonstrate their safety.	<b>UK</b>

No.	Authors and year	Summary points	Location
34	Imrie, R. 2013.	Drawing on a study of English local authorities, the author contests that data indicate that while the problems posed by shared space are acknowledged by some policy officers with responsibility for the (re)design of street spaces, the views and feelings of vision-impaired people are not a significant part of the policy-making process.	<b>UK</b>
35	Hammond, V., Musselwhite, C. 2013.	The kerb height issue (50mm high) more than anything else made people wary of the street and in some cases even put people off using the street altogether. The kerb edge problem was further compounded by poor contrast in material colour. The issue of the elimination of the kerb in shared space has long been cited as a problem for blind and partially sighted pedestrians who use a long-cane or a guide dog for navigation. However, findings from this research suggest blind and partially sighted people concluded that a kerb was not necessary but that a tactile edge could be used instead. Hence, it is not shared space per se that might stop vulnerable pedestrians, including blind and partially sighted people, from using the space, reducing their independence, but nuances of design which can be changed as appropriate.	<b>UK</b>



No.	Authors and year	Summary points	Location
36	Karndacharuk, A., Wilson, D., Dunn, R. 2016.	<p>This paper presents the findings of a qualitative analysis using on-street perception and expert interview surveys of city centre streets that have been transformed into shared spaces in Auckland, New Zealand. The principal purpose was to investigate how well the shared streets performed, especially in relation to movement, access and place functions. Place-making; pedestrian focus; changing vehicle behaviour; economic impetus; and safety for all road users were key the five shared space objectives. In terms of shared spaces, these should provide a safer environment for all users, including the elderly, the disabled and children. The performance indicators include crash history, injury severity and costs, user demography and number of user conflict.</p> <p>In general accordance with what was suggested in a report prepared for the UK Department for Transport, the performance criteria (variables) based on five shared space objectives.</p> <p>The performance criteria of ‘Pedestrian’ and ‘Safety’ have a commanding influence over the other performance measures and eventually the perceived success of an urban shared space. The ‘Safety’ objective was consistently perceived to be the most important performance criterion across the three shared spaces and the control site based on the questionnaire surveys of the 400 on-street participants as well as the results from the expert interviews. Given that the quantitative research also demonstrated the strong association between the ‘Safety’ objective and the ‘Pedestrian’ and ‘Vehicle’ performance criteria, it is therefore reasonable to conclude that these three themes of performance attributes are required to be integrated into the street design, operation and maintenance process for successful shared space implementation.</p>	<b>New Zealand</b>
37	Audrey, S., Leonards, U, Damens, D. 2017.	<p>Walking and cycling in urban areas require appropriate infrastructure. Where shared use is a design solution, it should be considered from the perspective of a variety of users. Space, speed, surfaces and signage can all contribute to conflict between users. Clear guidance relating to behaviour on shared use routes is required and should be promoted.</p>	<b>UK</b>

No.	Authors and year	Summary points	Location
38	Lowe et al, 2015.	<p>The paper details the approach taken to establish the Disability Design Reference Group (DDRG) in order to support meaningful and appropriate consultation, using the life experience and technical knowledge of disabled people to inform the development of Metrolink infrastructure. The paper addresses design challenges through site visits and the structure, governance, and processes of the DDRG. Clear processes and protocols evolved to ensure that consultation activities result in maximum accessibility benefits for Metrolink users.</p>	UK

## Annex A2 - Included studies

### Reviews

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# Appendix B

Perspectives of disabled street users on inclusive engagement



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## Appendices

Appendix B.1

Focus Group Guide

## 15. Introduction

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15.1.1. This Appendix to the main research report entitled “Inclusive Design in Town Centres and Busy Street Areas” summarises the following:

- The engagement methodology used to undertake Stage 2 of the study consultation with disabled street users through a series of focus groups to discuss inclusive engagement approaches and public realm features that enable and disable them.
- The perspectives of disabled street users in relation to inclusive engagement.



## 16. Methodology for consulting with disabled street users

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### 16.1 Overview and research approach

#### Approach

- 16.1.1. A focus group approach was adopted for undertaking the consultation with disabled street users. It was considered that this would allow the greatest opportunity to engage with a wide range of individuals and discuss inclusive design experiences and views face-to-face and in-depth. A survey or alternative quantitative approach would have been less effective at exploring the themes at the detailed level. It would also not have allowed for the same level of in-depth probing or follow-up explanations to be given by participants that the focus group format allowed.
- 16.1.2. It was determined that convening focus groups would potentially allow for engagement with a greater number of individuals within the research timeframe, compared to a one-to-one interview approach. It also allowed individuals with similar or shared street user experiences to discuss the themes together and compare / contrast their experiences.

#### Recruitment of participants

- 16.1.3. Recruitment took place throughout December 2019 and January 2020, primarily via email invitations to working group members and third sector organisations, who were invited to share information about the research with adults living with physical, sensory or other disabilities.
- 16.1.4. All participation was on a self-selection, opt-in basis, and all participants were asked to specify any communication or other support needs that would assist them in taking part. Copies of the research questions were issued to participants in advance in standard format and alternative formats of research materials were made available on the day of focus groups (including copies of the questions in Braille and large print formats). All sessions were recorded using digital voice recordings with the permission of those present.
- 16.1.5. A total of seven focus groups were convened:
- One group with individuals with a hearing impairment: Three participants took part, including one British Sign Language (BSL) user, one with a partial hearing impairment (using a hearing aid and assisted by an e-notetaker) and one representative from the Mobility and Access Committee for Scotland (MACS) with experience of engaging with those living with hearing impairments.
  - Two groups with blind and visually impaired individuals: A total of 10 participants took part across the two groups, with impairments including full visual impairment, partial sight loss (both peripheral and central) and ongoing progressive sight loss. Five guide dog users took part and attended sessions with their dogs;
  - One group with deafblind individuals: Two adults attended, including one deaf guide dog owner using hearing aids and lip reading, and one older individual with progressive hearing and visual impairments.
  - Two groups with individuals with reduced mobility: A total of eight participants took part, including one participant in an electric wheelchair, four long cane and crutch users, and three adult users of manual wheelchairs.

- One group with learning disabilities and those with non-visible disabilities: This included three adults with learning and physical disabilities, one older adult and three representatives of organisations that work with adults with dementia and other learning difficulties.

16.1.6. Although specific age data was not requested during recruitment, there was a reasonable mix in age of participants, (25y - 65y). The table below shows the total number of participants, by gender, across all groups:

	<b>Group</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Group 1	Hearing Impairment Group	2	1	3
Group 2	Visually Impaired	3	4	7
Group 3	Blind and Visually Impaired	3	-	3
Group 4	Deafblind	1	1	2
Group 5	Reduced Mobility / Blind and Visually Impaired	3	1	4
Group 6	Reduced Mobility	3	1	4
Group 7	Learning Disabilities / Non-Visible Disabilities	5	2	7
Total		20	10	30

16.1.7. In addition, four separate communication professionals<sup>59</sup> attended across different sessions, as well as one personal support assistant, and each contributed to the discussion to varying degrees. This included sharing their experiences of accompanying or working with adults with a range of disabilities in previous engagement activities, as well as more general observations of street design features that are enabling / disabling for assistants, when working with their clients. This offered valuable additional insight.

16.1.8. Many of those who attended focus group sessions also provided contact details for onward follow-up discussion of some of the more personal or nuanced issues (mainly around physical design measures) that they raised in group sessions (i.e. to allow group sessions to remain focussed and allow all those present to contribute, without conversations becoming side-tracked, yet still capturing unique individual experiences in the research).

16.1.9. All sessions were held at neutral and fully accessible venues with support put in place to enable maximum attendance. This included provisions for personal assistants, communication professionals to aid facilitation of discussions, booking of taxis to allow for independent travel and reimbursement of travel and other reasonable expenses, including lunch and refreshment provision. Participants received a £10 voucher in appreciation of their time and input<sup>60</sup>.

59 Two separate BSL interpreters in two separate sessions and two independent e-notetakers in two separate sessions

60 In four cases, participants opted for a charitable donation of the same value to be made to a nominated support organisation, instead of accepting a gift voucher directly.

## 16.2 Research caveats

- 16.2.1. It is important to stress that the groups were not mutually exclusive. For example, one participant who chose to attend a session for those with visual impairments was deafblind and could have equally selected to take part in an alternative session. Similarly, one individual who took part in the group for those with reduced mobility was also deafblind but opted to join that group for ease of access. Indeed, a flexible approach was adopted to meet the individual preferences of all those who contributed, allowing them to join the session which they preferred.
- 16.2.2. While the numbers of participants may appear small, it is worth stressing that this part of the overall research project was qualitative in nature, the focus being on capturing breadth and depth of experience, rather than capturing large volumes of similar data. While increasing the overall numbers of participants may have introduced slightly more reliability and perhaps more nuanced or subtle variation to the main findings, it became clear towards the end of the fieldwork that a saturation point had been reached with regard to the main themes around inclusive engagement in particular.
- 16.2.3. As a qualitative exercise, it was also not appropriate to attempt to quantify the feedback, for example, by counting the number of times that different views were expressed across the groups or by stating the proportion of participants who did or did not agree with each of the different sentiments expressed. Instead, in reporting, it is the themes that arose most often which have been given the greatest weight and, where opposing or minority views were expressed, this is indicated in the text.
- 16.2.4. It should also be noted that while a broad range in views was sought, the researchers did not attempt to recruit a statistically representative sample. This would not have been appropriate for a qualitative exercise of this kind, nor would it have been possible since the demographic profile of the total eligible population for participation was not known (including the age profile). While there was some small differentiation in views expressed by some of the older and younger participants who attended sessions and between gender groups, this variation was negligible and did not impact directly on the main findings.
- 16.2.5. Finally, it is important to stress that, throughout the sessions, participants were asked to consider 'public realm projects', i.e. the design of public spaces, such as streets in urban areas. While this was the focus for sessions, there was some (perhaps inevitable) discussion of more rural and suburban street designs and experiences, reflecting the different areas of the country in which participants were resident (many living in rural and suburban areas out-with the Central Belt). Given the small volume of data that was generated in this regard, however it has been presented alongside the main findings, rather than being reported separately.

## 17. The perspectives of disabled street users in relation to inclusive engagement

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### 17.1 Introduction

- 17.1.1. The first part of the focus group sessions concentrated on inclusive engagement within the context of street design, i.e. engagement which proactively and appropriately takes on board the full range and diversity of views that may be represented in communities and puts in place information and support to facilitate this.
- 17.1.2. All focus groups followed the same topic guide which was designed to guide discussions rather than structure them and additional topics were often raised naturally in the course of sessions, which were unprompted. The topic guide is presented in Appendix B.1.
- 17.1.3. The structure of this chapter follows the main themes covered by the topic guides, which were:
- Participants' previous participation in street design and reflections on their experience in previous engagement activities.
  - Views on the most appropriate ways of inviting individuals to contribute to street design development / engagement activities.
  - Views on what works in inclusive engagement (and what does not).
  - How to make street designs more accessible / easier to understand.
  - How to record individuals' contributions to engagement activities.
  - Information and support that would assist people in getting involved in the design of public spaces.
- 17.1.4. The main findings (noted as 'key messages' received from the users) in relation to each theme are presented below and include participants' suggestions for 'good practice' (either current or potential) which could be used to inform the development of guidelines on inclusive engagement for street design in the future.

### 17.2 Existing engagement guidance

- 17.2.1. Comprehensive existing guidance on engagement exists. Examples include:
- National Standard for Community Engagement (2016)<sup>61</sup>.
  - UK Government Community engagement: guidance for local authorities (2019)<sup>62</sup>.
  - Engaging with disabled people: An event planning guide, EHRC (2018)<sup>63</sup>.
  - Scottish Government, Shaping better places together: Research into the facilitation of participatory placemaking (2017)<sup>64</sup>.
- 17.2.2. Whilst the focus of this document is to reflect upon the user experience as reflected through the focus groups, the findings and draft recommendations were drawn up reflecting consideration of the existing guidance.

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61 [https://static1.squarespace.com/static/5943c23a440243c1fa28585f/t/5c000b516d2a737f69d510e7/1543506813945/NSfCE+online\\_October.pdf](https://static1.squarespace.com/static/5943c23a440243c1fa28585f/t/5c000b516d2a737f69d510e7/1543506813945/NSfCE+online_October.pdf)

62 <https://www.gov.uk/guidance/community-engagement-and-eu-exit-guidance-for-local-authorities>

63 <https://www.equalityhumanrights.com/sites/default/files/housing-and-disabled-people-engaging-with-disabled-people-event-planning-guide.pdf>

64 [https://discovery.dundee.ac.uk/ws/portalfiles/portal/20222453/Final\\_Published\\_Version.pdf](https://discovery.dundee.ac.uk/ws/portalfiles/portal/20222453/Final_Published_Version.pdf)

## 17.3 Previous participation and experience in street design

- 17.3.1. There was an equal split in terms of those participants who had previously engaged in public realm design projects and those who had not. Examples given included input to designs for many of the main streets in Glasgow and Edinburgh, as well as wider experience of consultation on large Scottish railway stations and airports.
- 17.3.2. Several participants had also input into recent decisions in Edinburgh to reduce use of A-Frames and other street clutter. Other participants had experience of advising on building designs for improved access or on making public transport services accessible but had no specific street design consultation experience.

### The timing of when people are invited to get involved

- 17.3.3. Among those with previous experience, there was a consensus that they had typically been involved too late in the process i.e. once designs had already been developed. There was consensus that designs are often drawn up before engagement processes begins and this already limits the opportunity that people have to input to their development, i.e. input is sought 'after the event'. Initiating engagement before designers put pen to paper, ideally at concept stage, was seen as key.

**Key Message (FGE1):** Engagement should begin as early in the project design process as possible and ideally at the concept stage, before plans are drafted, with early discussions around the broad plans to develop street spaces, and an opportunity for individuals to raise initial concerns which may impact on how plans are subsequently developed.

- 17.3.4. Participants also described being 'listened to', but rarely being 'heard'. Many participants had experience of raising concerns about designs that had already been drawn up and the feeling that there was resistance to change them:
- Participant comment: "Often your concerns are sympathised with, but not acted upon, because it is too late." [blind male]
- 17.3.5. In addition to being invited to contribute to or comment on designs 'too late', there was consensus that voices / opinions and experiences were often not listened to. Even where people had been involved in developing design principles, or had commented on early plans, they felt their inputs were overlooked:
- Participant comment: "Every consultation I've ever been involved in, it seems as though they are very dismissive of the disability community, and they'll try and come in and sell you the idea, rather than hear from you. I've always felt like that." [visually impaired male]

### Initiating contact

- 17.3.6. Many users highlighted the difference between being invited to contribute to designs or 'consulted' versus having to proactively contact local authorities to raise concerns and complaints. Views were put forward that individuals are often only listened to after problems emerge or when local authorities had identified something that was not working and wanted advice at a later stage.
- 17.3.7. In other cases, participants had been proactive in highlighting (what were in their view) street design errors / faults to authorities. Indeed, there was a view that disabled people and their advocates had to be proactive and use their own initiative to make any inroads to influencing practice. Tenacity was seen as key to being heard, but people should not feel it was an 'uphill struggle' - a more open-door policy is required.

## Representative and proportionate input

- 17.3.8. The most common means of being invited to contribute to street design (and other consultations) were via Disabled People's Organisations (DPOs) or invitations issued via other large charitable organisations or equalities / access committees and disseminated to their members.
- 17.3.9. While using these groups as gatekeepers was seen by most to be an effective way of reaching a reasonably wide range of individuals (especially deafblind individuals), there was agreement that this can often lead to 'local' views being overlooked and more 'hidden' groups not being represented in engagement activities.
- 17.3.10. Often, such groups are served by volunteers and individuals with significantly more experience of engagement than the wider populations that they represent.
- 17.3.11. It was suggested that individuals who become disabled in later life (or were temporarily disabled) can have strong views as they are still assimilating the required personal adaptation required to their change in circumstances. Such individuals may have different views from those with longer-term impairments or experiences of impairments and are often more 'vocal' in their views which may not be representative.
- 17.3.12. The participants noted that a network of local access panels exists across Scotland (based on the perspectives of the focus group participants who are based in Scotland) which comprise of groups of local volunteers, including disabled people, who come together to improve access in their local communities. Local access panels, although welcomed as one means of gathering input to inclusive design, were criticised by others as being 'patchy', with variable levels of representation of different needs, and varying levels of dynamism, funding, interest and buy-in from local authorities across the country:
- Participant comment: "There is a string vest of organisations across the country that goes under the auspices of local access panels. But it is a string vest - it is full of holes. In different communities, it works to different degrees." [visually impaired male]
- 17.3.13. Concerns were raised by a minority of focus group attendees that there may currently be an over-reliance on local access panels and, in some cases, community councils to provide input and advice to design processes, but that this was again lacking in objectivity and representativeness. Local access panels could be supplemented by a wider list of individuals with personal knowledge gained through direct, first-hand experience of disability (covering a range of disabilities) who may be willing to be consulted as part of specific plans, but who are not interested in having more formal membership of a panel or being involved in consultation activities on a regular basis.

**Key Message (FGE2):** While contacting DPOs is a practical route for inviting views on designs, it should not be seen as the only route to access feedback from disabled people. In order to gain more representative input to the process, more local views should also be sought by direct contact with local residents, including those with impairments and those with recent or a temporary disability. This should be via more targeted local activity, such as calls for contributions via written and spoken media, posters in local areas and harnessing networking opportunities in local communities. Consulting with DPOs is welcomed, but input should be proportionate, and seeking views from only one interest group or one pan-disability group should be avoided. Adults with experience of living with an impairment(s) should be regarded as 'the experts'.

- 17.3.14. There were also perceptions that many planners, designers and local authorities have a narrow focus on what 'consultation' means, with some utilising their own internal accessibility officers to make assessments of plans and considering that this met equalities consultation requirements.
- 17.3.15. Participants welcomed the use of internal accessibility officers as a starting point, but it was highlighted that this practice can often be skewed or biased, especially if accessibility officers are inexperienced. More independent and objective feedback should be sought wherever possible.

**Key Message (FGE3):** While using internal accessibility officers or equivalents within local authorities may be a useful first step to consulting on the inclusivity of designs, it should never be used alone as a means of 'proof checking' designs. More objective and representative input is required.

- 17.3.16. Other examples were cited of planners / designers seeking the views of just one or two representatives of national organisations in what was described as being a rather 'tokenistic gesture.' Examples were given of one organisation offering a response and providing comments on 'general design features' and this being taken as affirmation or approval of designs, and thus interpreted by the designers as negating a need to consult more widely. Statements that plans had been 'approved' following conversations with just one (niche or pan-disability) organisation were commonplace and were seen as wholly unacceptable. This is especially true when some such organisations also act as service providers for sub-contracted services to the same local authorities who are overseeing plans / designs as there may be an inherent conflict of interest.
- 17.3.17. A point was made in several focus groups that the views and experiences of older people are also often overlooked because they are not considered to have a disability or be in need of particular attention.
- 17.3.18. Older adults were not considered to be a 'minority' by planners and designers, it was suggested, and so are often not seen as having needs that may be different from the majority of the population - a belief which several participants viewed as being misguided. Age related needs may include joint pain / fragility which can make walking on particular surfaces challenging, as well as issues associated with poor concentration in areas with high volumes of sensory stimulation, making it difficult to navigate busy street areas.
- 17.3.19. Generally poor or declining hearing and / or eyesight were also seen to affect large proportions of the older population, meaning that they may similarly struggle with many of the sensory challenges presented to those with more significant impairments. This lack of thought to the needs of the aging population was seen as a key oversight and older people and their representative organisations should also be included routinely in engagement.

**Key Message (FGE4):** Proactive attempts to engage with older adults in local communities will help to make street design even more accessible and should be pursued as a matter of course. The progressively aging population was seen as a relatively new challenge and one which may therefore be overlooked in traditional training and awareness raising around inclusive engagement and design principles. The needs of older adults, who represent an increasingly large proportion of the population, should be specifically addressed in any updating of existing guidance or writing of new guidance.

- 17.3.20. Several participants were also keen to highlight what they perceived to be an ‘over-burdening’ of disabled people, who are often sought out to give views on a wide variety of social issues (accessible street design being just one). Designers should avoid viewing disabled people as being there to provide “free expert advice” and be sensitive to demands on their time.
- 17.3.21. This was similar to views that access panels are also often seen as the ‘go to’ place for advice, with the same people being invited to contribute each time, but also perhaps highlights that providing opportunities for as many people as possible to take part is key, with individuals being able to choose, without obligation, those activities where they wish to have a say. By opening up consultation opportunities to a wider pool of individuals, there should be a reduction in consultation fatigue for any one group or individual:
- Participant comment: “It’s important to safeguard individuals and their time.” [female with reduced mobility]
- 17.3.22. A balance must be found so that people feel free to give an input through choice, rather than feeling obliged to give input by virtue of their personal circumstances / life experience. Rewarding individuals for their input and time was suggested and while most participants expressed a preference for small personal financial rewards, it was noted that other rewards, such as charitable payments, may also be appropriate. The latter would, perhaps, reduce the risks of bias which can be introduced where personal financial rewards are offered as incentives to take part. The use of prize draws may also offer a more cost-effective way of thanking participants in cases where it is not financially feasible to provide individual rewards for all.
- 17.3.23. Finally, participants expressed a preference for the notion of ‘inclusive engagement’ rather than ‘consultation’, since they perceived that consultation had fewer positive connotations, often referring to policies and plans that were close to being completed. Some participants indicated that they viewed ‘engagement’ implied a more interactive, two-way and ongoing discussion.

### **Advertising engagement opportunities**

- 17.3.24. There was a shared view that opportunities to feed into plans and designs were often limited, and that advertisement of engagement opportunities was inadequate. Calls for inputs were seen as often being ‘hidden’ (e.g. on council websites) or as being advertised inappropriately. One blind or visually impaired participant gave an example of a newspaper advertisement calling for their input, i.e. written text which they were unlikely to (independently) see or read.
- 17.3.25. It was noted that a wide range of accessible communication routes do already exist, including numerous electronic and online communication tools, although there may be limited awareness of these. Suggestions were made, for example, for talking newspapers to advertise planning applications for those with visual impairments, e-books and use of YouTube or other online videos to reach a wide audience and engage them in design processes. Such resources can be easily tailored to reach either national or local audiences:
- Participant comment: “We’re in an era where consultation and engagement should be far easier to manage, to get voices from different user groups and to get their experience.” [male cognitive impairment organisation representative]



17.3.26. Although not unique to disabled people, overreliance on using internet advertising was highlighted and was seen as particularly problematic for those with sensory impairments, as well as older people, some of whom may not use or have access to the internet. While online sources do provide an adaptable and accessible communication route for some, they should never be the only route and complementary hard copy resources were welcomed, where required. Similar issues applied to what was seen as an ever-increasing reliance on social media and assumed access to smartphones, which presents challenges not only to disabled people, but to others too:

- Participant comment: “It’s simply not good enough to say that you’ve used Facebook and Twitter. By all means use it, but also think about those who don’t use social media.” [dual sensory impaired male]

17.3.27. There was a difference, it was stressed, between ‘access to’ information and ‘accessible’ information; a distinction often not well understood by those undertaking engagement activities.

**Key Message (FGE5):** The promotion of consultation and engagement opportunities should be multi-sensory, with consideration given to using television (including sub-titles) and radio for reaching a wide audience, in addition to newspapers (printed and audio), social media and printed material (especially in public information spaces, including on public transport and at transport hubs). All printed materials should follow accessibility principles.

## 17.4 How would disabled street users like to participate in street design?

### Different engagement mechanisms

- 17.4.1. Participants’ preferred methods of engagement were public or one-to-one, face-to-face meetings, to allow them to engage with the process more fully through asking questions of designers / planners in person and articulate on the spot the full range and complexity of their needs. Being able to ask questions was seen as essential and not easily facilitated by written engagement methods.
- 17.4.2. The deaf community in particular expressed the importance of face-to-face meetings since, for many, their first language was not English (some using BSL, Makaton, sign supported English, signed English, fingerspelling and lip reading, amongst others). The need to be present in the room with planners / designers to have plans interpreted for them and communicate their interests was seen as essential.
- 17.4.3. There were mixed views on whether ‘disability specific’ engagement events should be offered or whether inclusive events were preferred, where everyone could share views at the same time. Some individuals with communication challenges indicated that they would be overwhelmed in large group settings and would not be able to contribute sufficiently as a result, including feeling that they would be spoken ‘over’ or spoken ‘about’ rather than being spoken ‘to’:
- Participant comment: “Other people talk for us when we have the passion to speak for ourselves.” [female with reduced mobility and learning disability]
- 17.4.4. Such individuals expressed a preference for one-to-one, individual interviews to make them feel more comfortable. This was also seen as necessary for those with a hearing impairment and those with communication requirements who need additional time to process information being translated quickly and who may miss the window of opportunity to respond or contribute in a large group setting,

where others are able to respond or interject more quickly. Experience suggested that sessions were often not sufficiently well moderated to allow for delays in interpretation to be accommodated.

17.4.5. Others offered a counter view that it was helpful to share their views in a wide, diverse forum, not least to help raise awareness of what ‘accessibility’ and ‘inclusion’ meant among the wider public. Fully inclusive events would also make other street users more sensitive to the purpose of different design features when implemented:

- Participant comment: “I enjoy public consultations, and I enjoy watching people’s face as they learn something new.” [mobility and sensory impaired male]

17.4.6. It should be noted that many of those who attended working groups indicated that they themselves would be able to learn from fully inclusive events about the needs of a wide range of disabled people. They stressed that they would welcome this cross-over and knowledge exchange.

17.4.7. Managing numbers at consultation events was also seen as key to ensure that all voices were heard, but local residents, local businesses and people with accessibility needs were all seen as essential user groups to be consulted and should always be accommodated.

**Key Message (FGE6):** Street user requirements differ - some prefer individual one-to-one interviews, whilst others desire to learn from fully inclusive events about the needs of a wide range of disabled people and to share knowledge. But the number of people at consultation events needs to be managed to ensure all voices are heard.

### Recording engagement inputs

17.4.8. Most participants who had experience of input to design processes were typically not advised how their input had been used.

17.4.9. Focus group participants described limited experience of receiving any feedback from their previous consultation inputs and described feeling like their views had “disappeared into a vacuum”. Again, examples of good practice already exist, in particular in the fields of social and market research, which dictate that participants / contributors should always be given, as a minimum, information about how and where they can find out how their contributions have been used.

17.4.10. While the preferred means of receiving such feedback would be proactive, personal feedback given to individual contributors, it was recognised that this may not always be practical and that expectations should be managed. Contact details should, however, be made available to contributors to allow them to pursue follow-up information if desired.

17.4.11. Most focus group participants indicated that project timescales and budgets restricted such a feedback process at present, although others indicated it was lack of professionalism or common decency that acted as the barrier:

- Participant comment: “If people had to answer to their decisions, maybe they would be less likely to ignore us. I get the impression that they’re never intending to use our information - they are simply there to tick a box.” [mobility and sensory impaired male]

17.4.12. Providing explanations for not taking on board design suggestions was also seen as key. This explanation should ideally be provided in person, as well as in writing, to allow them to be translated / interpreted into different formats depending on individuals’ needs. This was especially true in cases where different disability groups

may put forward conflicting views. Understanding how these have been reconciled by design teams was seen as important so that people can see that a 'balanced' decision has been reached.

**Key Message (FGE7):** Contributions to design processes should be formally recorded, with contributors being given a chance to review notes from meetings to ensure that their views have been accurately captured. Explanations for advice and views that are not taken on board should be provided, as standard.

- 17.4.13. A related point was that those who undertake engagement and consultation are often too far removed from those who make the final decisions on what plans to implement, thus meaning that messages get lost as they move up the management hierarchy. Similarly, it was identified that while planners and designers may take on board feedback during consultations, messages may get lost at construction / implementation stage, especially where contractors and sub-contractors are involved.
- 17.4.14. Participants spoke of 'consultation hierarchies', with feedback from councillors and government officials being perceived as given more weight than feedback from residents, instead of all contributions being treated with equal importance.
- 17.4.15. Finally, views were expressed that local authorities often justify plans on the basis that they comply with 'existing guidance' (although no specific guidance was mentioned). Their perception was that such guidance was likely to be dated and not, therefore, suitable for informing current and future designs.

### Financial barriers

- 17.4.16. A lack of finances was seen as the single biggest reason for not implementing recommendations or introducing design features that are more inclusive for disabled people. Penalties associated with changing plans and designs were similarly seen as something which meant that designers were reluctant to consult more widely in case it resulted in feedback that they could not ignore but could not afford to act upon.
- 17.4.17. Even where people had been consulted before contractors had been appointed or works had begun, the costs of resubmitting plans, as well as introducing the suggested design features, were both seen as prohibitive to taking views on board.
- 17.4.18. Views were expressed that there was a false economy in not carrying out robust inclusive engagement since the cost of changing and adapting street features after they have been built was often more costly than if they had been avoided in the first place (i.e. through correct engagement). Consulting earlier in the planning and design process could ultimately save money, but this principle may not be well recognised by designers / planners.

**Key Message (FGE8):** A programme of proportionate and effective engagement should be included as part of the project commissioning and scope with an appropriate allocation of project budget (or equivalent).

### Time planning

- 17.4.19. Another common feature of discussions was that the amount of notice given for engagement or consultation activities was often too little. Participants described finding out about consultations often 'at the last minute'.

- 17.4.20. Participants indicated that, ideally, there should be a minimum of two months' notice ahead of any public engagement activities, to allow people time to prepare and plan ahead for their attendance (allowing them an opportunity to put in place transport plans, book support assistants to attend, request information in alternative formats, etc.).
- 17.4.21. This should be achievable if consultation activity is built into original project planning as standard, rather than be added as an afterthought once the other project activities have been scheduled. Disabled People's Organisations (DPOs) and access panels also often get together on a monthly or quarterly basis and could discuss opportunities at their regularly convened meetings, if sufficient notice was given.
- 17.4.22. For engagement events with specified dates, it was suggested that reminders should be issued to anyone expressing an interest in attending roughly one week ahead of the event. To make them 'inclusive', an absolute minimum of two weeks' notice for engagement events was suggested.

**Key Message (FGE9):** Sufficient warning of upcoming engagement events and activities needs to be provided to allow potential contributors to request that materials and information be translated into appropriate formats, which can take time. Notice for upcoming engagement events should consider the requirements for planning independent travel and the requirement to give advanced notice to assistants and communication professionals.

- 17.4.23. Almost all participants indicated that designers and planners offered unrealistic deadlines for people to feed into the process, and that this was often constrained by their own delivery deadlines:
- Participant comment: "Taking time to do proper engagement and consultation would have put the designers out of their work timetable that they presented to the local authority. That, alone, should never be justification for not engaging." [visually impaired male]
- 17.4.24. Building more time into the design and planning process as standard was seen as essential to overcome existing limitations of engagement as, without it, participants perceived consultation would remain a 'tick box exercise'.

### **Making plans accessible**

- 17.4.25. Information about the anticipated changes, outcomes and impacts on different street users of any plans is required, as a minimum, to be conveyed in simple language without technical jargon and acronyms.

### **Articulating design**

- 17.4.26. It was recognised by focus group members that one of the biggest challenges in current street design is trying to present a technical drawing to someone who has limited vision. Indeed, a key gap at present is suitable means of 'articulating design', allowing blind and visually impaired individuals a chance to access visual designs without relying on vision:
- Participant comment: "Meaningful consultation means not just standing up and presenting an architect's drawing...There needs to be some way of making what is a very busy, pictorial, diagrammatic format meaningful to somebody who has no sight and no way of understanding that information." [deafblind male]

17.4.27. Only two participants had experience of tactile drawings / representations and gave mixed feedback. These were seen as particularly challenging for those who have experienced blindness or have been visually impaired since birth and could not imagine how the plans would translate (but may be more accessible for those with progressive sight loss).

**Key Message (FGE10):** Plans should be interpreted into different formats (depending on the type of project this could computer visualisation, tactile plans, 3-dimensional models and different coloured plans) so that people can independently make an assessment of them instead of being reliant on someone else to interpret on their behalf.

17.4.28. A more general point was made that plans and designs are often not 'realistic' and that what is presented on paper is often very different from the disabled street users' experience of the space (i.e. the implications are not apparent on paper):

- Participant comment: "Sometimes things, whether they are on a map or on a computer screen, are not the same as what they are 'live'. Well, that's my experience, anyway." [blind male]

17.4.29. There is a tendency for planners / designers to make maps and models visually appealing and to focus on aesthetic features of street design which, when implemented in practice, look less attractive and can be more difficult to navigate than that proposed (see discussions regarding street furniture, especially trees and hedges, below). 'Visual representations' were often caveated as being not entirely accurate, and sometimes the divergence between drawings and reality was particularly extreme, it was suggested:

- Participant comment: "I think if they're going to have artists impressions, then they should be closer to what the finished article is." [DPO representative]

17.4.30. Producing plans and designs in accessible formats (including any accompanying documentation) is seen as being an 'afterthought' for most planners / designers.

**Key Message (FGE11):** Producing plans and designs in accessible formats (depending on the type of project this could include Virtual Reality, computer visualisation, tactile plans, 3-dimensional models and different coloured plans) should be addressed in any new guidance, or revision of existing guidance, since there are a multitude of aids and supports already available to make designs more accessible - the main perceived issue by the focus groups being that they are currently underutilised. Indeed, participants stressed that 'communication' in itself is not a barrier, rather it was a lack of understanding, creativity and innovation in the application and use of different communication methods that presents problems.

### Walk-throughs

17.4.31. A preferred way of gaining meaningful feedback on designs for those with visual impairments was via means of on-site 'walk-throughs' (including the existing site) to discuss any future change proposals, wherever possible. For those without visual impairments, video walk-throughs and 3D Virtual Reality simulations were also seen as useful alternatives.

17.4.32. Similarly, if there are other areas where designs similar to those being proposed have been implemented, walk-throughs of these areas would be helpful. Walk-throughs were seen as particularly useful for those with guide dogs to show planners / designers how they would respond to different streetscapes:

- Participant comment: “Why can’t we go out there? If we can go out there and put our canes down, put our dogs down, go for a walk, it would make such a big difference.” [mobility and sensory impaired male]

17.4.33. Walk-throughs provide an opportunity to show how space is intended to be used but also allow street users to give feedback in situ of the limitations of plans and give better insight to how they may be disabling. This was seen as serving the dual purpose of improving street design while enlightening designers / planners too:

- Participant comment: “I think it would make quite a big difference to the consultants, as well, that are involved in the process...It would have quite a big impact to actually see the results of their lack of consultation, maybe.” [DPO representative]

17.4.34. Suggestions were made that planners and designers should, when developing ideas, make use of SimSpecs<sup>65</sup> that mimic various visual impairments and ear defenders that simulate hearing impairment to help them understand the experiences of different street users, and inform their plans.

17.4.35. Despite being popular, walk-throughs were not seen as being without fault. To maximise their utility, they should be employed with people with different levels of visual and sensory impairments, at different times of day (including night) and in different conditions (including low / high traffic flow, low / high pedestrian flow and different weather conditions, etc.). The experience of the space can also be different depending on whether users are accompanied by a friend / assistant, are with / without their guide dog or are completely alone, it was stressed.

17.4.36. Consideration also needs to be given to the needs of hearing-impaired users when implementing walk-through approaches, as extra time and space is needed for users to observe their interpreters / communicators as well as to look at the space being discussed. Mobile hearing aids and supports also need to be considered to facilitate on-site consultations with hearing impaired adults (for example, live video links with interpreters).

**Key Message (FGE12):** Use of walk-throughs should be encouraged for those with different forms of impairment; however, single use walk-throughs will not provide sufficient insight into the experience of the full range of users or how the street may change in different conditions. Multiple walk-throughs are to be encouraged as well as use of video simulations (with sub-titles), where appropriate.

17.4.37. On a related point, walk-throughs can be good for highlighting to planners the value of ‘milestones’, ‘landmarks’ or ‘markers’ for those with visual impairments, it was stressed. These can be invaluable for adults with sight loss who often rely on tactile landmarks, as well as landmarks defined by other senses (e.g. smell) to navigate familiar spaces. If new street designs interfere with such markers, this can be disorientating, and a walk-through allows this to be highlighted.

17.4.38. Offering walk-throughs as complementary to more traditional engagement events / activities would seem important and may provide a means by which some individuals would prefer to get involved in the planning and design processes, i.e. instead of having to attend more formal events. The relative value of offering walk-throughs as complementary to more traditional engagement activities would vary on a project-by-project basis.

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65 <https://vinesimspecs.com/index.php>

17.4.39. Overall, a better level of participation can be achieved through better preparation by consultants / designers, more accurate artist representations, use of walk-throughs and Virtual Reality as well as other mixed-sensory tools to support participants in understanding designs.

### Handling materials

17.4.40. Several participants stressed the importance of people with sensory and mobility impairments being able to 'feel' or have 'hands on' exposure to various materials that are proposed for use in street design (including samples of tactile paving, examples of different coloured surfaces, etc.) Having a chance to interact with materials was seen as key in allowing people to envisage what designs might look and feel like in practice and should involve testing of different materials in different conditions (e.g. in light / dark / partial light conditions, different weather conditions, etc.).

**Key Message (FGE13):** Designers should seek to maximise the use of existing innovations in the presentation of plans and street designs, including adopting walk-throughs and allowing 'hands on' exposure to materials to be used.

### Lack of awareness and understanding

17.4.41. There was a perceived lack of awareness and understanding around both the complexity and diversity of different disabilities and how to engage effectively / appropriately, with a narrow focus for engagement activities, as a result. Views were expressed among many that some planners and designers may 'fear' or be anxious about engaging with hard to reach groups. This fear may result from not knowing how best to meet the needs of different street users in communication and so result in avoidance. It was highlighted that the fear of engaging needs to be tackled:

- Participant comment: "There's a lot of misunderstanding about what 'people with a disability' means, and I think a lot of planners think only of someone in a wheelchair." [Mobility Access Committee representative]

17.4.42. Overall, the diversity of the disabled community was described as wide and complex, with very limited awareness among the general public per se around the full range of needs that require to be considered in effective engagement. This limited awareness was reflected among street design professionals too:

- Participant comment: "People tick the box when they think they've done enough, which is often very superficial." [visually impaired male]

**Key Message (FGE14):** Increase awareness among designers and promoters of the broad range and complexity of different disabilities, ensuring that all disabled street users' views are considered with equal weight to fully ensure inclusive participation.

17.4.43. One way to achieve this is through better training of future planners and designers, as well as engaging those already in post (including local authority staff):

- Participant comment: "The planners who are planning these things, in general, they have no mobility training whatsoever, and yet they are planning for us." [visually impaired male]

17.4.44. Views were given that existing equalities training is not sufficient, making up only a very small part of what planners and designers are taught as part of their formal education. It was perceived that few local authority staff, including planners, are required to undertake robust equalities training.

- 17.4.45. Several participants also spoke of negative professional attitudes, arrogance or 'professional snobbery'. There was a shared view that some designers were reluctant to consider the views of street users who they viewed as lacking the technical expertise to provide valid input.
- Participant comment: "The local authorities know who to contact, they just choose not to." [visually impaired male]
- 17.4.46. Improving training and making it a requirement for more staff involved in local planning and design processes is also seen as potentially alleviating current problems with staff turnover and negative attitudes. Participants gave examples of having previously worked well with named officers in local authorities who were well versed in equalities and diversity, but who moved on and were replaced by staff with less knowledge or expertise in the field.

**Key Message (FGE15):** Training should be introduced for planners and designers in inclusive design principles, including how to approach inclusive engagement. This should include teaching around current technical advances and products to aid accessibility as well as coverage of equalities legislation. Greater training may reduce the risk of 'professional snobbery' and reduce the reluctance for designers to engage with disabled street users.

## 17.5 Other considerations for inclusive engagement

### The importance of ongoing and regular engagement

- 17.5.1. Engagement should not just be 'one off'. Participants stressed the point that ideally, at various stages (i.e. beginning, middle and end), it should include specialists and people with personal knowledge gained through direct, first-hand experience of disability. This includes:
- Input to the design of engagement tools / activities.
  - Direct contribution to the consultation / engagement activities as participants.
  - Being invited to review the findings from the consultation before changes to the design or plans are made.
  - Monitoring and evaluation of the outcomes / impacts of the engagement work and any design changes (and design implementation) over the short, medium and long term.
- 17.5.2. Participants agreed that, in any future consultations, it is not enough to say that everyone was given a chance to contribute: there should be proactive and visible efforts to try to recruit people from different interest groups. The difference between 'consulting' people and 'involving' people is key: for the work to have maximum impact, disabled street users should be involved in planning at every stage<sup>66</sup>. Continuous engagement would lead to continuous improvements.

**Key message (FGE16):** Engagement should be understood as a multi-stage process and invite ongoing contributions from those affected by proposed changes.

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66 Glasgow Queen Street Station re-design was cited as an example of good practice whereby individuals had been consulted on a regular and ongoing basis, and information on plans had been made publicly available at the station via large screens, including signed sub-titles.



- 17.5.3. Participants noted that people should also be given an ‘option’ to be ‘kept in the loop’ (recognising that some may not wish to have ongoing engagement). This would address current concerns that often only large organisations<sup>67</sup> and official committees receive updates and feedbacks on plan / design developments (rather than individual contributors), which can make some people feel that they are being ‘excluded’ from the process after making their initial contributions. As a minimum, participants should expect to be told how their contributions will be used and be provided with information on how and where they can access information about project progress following (and linked to) their input.

**Key message (FGE17):** A range of different ways for people to contribute to the design / engagement process should be offered and support put in place to facilitate this (including practical, financial and communication support).

### Communication preferences and needs

- 17.5.4. The quality of previous engagement experiences was variable but, in general, the experience of most groups was that consultants or those leading engagement activities are often unprepared and rely on ‘visual’ methods of communication.
- 17.5.5. It was reported that, even where information is sent in advance of consultation events, including plans, maps, etc. (even in alternative formats), often further information can be presented ‘on the day’ which is not in accessible formats and which participants have not been given a chance to digest. This includes presentations reliant on PowerPoint which are most often not accessible. Sending videos to contributors in advance of meetings was suggested, to allow them to be ‘up to speed’ with any information presented in person.

**Key message (FGE18):** Prior to carrying out engagement activities advice should be sought on the full range of communication preferences and needs that are likely to be presented, including advice from communication / language professionals on practical issues around planning costs and support for breaks, etc. Communication strategies to support ongoing engagement should be drawn up.

- 17.5.6. Communication professionals who were present in the groups suggested that, based on their own experience, there was limited contact from planners, designers or local authorities in relation to exploring communication options and supports available to aid consultation activities or to make plans accessible.
- 17.5.7. A wide range of needs were represented across the groups, including a diverse mix of communication needs. Collectively there was a consensus view that all communication regarding engagement opportunities, invitations to contribute to designs and materials used in engagement activities should be made available in a range of alternative formats including (as a minimum):
- large print;
  - easy read;
  - braille; and
  - spoken word.

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<sup>67</sup> Some organisation representatives also stressed, however, that they too did not receive feedback following their contributions to engagement exercise. Often, they had to proactively seek information on progress to share with their members, rather than it being forthcoming.

At events, consideration should be given to the need for access to (as a minimum):

- Induction and hearing loops.
- BSL interpreters.
- Tactile communicators.
- Screen reader software.
- E-notetakers or palantypists.
- Typetalk / TextDirect.

17.5.8. Support to take part in engagement over the phone and provision of information in other languages was also highlighted. Other specialised communication preferences, including haptics, were also highlighted, i.e. non-verbal communication that allows people to interact via the sense of touch. It was recognised, however, that demand for these alternatives is less common.

17.5.9. Importantly, it was stressed that organisers of engagement events should not make assumptions about the needs that will be represented. This can be costly and result in unnecessary expenditure (for example, provision of BSL, where no BSL users are present). The important thing, therefore, is to ask all those attending or planning to attend engagement events what their individual needs are to allow events to be tailored appropriately.

**Key Message (FGE19):** When undertaking inclusive engagement, planners and designers should be proactive in identifying communication preferences and needs, rather than seeking to respond to needs on the day or putting in place a standard level of provisions which assumes the needs of the participants.

17.5.10. Other practical issues were also raised. Knowing who is in the room can be empowering in discussions but is something that is not always apparent to those with sight loss, it was stressed. The simple courtesy of allowing people in the room to know who else is present and what interests are represented is key.

17.5.11. A final key point is that participants wanted to be able to contribute independently, wherever possible. Enabling and empowering people to contribute without having to rely on assistance, or getting others to ask questions on their behalf, or read documents aloud, etc., was seen as key. This links to earlier comments made about the need to offer both fully inclusive events to meet the preferences of some, while also offering more tailored events for those who feel more comfortable engaging in smaller groups with people who have shared disability experiences. Offering choice was the underlying theme to emerge rather than offering only one means of contributing.

### **Practical preferences and needs**

17.5.12. A crucial point on making engagement inclusive was the need for organisers to offer appropriate accessible venues to facilitate involvement of a full range of street users' views. Examples were given of public consultation events that precluded disabled people by virtue of being held in non-accessible buildings.

17.5.13. As a minimum, venues should be accessible by public transport, have accessible parking, have vehicle drop-off available close to the building, have accessibility ramps and step-free access, and have suitable toilet facilities. Sufficient space to accommodate wheelchairs of different sizes / models, as well as guide dogs was also seen as key.

**Key Message (FGE20):** When undertaking inclusive engagement, planners and designers should be proactive in identifying suitably accessible venues to accommodate adults with different types of impairment. Again, accessibility needs should be identified early in the process, to ensure suitability of venues.

17.5.14. At present, engagement events are often only made accessible by DPOs stepping in to assist their members in accessing transport, assistants and other suitable supports to allow them to attend. Organisers of events should be equipped to do this directly, to reduce burdens on DPOs and to place responsibility for inclusive engagement with those organising events. Direct experience of running truly inclusive engagement would 'upskill' planners and designers, it was suggested, and so have intrinsic value in itself.

### Utilising existing guidance

17.5.15. A wealth of advice and guidance already exists around effective and inclusive engagement. Participants agreed that there was no need to 'reinvent the wheel', but rather to signpost and make planners and designers aware of the good practice that already exists.

17.5.16. The list of existing engagement guidance is included at the start of this document in section 3.2.

## 17.6 Wider considerations

### Public education and awareness raising

17.6.1. Participants were keen to stress that, while inclusive engagement in the planning and design process may result in more user-friendly public and shared spaces, this alone would be insufficient to ease concerns about the public realm being and feeling safe. In particular, it was seen as important to make the general public even more aware of how different street features should be used, e.g. cycle lanes, controlled and uncontrolled crossings, dropped kerb, refuge islands, etc.

- Participant comment: "It's a case of education - people in this country simply aren't aware." [male with reduced mobility]

17.6.2. One of the main perceived dangers of new street designs was the failure of other road users to alert sensory and other impaired street users to their presence (for example, not hearing bikes approaching from behind, not hearing slow moving vehicles, etc.). Educating the general public about the need to be considerate street and road users was seen as going hand-in-hand with making designs more accessible.

**Key Message (FGE21):** New schemes and changes to street designs need to be accompanied by wider public awareness raising in relation to how the space should be used. This includes education of all road users - pedestrians, cyclists and drivers - to ensure that the space is used as intended.

17.6.3. More generally, educating the general public around non-visible disabilities was seen as particularly important in order to challenge what was seen as the mainstream misconception that disability relates only to physical impairments.

## Valuing pedestrians

17.6.4. Several participants were reliant on walking, wheeling and public transport as their main mode of travel, given the nature of their impairment, which precluded them from driving or cycling independently. Several participants spoke of feeling ‘undervalued’ as pedestrians and suggested that there is a general perception that pedestrians were at the bottom of the road user hierarchy, with private car drivers and commercial vehicle drivers often at the top followed by cyclists. There is a need for local authorities, in particular, to place more value on the pedestrian and value them as equally valid street users:

- Participant comment: “Our world is geared towards motorists. Pedestrians are not economically viable.” [blind female]

Key Message (FGE22): Engagement activities should include proportionate representation from pedestrians as well as cyclists and vehicle users to ensure that all voices are equally heard.

## Supporters of active travel

17.6.5. Several participants were keen to stress that they were supporters of active travel and so did not, in principle, reject aspirations of planners to increase the active travel infrastructure and encourage more walking and cycling.

17.6.6. The biggest concern was that some of the early attempts at creating ‘shared space’ (as a street design concept) had been ignorant of the wide range of users’ needs, and there was concern that these may nonetheless be used as ‘exemplars’ of ‘positive’ shared space when, in reality, they were disabling for many street users.

17.6.7. Some participants stressed the dangers of developing ‘templates’ for shared spaces which are replicated across the country, without considering whether they had been effective in meeting users’ needs. There was a genuine concern that (in their view) some mistakes in street design that had already been made in certain locations around Scotland might be copied elsewhere without cognisance of the limitations of the design principles:

- Participant comment: “What I have seen is that some street designs are really restricting the active travel choices of some disabled people and I am really concerned that that becomes the vanguard that people are aspiring too, because it is really problematic.” [deafblind male]

17.6.8. Overall, there was agreement between the focus groups that it would be very difficult to ‘please all of the people all of the time’ but that it should be possible to reach a consensus among most. Key to this is diversity and transparency in the consultation / engagement process and communicating clearly in appropriate ways the basis on which decisions have been taken.

## 18. Inclusive engagement – summary and conclusions

18.1.1. The key messages drawn from the disabled street user engagement are included in the table below alongside a review of the alignment between the key message and existing guidance.

**Table 3 – Key messages from disabled street user focus groups on inclusive engagement**

Nr	Key message	Review against existing guidance
<b>FGE1</b>	Engagement should begin as early in the project design process as possible and ideally at the concept stage, before plans are drafted, with early discussions around the broad plans to develop street spaces, and an opportunity for individuals to raise initial concerns which may impact on how plans are subsequently developed.	Covered under existing guidance, including “The National Standards for Community Engagement”, “Shaping better places together: Research into facilitating participatory placemaking”, “Community engagement: guidance for local authorities”, and “New Conversations 2.0: LGA guide to engagement”.
<b>FGE2</b>	While contacting DPOs is a practical route for inviting views on designs, it should not be seen as the only route to access feedback from disabled people. In order to gain more representative input to the process, more local views should also be sought by direct contact with local residents, including those with impairments and those with recent or a temporary disability. This should be via more targeted local activity, such as calls for contributions via written and spoken media, posters in local areas and harnessing networking opportunities in local communities. Consulting with DPOs is welcomed, but input should be proportionate, and seeking views from only one interest group or one pan-disability group should be avoided.	Covered under existing guidance. This aligns with the ‘Inclusion’ and ‘Communication’ standards set out within the “National Standards for Community Engagement”.
<b>FGE3</b>	While using internal accessibility officers or equivalents within local authorities may be a useful first step to consulting on the inclusivity of designs, it should never be used alone as a means of ‘proof checking’ designs. More objective and representative input is required.	Covered under existing guidance. Aligns with the ‘Planning’ standard set out within “National Standards for Community Engagement” as well as in the ‘Trust and Democracy’ section of “New Conversations 2.0: LGA guide to engagement”.

Nr	Key message	Review against existing guidance
<b>FGE4</b>	Proactive attempts to engage with older adults in local communities will help to make street design even more accessible and should be pursued as a matter of course. The progressively aging population was seen as a relatively new challenge and one which may therefore be overlooked in traditional training and awareness raising around inclusive engagement and design principles. The needs of older adults, who represent an increasingly large proportion of the population, should be specifically addressed in any updating of existing guidance or writing of new guidance.	Covered under existing guidance, specifically “Engaging with disabled people: An event planning guide”. The LGA guide to engagement and “Shaping Better Places Together” report specify the need to consider how to engage with ‘hard-to-reach’ or seldom heard communities. This is covered more broadly by the Inclusion Standard of the NSfCE.
<b>FGE5</b>	The promotion of consultation and engagement opportunities should be multi-sensory, with consideration given to using television (including sub-titles) and radio for reaching a wide audience, in addition to newspapers (printed and audio), social media and printed material (especially in public information spaces, including on public transport and at transport hubs). All printed materials should follow accessibility principles.	The need for objective and representative input is covered under existing guidance including “New Conversations 2.0: LGA guide to engagement” (Section 1: The Basics), “Community engagement: guidance for local authorities” and the ‘Communication’ standard set out within the “National Standards for Community Engagement”.
<b>FGE6</b>	Street user requirements differ - some prefer individual one-to-one interviews, whilst others desire to learn from fully inclusive events about the needs of a wide range of disabled people and to share knowledge. But the number of people at consultation events needs to be managed to ensure all voices are heard.	Covered under existing guidance. ‘Age’ is a protected characteristic under the Equality Act 2010 and therefore the same approach to age-related issues should be taken as proposed for disability. The guidance provided by “Engaging with disabled people: An event planning guide” may be considered appropriate.
<b>FGE7</b>	Contributions to design processes should be formally recorded, with contributors given a chance to review notes from meetings to ensure that their views have been accurately captured. Explanations for advice and views that are not taken on board should be provided as standard practice.	Covered under existing guidance, specifically “Engaging with disabled people: An event planning guide”.

Nr	Key message	Review against existing guidance
<b>FGE8</b>	A programme of proportionate and effective engagement should be included as part of the project commissioning and scope with an appropriate allocation of project budget (or equivalent).	Covered under existing guidance. This aligns with the ‘Inclusion’ and ‘Communication’ standards set out within the “National Standards for Community Engagement” as well as “New Conversations 2.0: LGA guide to engagement” (Section 1: The Basics).
<b>FGE9</b>	Sufficient warning of upcoming engagement events and activities needs to be provided to allow potential contributors to request that materials and information be translated into appropriate formats, which can take time. Notice for upcoming engagement events should consider the requirements for planning independent travel and the requirement to give advanced notice to assistants and communication professionals.	Covered under existing guidance, specifically under the ‘Communication’ standard, which is one of the seven standards of the “National Standards for Community Engagement”.
<b>FGE10</b>	Plans (depending on the type of project this could computer visualisation, tactile plans, 3-dimensional models and different coloured plans) should be interpreted into different formats so that people can independently make an assessment of them instead of being reliant on someone else to interpret on their behalf.	Covered under existing guidance, specifically under the ‘Planning’ standard of the “National Standards for Community Engagement” which states the need for involving partners at the start of the process and ensuring there are sufficient resources to undertake effective engagement.
<b>FGE11</b>	Producing plans and designs in accessible formats (depending on the type of project this could include Virtual Reality, computer visualisation, tactile plans, 3-dimensional models and different coloured plans) should be addressed in any new guidance, or revision of existing guidance, since there are a multitude of aids and supports already available to make designs more accessible - the main perceived issue by the focus groups being that they are currently underutilised. Indeed, participants stressed that ‘communication’ in itself is not a barrier, rather it was a lack of understanding, creativity and innovation in the application and use of different communication methods that presents problems.	Covered under existing guidance. This aligns with the Planning standard set out within the “National Standards for Community Engagement” and is also covered in other guidance such as “Engaging with disabled people: An event planning guide”.

Nr	Key message	Review against existing guidance
<b>FGE12</b>	Use of walk-throughs should be encouraged for those with different types of impairment; however, single use walk-throughs will not provide sufficient insight into the experience of the full range of users or how the street may change in different conditions. Multiple walk-throughs are to be encouraged as well as use of video simulations (with sub-titles), where appropriate.	Covered under existing guidance. This aligns with the Planning standard set out within the “National Standards for Community Engagement” and is also covered in other guidance such as “Engaging with disabled people: An event planning guide”.
<b>FGE13</b>	Designers should seek to maximise use of existing innovations in the presentation of plans and street designs, including adopting walk-throughs and allowing ‘hands on’ exposure to materials for use.	Covered under existing guidance. This aligns with the Planning standard set out within the “National Standards for Community Engagement” and is also covered in other guidance such as “Engaging with disabled people: An event planning guide”.
<b>FGE14</b>	Increase awareness among designers and promoters of the broad range and complexity of different disabilities, ensuring that all disabled street users’ views are considered with equal weight to fully ensure inclusive participation.	Covered under existing guidance. The Methods standards of the “National Standards for Community Engagement” states that methods used should be appropriate for the purpose of the engagement.
<b>FGE15</b>	Training should be introduced for planners and designers in inclusive design principles, including how to approach inclusive engagement. This should include teaching around current technical advances and products to aid accessibility as well as coverage of equalities legislation. Greater training may reduce the risk of ‘professional snobbery’ and reduce the reluctance for designers to engage with disabled street users.	Covered under existing guidance. The Methods standards of the “National Standards for Community Engagement” states that methods used should be appropriate for the purpose of the engagement. Walk-throughs are one specific example of a design engagement method and therefore their use should be considered alongside a wide range of other methods. ‘Walk & Talk’ site visits are mentioned in the “Shaping Better Places Together” report.
<b>FGE16</b>	Engagement should be understood as a multi-stage process and invite ongoing contributions from those affected by proposed changes.	The considerations for undertaking engagement with people with a range of disabilities is covered within “Engaging with disabled people: An event planning guide”. “Inclusive Mobility” identifies the need for improving awareness of the wide spectrum of disability and relevant training.



Nr	Key message	Review against existing guidance
<b>FGE17</b>	A range of different ways for people to contribute to the design / engagement process should be offered and support put in place to facilitate this (including practical, financial and communication support).	Covered under existing guidance. The “Shaping Better Places Together” report states that engagement facilitation is a skill set which is primarily based on experience, although it can be enhanced by training. The report highlights the lack of training for facilitators as an existing issue in Scotland. “Engaging with Disabled People” states that disability equality and deaf awareness training for engagement staff is “essential”.
<b>FGE18</b>	Prior to carrying out engagement activities advice should be sought on the full range of communication preferences and needs that are likely to be presented including advice from communication / language professionals on practical issues around planning costs and support for breaks, etc. Communication strategies to support ongoing engagement should be drawn up.	The Basics section of “New Conversations 2.0: LGA guide to engagement” discusses the benefits of continuous engagement.
<b>FGE19</b>	When undertaking inclusive engagement, planners and designers should be proactive in identifying communication preferences and needs, rather than seeking to respond to needs on the day or putting in place a standard level of provisions which assumes the needs of the participants.	“Covered under existing guidance. The ‘How to choose the right level of engagement’ of “New Conversations 2.0: LGA guide to engagement” discusses different ways for people to contribute to the engagement process.
<b>FGE20</b>	When undertaking inclusive engagement, planners and designers should be proactive in identifying suitably accessible venues to accommodate adults with different types of impairment. Again, accessibility needs should be identified early in the process, to ensure suitability of venues.	The ‘Working Together’ standard of the “National Standards for Community Engagement” states that different methods of communication should be used to meet the needs of all participants.”
<b>FGE21</b>	New schemes and changes to street designs need to be accompanied by wider public awareness raising in relation to how the space should be used. This includes education of all road users - pedestrians, cyclists and drivers - to ensure that the space is used as intended.	Covered under existing guidance. This aligns with the Planning standard set out within the “National Standards for Community Engagement” and is also covered in other guidance such as “Engaging with disabled people: An event planning guide”.

Nr	Key message	Review against existing guidance
<b>FGE22</b>	Engagement activities should include proportionate representation from pedestrians as well as cyclists and vehicle users to ensure that all voices are equally heard.	Covered under existing guidance. This aligns with the Planning standard set out within the “National Standards for Community Engagement” and is also covered in other guidance such as “Engaging with disabled people: An event planning guide”.

# Appendix B.1

## Focus group guide



## Focus group – blind and partially sighted users

### Theme A - approaches to engagement

#### Introduction

Thank you for meeting with us today as part of a research project for Transport Scotland, the Scottish Government and Department for Transport about inclusive engagement in street design projects. I am an independent researcher who has been asked to carry out this work - I do not work for the Scottish Government or Transport Scotland.

The conversation today is informal and should be relaxed - we are simply interested in hearing your views and learning about your experience of inclusive engagement. There are no right or wrong answers and you are not obliged to answer any questions that you do not want to.

Any personal information, like your contact details that you have given to us, will be held according to the **General Data Protection Regulation (GDPR)**. This means that it will be kept completely confidential and will not be shared with anyone outside of the research team. All personal information will be deleted at the end of the project.



**With your permission, we would like to voice record this session today. We will treat all of your comments anonymously and will never use your name when reporting our findings.**

**Once the project is complete, the recording will be destroyed.**

**At the end of the session, we would like to give you a gift token to thank you for your time. We can also reimburse any reasonable travel expenses incurred by you to attend today (this includes anyone who has accompanied you to this session).**


Before we start, can I just check that you have received and read the information sheet (copy sent in advance), that you understand what taking part will involve, how your feedback will be used, and that you are content to continue (verbal consent)? Please let me know if you have any questions.



#### Start of exercise




To begin with, I should make clear that we appreciate that some of you may have a greater deal of experience in public engagement for street design, compared to others in the group. We are keen to hear your views, regardless of your level of experience, even if you have no experience at all.



We are using the term '**public realm projects**' during this exercise. You may be unfamiliar with this term, but it refers to the design of public spaces, such as streets in urban areas. It is important to ensure that such spaces meet the needs of their users, that they are accessible and do not present any barriers to using the space.





The feedback you provide today will help us to establish best practice principles, which designers can use in the future when speaking with people about public realm projects.



1		<p><b>Question 1. Have you ever been involved in public realm project design before?</b> (i.e. have you had a say in how public spaces are designed?)</p>
		<p>Yes / No</p>
		<p><i>If Yes: Discuss questions 2A</i></p>
		<p><i>If No: Discuss question 2B</i></p>

2A		<p><b>A. What are the main reasons why you have not previously been involved in public realm designs / engagement before?</b> [Prompt: Have you ever been asked?]</p>
		<p><b>B. What have been the main barriers to your involvement?</b></p>

2B		<p><b>What public realm project was it?</b></p>
		<p><b>When was it?</b></p>
		<p><b>In what way(s) did you get involved? (for example, made a written contribution, attended a public meeting, or attended an engagement event?)</b></p>




3B		<b>A. How did you find out about the public realm project in your area?</b> [Prompts: Online, letter, TV/Radio, word of mouth]
		<b>B. When you found out about the project, was this at the right time, too late or too early?</b> [Prompt: Why do you say that?]





4B		<b>A. Did you contribute to the design brief (i.e. prior to the initial design) or was your involvement later in the project?</b>
		<b>B. Did the design team set out how the design would be developed and how your views would be taken into account?</b>
		<b>C. If your views weren't taken forward in the design, was the reason for this explained to you? If so, how was this done?</b>
		<b>D. After the initial contact with the design team, how often did they re-engage with you, if at all?</b>

5B		<b>A. What were the good things / positive aspects of your overall experience or involvement in the design process?</b>
		<b>B. What were the negative aspects / weaknesses of your overall experience or involvement in the design process?</b>

**ALL attendees will be asked the following questions..**

We would now like you to think about your future involvement in public realm design..

6		<b>A. In the future, how would you like to find out about public realm projects in your area?</b> [Prompts: Online, letter, word of mouth]
		<b>B. When would you like to be invited to get involved in the design process?</b> [Prompt: Before initial design / later in the design process]
		<b>C. What would be the best way for designers / design teams to invite you to get involved in the design process?</b>

7		<b>A. In the future, what more could design teams do to make the designs easier for you to interpret / understand?</b>
		<b>B. In the future, what types of information would you like to know if you were getting involved in the design of a public realm project?</b>
		<b>C: What kinds of support would you need for you to get involved in the design of a public realm project?</b> [Prompt: Information in alternative formats, events that follow a particular format?]
		<b>D. What would be the best way to record your involvement in the design process?</b> [Prompt: By email, letter, audio file, another format]

## **Concluding remarks**

Thank you again for taking part in this work, and for sharing your views and experiences with us.

I do not have any further questions for you.

**Is there anything else that you would like to add about your own experience of involvement in public realm design projects, or about inclusive engagement in general, that I have not given you a chance to say?**

If you do think of anything else you would like to add, you can contact the research team at any time using the email or telephone number on the information sheet that was given to you.

Thank you.



# Appendix C

**Perspectives of disabled street users on inclusive physical design**



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## Appendices

Appendix c.1

Focus group guide

## **19. Introduction**

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- 19.1.1. This Appendix to the main research report entitled “Inclusive Design in Town Centres and Busy Street Areas” summarises the findings from the second stage of the focus groups undertaken with disabled street users which examined their perspectives on the physical features that are typically found within town centres and on busy streets, and approaches to inclusive physical design measures.
- 19.1.2. The full methodology for undertaking the research with disabled street users is provided in Appendix B to the main report.

## 20. Overview of the research methodology

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### 20.1 Introduction and evolution of methodology

- 20.1.1. At the outset of the research study the intention was to gather the perspectives of disabled street users through a series of structured interviews. During stage 1 of the project there were a number of requests to the research team via the client group by members of the working group who wished to assist the research team in their understanding of the existing issues.
- 20.1.2. These inputs took the form of site visits and additional grey literature material. The research team attended a TRL “Accessible Public Realm” workshop as an observer and meetings were held with the Royal National Institute of Blind People (RNIB), Guide Dogs and with the National Federation of the Blind of the UK (NFBUK).

#### **Observer at the TRL “Accessible Public Realm” workshop**

- 20.1.3. A member of the research team attended a TRL group workshop as observer. The group covered a number of different disability perspectives. While the group could not reach consensus on some areas, it was observed that some underrepresented their own perspective to support another disability perspective, with respect to kerb height. This informed a revised approach for this research study with focus groups made up ideally of disabled street users with the same impairment.

#### **Guide Dog / RNIB street experience Leith Walk, Edinburgh**

- 20.1.4. The importance of the kerb in guidance for white cane and guide dog users was highlighted during an on-street meeting between the research team and the Guide Dogs and Royal National Institute of Blind People (RNIB).
- 20.1.5. Guide dogs require kerbs to guide them and to inform decision points, e.g. crossing the road. White cane users value the kerb similarly and there was more confidence with this type of demarcation.
- 20.1.6. The meeting highlighted their concerns regarding street features such as level surfaces and the limitations of tactile demarcation, as well as bollards, A-frames etc. There was concern about visually impaired street users walking into the cycle lane (in level surface designs with tactile demarcation) and so conflicting with cyclists, floating bus stops and in particular concerns about ‘safety’ using zebra crossings to access bus stops which impacts upon the users’ confidence in using such crossings.

#### **Site meeting with NFBUK – Kirkintilloch and Lenzie Station**

- 20.1.7. The research team attended a site meeting with the National Federation of the Blind of the UK (NFBUK) in Kirkintilloch and Lenzie Station.
- 20.1.8. Similar concerns to those raised by the Guide Dogs / RNIB were raised. Safety concerns were raised with regards to kerb demarcation between pedestrian and vehicle areas. A preference was noted for signalised crossings, whilst zebra crossings were reported as feeling ‘unsafe’ and there is less confidence in their use.
- 20.1.9. It should be noted that the term ‘shared space’ was used during the site meeting to describe the scheme collective and individual features. This caused a level of confusion but was clarified on site by questioning and understanding their concerns.
- 20.1.10. There was discussion on safe routes not being the shortest and straightest route and poorly located street features presenting a hazard to access.

## Focus group approach taken

- 20.1.11. The above observations informed the focus group approach, in particular the inclusive physical design measures element. The participants were encouraged to attend the focus groups which related to their particular disability or interest. This ensured there were appropriate reasonable adjustments in place, but also allowed the researchers to gain a level of consensus from each disability street user perspective, without being influenced by other perspectives.
- 20.1.12. The term ‘shared space’ was very emotive to some groups, therefore the term was clarified with ‘people orientated streets’ and a number of examples were given for each group to consider. When participants used the term ‘shared space’ they were asked what they meant and if necessary, to create distinction by describing the physical features such as ‘kerb’, ‘low kerb’ and ‘level surface’.
- 20.1.13. The term ‘low kerb’ was used by participants during the focus groups to refer to kerbs of lower height, but as this term does not have a specific definition it has been reported upon in this research study as ‘kerb’.
- 20.1.14. The focus group facilitators were asked to pay particular attention when ‘safety’ was mentioned and to ask participants to explain what their safety concerns were.

## 20.2 Inclusive physical design measures considered

- 20.2.1. As outlined in the main report, the scope of the research into inclusive physical design measures considered four design topics, namely:
- Crossings (crossing types and spacing).
  - Segregation between pedestrians and vehicles (vertical and horizontal).
  - Level or reduced level surfaces.
  - Obstructions and ‘street clutter’ including signs, advertising, street furniture, waste recycling and bollard type fixtures.
- 20.2.2. The second half of the focus groups followed a topic guide (Appendix C.1) which explored the public realm features that might be encountered on a typical town centre or busy urban centre street setting and whether these features were considered to have any positive or negative impacts on access. The public realm features considered included:
- Crossings – uncontrolled and controlled crossing of carriageways.
  - Footways – kerbed footways.
  - Cycleways – cycleway adjacent to carriageways and / or footways.
  - People orientated streets - different street types found in town centres and busy streets relating to different levels of demarcation as well as vehicle flow and speed.
  - Supporting vehicles – disabled parking, tricycle parking etc.
  - Street features – bollards, A-frame signage, seating, cycle parking, litter bins etc.

20.2.3. Table 4 below outlines the research study scope in relation to the street feature themes.

**Table 4 - Research areas in relation street features themes**

<b>Street Feature Themes</b>	<b>Crossings (formal and informal types and regularity)</b>	<b>Segregation between pedestrians and vehicles (vertical and horizontal)</b>	<b>Level or reduced level surfaces</b>	<b>Obstructions and ‘street clutter’</b>
<b>Footways</b>		YES		
<b>Cycleways</b>		YES		
<b>People orientated streets</b>		YES	YES	
<b>Crossings</b>	YES			
<b>Supporting vehicles</b>				YES
<b>Street features</b>				YES

## **Limitations**

### **Degree of impairment and personal adaption**

- 20.2.4. The descriptions of the individual participant’s impairment have been standardised in focus groups, although the summary table for each section does, where possible, identify any distinction between different degree and / or type of impairment.
- 20.2.5. The degree of an individual’s impairment is a combination of the level of personal adaption they have achieved to support their own mobility as well as other support they may have, including a personal assistant.
- 20.2.6. When considering the participants’ responses, a level of caution should be made by the reader not to generalise impairment, since it is very personal to the individual, and appreciating the difference within each category as well as those with multiple impairments.

### **Cognitive impaired and non-visible disability input**

- 20.2.7. There were a number of participants representing the disabled street users with cognitive impairment (dementia) and non-visible disabilities (including learning difficulties) who attended the focus groups. Upon review of the material given there was not a lot of detail specific to these impairments.
- 20.2.8. The importance of colour / tonal contrast and the impact of paving patterns and its impact on access by causing confusion / disorientation was raised by some participants in this group of users.

## 21. Crossings

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### 21.1 Introduction

- 21.1.1. The focus groups discussions around different crossing types were separated into informal (uncontrolled) and formal (controlled) crossings. This allowed examination of the qualitative factors that influence different crossing types but excluded speed and traffic flow as objective research into these would require a site-based approach in order to establish a common point of reference.
- 21.1.2. The crossing types considered within each group are summarised below.

#### **Informal (uncontrolled) crossing**

- Unmarked courtesy crossings - dropped kerb at either side of road, no markings.
- Raised continuous footway - a crossing which is raised up to the same level as the footway.
- Pedestrian refuge islands - a safe area for those crossing the road, located within a traffic island.
- Dropped kerb - a lowered level of footway to reduce the height of the kerb relative to the road.

#### **Formal (controlled) crossing**

- Zebra crossings - visible crossings marked onto the road, drivers required to stop and give way.
  - Signal controlled crossings - push button operated pedestrian signals (puffin crossing with a detector and same-side signal and pelican without detector and far side pedestrian signal).
  - Toucan crossing - push button operated signals for use by both pedestrians and cyclists.
- 21.1.3. Respondents were asked to consider each of the different crossing types and to explain which factors support the level of access they provide.
- 21.1.4. The regularity of crossings was not covered in the focus groups due to the format, however the parallel TRL research did examine this.

### 21.2 Informal (uncontrolled) crossings

#### **Unmarked courtesy crossings**

- 21.2.1. Participants who had no visual impairments would consider using an unmarked courtesy crossing, for example a hearing impaired participant noted that great care was needed with courtesy crossings, and that they act as a barrier to access as they place a greater amount of responsibility on the user when compared to signal controlled crossings. In comparison, street users with reduced mobility said that their level of comfort with using a courtesy crossing varied depending on a combination of footfall and traffic levels, such as reasonable level of pedestrian demand and low traffic levels.
- 21.2.2. Unmarked courtesy crossings were not supported by participants who had a visual impairment. The deafblind respondents reported concerns over a lack of clarity over who has priority, while the visually impaired street users said that they are

impractical for them as there was no certainty of whether a driver would stop (in the absence of visual cues). The overall consensus was that unmarked courtesy crossings do act as a barrier to access with those that are visually impaired:

- Participant comment on courtesy crossings: “I wouldn’t trust that; how would drivers know to stop there if there isn’t anything on the road!? I would think a dropped kerb would indicate a driveway.” [deafblind male]

### **Raised continuous footway**

- 21.2.3. Raised continuous footways are considered more accessible and would, for many, be seen as an improvement to a flat crossing on the road (unmarked or zebra crossing) in that they also offer benefits as a traffic calming feature.
- 21.2.4. It was also suggested in several groups that using a different colour contrast between the pavement and the area with vehicles, as well as kerb and / or markings would be beneficial for raised continuous footways as a way of making it more visible and obvious to drivers that the space was to be used differently. Indeed, it was suggested having them marked clearly in this way may also work as a traffic calming measure at junctions. There was also mention of a need to use contrasting colour and texture to ensure that there is differentiation between the footway and the carriageway (i.e. a continuous footway did not look like a piece of the footway which could be walked on unintentionally).
- Participant comment: “I think the best thing would be changing the colour of the tarmac, putting different stone chips in the tarmac...with a motorist’s hat on - if that looks like it’s flat, you can fly into that and rattle your suspension.” [male with reduced mobility]

### **Pedestrian refuge islands**

- 21.2.5. Participants who had no-visual impairments considered pedestrian refuge islands support their access needs if designed correctly. The most important consideration was the width of the island and whether there was sufficient space to wait safely.
- 21.2.6. Participants who had a visual impairment gave mixed views on how pedestrian refuge islands impacted on their sense of access to an area. There was concern among visually impaired street users that great care is needed to ensure that the island is not mistaken for the far side of the road. This could mean that a visually impaired user may think that they have reached the safety of the opposite pavement, when in fact they are still in the middle of the road. This would therefore pose a safety risk to the person crossing the road.
- Participant comment: “I find pedestrian refuge areas difficult to use as I have difficulty judging traffic speed, you need to be sighted to take advantage of these.” [deafblind female]
- 21.2.7. Overall, pedestrian refuge crossings were only supported by a minority of the visual impairments group, by people who either had a level of sight, and / or are familiar enough with their local area to utilise such crossing facilities.

### **Dropped kerbs**

- 21.2.8. Across all groups, dropped kerbs were considered to support access. However, it was identified that it is important they are designed to allow a guide dog or white cane user to find them easily. Any tactile paving for visually impaired street users also needs to be correctly orientated when used at dropped kerb locations. Overall however, it was considered that a dropped kerb offers pedestrians a clear and



safe point of accessing crossing points and must be located at routine intervals in busy areas. It was also noted that the location of the dropped kerb should be in an appropriate and useable position, where there would not be obstacles present.

- Participant comment: “It’s (important) to put dropped kerbs in appropriate places and not in parking bays – I’ve seen that where you’ve got a parking bay right in front of a dropped kerb.” [female with reduced mobility]

## 21.3 Formal (controlled) crossings

### Zebra crossings

- 21.3.1. There were contrasting views on how zebra crossings support access. A number of participants considered them safer than courtesy crossings and more appropriate for moderately higher vehicle flows. Those with a hearing impairment and deafblind participants welcomed that the law was on their side when using a zebra crossing, in that motorists are legally obliged to stop.
- 21.3.2. In contrast, it was noted in the visually impaired group that there was still concern on the potential of non-compliance of drivers stopping. Indeed, there was a sense that users ‘hoped’ that a driver would stop to allow them to cross but had no way to confirm this, as it relies on visual confirmation. Similarly, in the group of participants with reduced mobility, there was comment that drivers do not always seem to understand how zebra crossings work (i.e. non-compliance).
- Participant comment: “Difficult to use as there is no way to stop the traffic and no way to confirm that the traffic has stopped.” [visually impaired male]
- 21.3.3. It was noted by one respondent that some people with certain impairments view the ‘zebra’ style of colour scheme as giving the impression of there being ‘holes’ in the road in black segments.
- 21.3.4. Overall, non-visually impaired participants stated that zebra crossings are preferable over courtesy crossings and support access on moderately higher traffic flows. One respondent in the group of participants with reduced mobility preferred the zebra crossing as it requires an element of eye contact, rather than just obeying the green light without looking properly at the street surroundings. In contrast, visual impaired participants considered zebra crossing inhibiting their access, as there is lack of confidence in drivers giving way to them on zebra crossings, with all participants expressing various level of discomfort.
- 21.3.5. It was suggested from both the deafblind and reduced mobility groups to have zebra crossings raised up in more locations which would be helpful as a traffic calming measure as well as reducing speed.
- 21.3.6. Visually impaired respondents also noted that there was likely to be an issue for them in the future as electric vehicles become more prevalent, as they are much quieter (although, all new electric cars are to be fitted by acoustic vehicle alert system (Avas))<sup>68</sup>, meaning that a pedestrian may step into the road without being aware of the vehicle’s presence.

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68 <https://www.gov.uk/government/news/new-noise-systems-to-stop-silent-electric-cars-and-improve-safety>

## Signal controlled crossings

- 21.3.7. Signalised crossings are the preferred crossing type among all disabled street users, be it at standalone facility or as part of signalised junction. Despite this, it was noted that while more accessible than zebra crossings, there was still a level of concern raised by participants with visual impairment on the reliance on drivers obeying the rules and stopping at signalised crossings.
- 21.3.8. For example, a deafblind respondent questioned how it was possible to know that it is safe to cross, even with a signal-controlled crossing (with green person signal and a tactile cone). This lack of confidence in driver compliance to stop was considered to be an uncomfortable arrangement ('felt unsafe') for this group.

## Push button unit - location

- 21.3.9. Across the groups, there were comments about the traffic signals themselves, including the positioning of the call (push button unit) box, which was considered problematic. This was in the sense that the pole and pedestrian push button position could be positioned away from the pedestrian desire line with the layout / position of pole / pedestrian push button not consistent or most convenient (i.e. push button unit should be located at the right hand side at all crossing points as outlined in existing guidance / historical installation this is not always the case).
- 21.3.10. Wheelchair users also noted that it would be more helpful if the pole / pedestrian push buttons were located on a level area rather than on a slope at the dropped kerb and questioned why, when placed on pedestrian island crossings, this had to be at the far end, furthest away from them (outside of the desired line). The participants referred to the practice of pedestrian push buttons being orientated to face oncoming traffic (i.e. the left-hand side of the island crossing).
- 21.3.11. Similarly, for guide dog users, there was an additional problem that the dog tended to go to the kerb to wait, while the pedestrian push button / pole was often set further back, therefore making it difficult to press and to observe the signals / orientate themselves and be ready to proceed (i.e. losing crossing time).
- Participant comment: "Where crossing boxes are at the side rather than in front of me, once I have hit that box the guide dog walks up to the kerb, the box is now behind me - there isn't anything across the road, I need to look back to see whether there is a red light, while holding onto the guide dog, or if there is one to use the rotating cone." [deafblind impaired male]

## Multi-sensory signals

- 21.3.12. Visually impaired participants acknowledged the importance of having audible beepers and / or rotating tactile cones as enabling access, but only when these are in working order (which often they are not). However, respondents in the deafblind group noted that audible beepers were not always useful, as it can sometimes be difficult to know where the noise is coming from (and so a rotating tactile cone was considered much better).
- 21.3.13. It was also noted across the groups that it was vital signalised crossings allow sufficient time for pedestrians to cross the road - which some do not seem to do. One group of mobility impaired respondents indicated that the safest type of signalised crossing were the ones that detected a person present on the crossing and would hold the traffic on red aspect until the pedestrian has cleared the crossing (PUFFIN<sup>69</sup> crossing - Pedestrian User Friendly Intelligent).

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69 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/851465/dft-traffic-signs-manual-chapter-6.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/851465/dft-traffic-signs-manual-chapter-6.pdf)

## **Toucan crossings**

21.3.14. While broadly seen as unproblematic, hearing impaired street users did not seem comfortable with toucan crossings (two can cross - pedestrian and cyclists crossing), with the question being asked whether it would be possible to have a marked cycle lane across a crossing and whether cyclists should be forced to walk and push their bike on a crossing. At present, the rules for using toucan crossings are seen as ambiguous and this made pedestrians feel anxious and unsure about their right of way.

## **Open to Highway Code awareness**

- 21.3.15. Participants were open to and would welcome more awareness raising or making more obvious how different crossing types work. This was based upon several participants explaining that they were unaware of the different types of crossings and what differentiated them (for example, some did not know the difference between a puffin, pelican or toucan crossing).
- 21.3.16. The point was made that, unless people had taken a driving test, they are unlikely to be familiar with the highway code and different crossing types. Given that several participants are precluded from driving (for example, having been blind from birth or disabled from an early age), they are unfamiliar with some of the technical differences in crossing types and their appropriate use.
- 21.3.17. It was stressed this was likely to be an issue that was disproportionately prevalent among disabled people.

## **21.4 Summary**

- 21.4.1. All groups reported a preference for signal-controlled crossings, as they provide the most confidence / comfort. Participants with a level of visual impairment reported having less confidence / comfort with other types of crossing than the other groups.
- 21.4.2. A key aspect in the suitability of the type of crossing was the traffic flow along the road being crossed, as well as the pedestrian flow. Some visually impaired street users will use a pedestrian refuge island if they are familiar with the crossing in their local area, rather than a zebra crossing which may be used in a busier location.
- 21.4.3. A summary of the findings with regards to crossing is outlined below and in Table 5.

## **Informal (uncontrolled) crossings**

- FGD1 - Unmarked courtesy crossings are considered to give the least access to disabled groups, with visually impaired participants expressing a high level of discomfort and avoidance of such facilities.
- FGD2 - Raised continuous footways – there is a level of acceptance from disabled street users if designed correctly, with a clear distinction between the carriageway and footway, dropped kerb at the crossing with contrasting and tactile paving to define the area.
- FGD3 - Pedestrian refuge islands are helpful but need to be designed to an appropriate width and not be too narrow. However, some consideration needs to be given in refuge island design to ensure it is apparent that there is another carriageway to cross for those who are visually impaired / blind, i.e. the tactile paving should not be laid across the full depth of the refuge.

- **GD4** - Dropped kerbs are helpful but need to be appropriately located and designed to comply with standards for maximum gradients, crossfall and kerb upstand. Otherwise they become more of a barrier than a help to disabled people.

### Formal (controlled) crossings

- **FGD5** - Zebra crossings are preferred over courtesy crossings by non-visually impaired participants. Visually impaired focus group participants expressed a high level of discomfort and avoidance of these facilities, similar to their experience of courtesy crossings.
- **FGD6** - Signal controlled crossings are considered by all users as the option that presents most access to disability groups, although visually impaired participants still expressed a level of discomfort with such facilities as they required assurance (by listening) that vehicles had stopped. Additional concerns were raised by visually impaired participants on some older traffic signal installations with poor location and orientation of the push button unit. A few mobility impaired participants expressed a preference for the push button unit to be located on a level area rather than on the slope at the dropped kerb.

### Key messages

21.4.4. Based on the collective feedback from the focus groups in relation to formal and informal crossings, a number of key messages were identified.

- **FGD7** - User preference for the type of pedestrian crossing is influenced by an individual's level of confidence, ability and any personal adaptation, including their familiarity or otherwise with the local street environment. All disability groups preferred signalised crossings, with visually impaired users expressing that they experience the least amount of discomfort with signalised crossings.
- **FGD8** - There is a level of acceptance to the use of non-signalised crossings on town centre / busy streets by disabled street users who were not visually impaired. In addition, visually impaired street users would consider refuge islands and continuous footways when familiar to them, although this is dependent on the traffic and pedestrian flow and a good standard design arrangement (tactile paving / kerb edges, i.e. any kerb edge running parallel to a carriageway). These crossings become more acceptable when disabled street users are escorted (personal adaptation) by a personal assistant / carer.
- **FGD9** - Tactile paving and kerb edges, i.e. any kerb edge running parallel to a carriageway (representing good standard design arrangement) improve the level access / comfort when street users interact with a crossing in a town centre / on a busy street. The research has shown that the standard requirement at a crossing should include dropped kerbs, suitable slope / camber, tactile paving in the correct orientation, colour and contrast and a minimal kerb upstand at the dropped kerb (5mm maximum). Further, at a signalised crossing the pole position and push button unit orientation must be correct and pedestrian detection to extend the crossing time is beneficial.

**Table 5 - Summary of crossings – formal and informal, type and regularity**

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Less Enabling</b>	<b>Notes</b>
<b>Hearing</b>	<p>Signalised crossing preferred.</p> <p>Consider using zebra crossing over courtesy crossing.</p> <p>Dropped kerbs.</p> <p>Consider using pedestrian refuge if designed correctly.</p> <p>Consider using continuous footway.</p> <p>Consider using unmarked courtesy crossing.</p>		
<b>Visually</b>	<p>Signalised crossing preferred - presents the least discomfort.</p> <p>Dropped kerb with tactile correctly orientated.</p> <p>Consider using continuous footway if designed correctly with tactile distinction between pavement and carriageway.</p>	<p>Zebra crossing presents a level of discomfort to users. Users unlikely to use these unless in a familiar and known location.</p> <p>Consider using pedestrian refuge if designed correctly / known location and familiar.</p> <p>Unmarked courtesy crossing – users will avoid these crossings.</p>	<p>Visually impaired (VI) groups were concerned about the level of assurance that can be given that vehicles have stopped, with signalised crossings presenting the least discomfort / anxiety.</p>
<b>Deafblind</b>	<p>Signalised crossing preferred - presents the least discomfort.</p> <p>Dropped kerb with tactile correctly orientated.</p> <p>Would consider using continuous footway if designed correctly with tactile distinction between pavement and carriageway.</p>	<p>Zebra crossings present a level of discomfort to users and are unlikely to be used unless in a familiar and known location.</p> <p>May use pedestrian refuge if designed correctly or in a known location and familiar to the user.</p> <p>Unmarked courtesy crossings – users avoid these crossings.</p>	<p>As per VI group comments, participants were concerned about the level of assurance that can be given that vehicles have stopped, with signalised crossings presenting the least discomfort / anxiety.</p>

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Less Enabling</b>	<b>Notes</b>
<b>Mobility</b>	<p>Signalised crossing preferred.</p> <p>Consider using zebra crossing over courtesy crossing.</p> <p>Consider using pedestrian refuge if designed correctly.</p> <p>Dropped kerbs.</p> <p>Consider using continuous footway.</p> <p>Consider using unmarked courtesy crossing.</p>		
<b>Learning / Non-visible</b>	No comments raised.	'Zebra' crossings - style of colour scheme can give the impression of there being 'holes' in the road in black segments.	Follow-up (following focus groups) with participants with learning disability and / or non-visible disability revealed that users' views are aligned with those of other disability groups.

## 22. Segregation between pedestrians and vehicles / level or reduced level surfaces

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### 22.1 Introduction

22.1.1. The focus groups discussion around the three themes (footway, cycleway and people orientated streets) aimed to inform the research by understanding factors that impact on access for each disability in the town centre / busy street areas. This allowed qualitative factors that influence segregation between pedestrians and vehicles to be examined.

### 22.2 Footways

22.2.1. Participants were initially asked about footway widths and the extent to which these features impact on their level of access. Broadly speaking, these are separated into narrow, standard and wide footways, as a guide. The following outlines the different perspectives and wider issues that impact on access of footways.

#### Width

22.2.2. Across all groups, there was agreement that narrow footways impact on their level of access the most, especially if obstacles are present such as lampposts and bus stops that reduce the effective footway width. Among those with a hearing impairment, the presence of a narrow footway posed an additional communication problem in particular, since deaf participants can be reliant on lip reading as one of their main means of communication (alongside BSL) and are unable to have sufficient distance to allow them to see their communication companion when speaking or interpreting:

- Participant comment: "When I'm walking with a companion and trying to talk and lip read, we can't walk as close as two hearing people...we need more space." [hearing impaired participant]

22.2.3. This also means that communication may need to stop if it proved necessary to walk single file on the pavement. On wider footways, this problem was less apparent as there is sufficient room to walk side by side, even if an obstacle was encountered. This was also described as more comfortable.

22.2.4. A similar theme came from deafblind respondents, who described the challenges associated with having a guide dog on a narrow footway, which can be difficult to manage where obstacles and street clutter are present:

- Participant comment: "There isn't enough room always...particularly when there are bus shelters and other people on the pavement." [deafblind participant]

22.2.5. This concern was also shared with participants in the visually impaired group. When being guided, deafblind respondents indicated that wider footways are better as they reduce the need to move single file through the footway. This problem for guide dogs was said to be often not realised or understood among street designers. As such, the effective width of the pavement is key, not just in terms of the distance from the edge of the building or wall line to the kerb but also any obstacles present in the footway which effectively reduce the useable width of the footway further.

22.2.6. Respondents with other physical impairments considered that the wider a footway is, the better. It was agreed that as wheelchair specifications / models are becoming larger, there needs to be more / sufficient space for them to pass. There was a similar view from those in the group of participants with reduced mobility who indicated that where a footway is too narrow it can result in one person needing

to move out into the roadway to pass, which is unsafe. Wider footways were seen to lessen the likelihood of this happening and therefore were considered more enabling for participants with reduced mobility, while narrow footways were considered to impact the most on their level of access.

- 22.2.7. Pavement clutter was also mentioned as ‘a big problem’ for participants with reduced mobility (covered in more detail in the Obstructions and ‘street clutter’ in section 5.3) due to obstacles being present on a footway which can present difficulty in moving around town centre environments, especially for those using wheelchairs.
- 22.2.8. It also became apparent during conversations that while for some groups (specifically those with reduced mobility and visually impaired individuals) the pavement needs to be sufficiently wide, there is a risk that the pavement can be ‘too wide’ (although it is important to note that this was not mentioned by deaf or deafblind people or those with reduced mobility).
- 22.2.9. In the visually impaired group, it was stated that people tended to follow the building line or the kerb when navigating through a space, and therefore pavements that are too wide make it difficult to navigate due to the large distances between the kerb and building line. Participants described such spaces (including pedestrianised areas during busy periods) as being potentially disorientating and, therefore, areas to avoid:
- Participant comment: “If the pavement is 4 metres then it’s a wide pavement, but you would still manage that. If it was 12 metres, then it’s a different story... it’s not really a pavement then!” [visually impaired male]
- 22.2.10. Where spaces are wider, visually impaired respondents commented that tactile edges are required to demarcate the edge of the footway and that these need to be properly maintained. Hearing impaired participants also mentioned the need to be able to feel ridging or tactile edging on the pavement as something that was important to them. However, participants with reduced mobility made the point that tactile edging and blister paving can cause discomfort / potential ‘painfulness’ for some such older adults with reduced mobility / fragile joints, etc. Tactile surfaces and slope / camber were also raised as they can redistribute the balance of weight and place too much pressure on lower body joints.

### **Footway conditions**

- 22.2.11. Across the groups, comments were made about poor standard of footways and general maintenance of pavements, especially in relation to cracking and subsiding of paving slabs and poor-surface quality. One deafblind respondent mentioned that the condition of the pavement (footway) was more important than the width in terms of what disables them and others in the group of participants with reduced mobility concurred, stating that uneven surfaces and loose slab paving are a particularly significant obstacle to access. Width was considered immaterial and the main concern was that the pavement was even and level.
- 22.2.12. Tree roots / surface rooting was also mentioned by several respondents as something which interfered with pavements / pathways and which could be a significant trip hazard to pedestrians, especially those with visual impairments and reduced mobility. Therefore, careful consideration is needed on the location and types of tree being considered, as well as root management / containment. See section 5.3.



## Materials – colour and contrast

- 22.2.13. In the hearing, deafblind and blind and visually impaired groups, discussions turned to the need to ensure that footways have sufficient contrast so that they can be clear where the edge of the road is. Examples given were the same material (or similar in terms of colour and contrast) being used for the road and pathway, which made it difficult to distinguish potential obstacles or edges.
- 22.2.14. It was also noted that certain materials are often used but then found to be unsuitable when exposed to different weather conditions. For example, the impact of precipitation on certain types of paving leads to this becoming a slip hazard, or material when wet has a reduced level of tonal contrast. It was the view of participants that these materials are often used for heritage (historical streets) reasons and should be used only if further consideration to account for seasonal changes on the different level of detection (access) by disabled street users is given.

## Other footway issues

- 22.2.15. The camber / slope of the footway was also mentioned by several respondents as something that impedes balance (access) and can be especially challenging for those using wheelchairs. A downward slope can make pedestrians feel that they are forced down towards the road edge, leading to feelings of instability. Similarly, the camber / slope to dropped kerb can be steep and potentially reduce the effective width of the level of the footway, both of which impact on wheelchair users and those with mobility aides directly. For users of manual wheelchairs, there is an additional challenge in that they must compensate for the camber / slope which is physically demanding for a manual wheelchair user.

## 22.3 Summary – footways

- 22.3.1. Table 6 summarises the factors that support access (by disability group) in relation to footways.
- 22.3.2. From the collective feedback, it is evident that clear, straight demarcated pedestrian footway / pavement areas that are free from obstacles are essential for disabled street users **(FGD10)**.

**Table 6 – Inclusive design public realm features - Footway summary**

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Less Enabling</b>	<b>Notes</b>
<b>Hearing</b>	<p>Effective clear width of a standard footway.<sup>70</sup></p> <p>A form of kerb demarcation / edge.</p>	Narrow footway.	Narrow footways have a detrimental impact on communication with someone else as hearing impaired street users can be reliant on lip reading as one of their main means of communication and are unable to have sufficient distance to allow them to see their communication companion when speaking or interpreting.
<b>Visually</b>	<p>Effective clear width of a standard footway.</p> <p>Colour contrast to highlight kerb / edge / street furniture – supported by careful choice of material.</p>	<p>Narrow Footway.</p> <p>Crossfall.</p> <p>Footway too wide.</p>	<p>Narrow footways provide insufficient space for a guide dog or personal assistant and other pedestrians to pass safely.</p> <p>Wide footways can increase disorientation and / or walk distances.</p>
<b>Deafblind</b>	<p>Effective clear width of a standard footway.</p> <p>Colour contrast to highlight kerb / edge / street furniture – supported by careful choice of material.</p>	Narrow effective width.	Narrow footways provide insufficient space for a guide dog or personal assistant and other pedestrians to pass safely.
<b>Mobility</b>	Effective clear width of a standard footway.	<p>Poor surface quality.</p> <p>Uneven surface.</p> <p>Crossfall.</p> <p>Narrow effective width.</p>	Narrow footways provide insufficient space for a guide dog or personal assistant and other pedestrians to pass safely.
<b>Learning / Non-visible</b>	Effective clear width of a standard footway.	<p>Material choice (for example, natural stone paving) can present slip hazard.</p> <p>Uneven surface, water pooling.</p>	Comments reflected the perspective of participants with reduced mobility who had similar comments.

70 Footway widths defined in Inclusive Mobility ([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/3695/inclusive-mobility.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3695/inclusive-mobility.pdf))

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Less Enabling</b>	<b>Notes</b>
<b>Common themes</b>	<p>Effective clear width of a standard footway.</p> <p>Colour contrast to highlight kerb / edge / street furniture – supported by careful choice of material.</p>	<p>Crossfall.</p> <p>Quality of surface.</p> <p>Footway too narrow or wide.</p>	<p>Ideal footway is clear pedestrian corridor with clear demarcation between building line and kerb line with kerb highlighted with colour contrast.</p> <p>An even surface with minimal crossfall supports access.</p> <p>Seasonal effects on street material need further consideration.</p>

## 22.4 Cycleways and unsegregated shared use paths

- 22.4.1. The views of the participants on cycleways were mixed between the groups. However, overall there was a sense that some form of demarcation is needed between pedestrians and cyclists in town centres and busy street areas.
- 22.4.2. Hearing impaired participants commented that in instances where there is no demarcation or segregation for a cycleway on a busy street, they would typically look for a safer route through to avoid people (at busy times) and cyclists, and this often meant staying on one side of the street. It was also stated that it can be confusing and dangerous where no footway markings are present, meaning a lack of clarity of where they should be, especially as they may not hear a cyclist approaching. Where it is clearly marked out as for cyclists, this was seen as a better street design.
- 22.4.3. Tactile demarcation between pedestrian areas and cycle lanes was seen as effective, but only if both cyclists and pedestrians use it correctly, and if drivers do not park on the spaces. From a deaf street users' perspective, this type of demarcation supports them in accessing the town centre and busy streets and could in fact be slightly better if used correctly. Colour differences between the footway and cycle lane would also be helpful to identify the useable space.
- 22.4.4. Visually impaired and deafblind respondents commented that a key issue, especially for visually impaired people, is not knowing which side of a pathway to be on (where pathways run parallel to cycle ways) leading to increased potential for collisions.
- 22.4.5. A deafblind respondent outlined instances where cyclists have not recognised that a person who is deaf had accidentally strayed onto the wrong side, resulting in a level of annoyance or irritation from the cyclist when a disabled street user is in their way i.e. since hearing impairments are not always apparent to other street users.
- 22.4.6. This issue was also raised by a visually impaired respondent as something that made them particularly uncomfortable. It was considered that lack of any demarcation impacts on their level of access and that there should always be something in the way of a marking. It was noted that there is no 'standard side' that cyclists should be on when using unsegregated shared use lanes and similarly no 'standard side' that pedestrians should use.
- 22.4.7. Similarly, it was seen as problematic that cycleway layouts are not always uniform and standardised. A few participants suggested greater level of public awareness raising about different types of cycle and pedestrian ways and different rules that apply to their use in different contexts was seen as key. This aligns with feedback in the first half (inclusive engagement) of focus groups, and elsewhere within the feedback on inclusive design.
- 22.4.8. It was considered by deafblind respondents that having something tactile between the footway and the cycleway is a better option than having just a painted line along the road - that way it is more obvious to users what side they needed to be on:
- Participant comment: "Non- separation doesn't make sense... clear separation is absolutely key." [male with reduced mobility]
- 22.4.9. Mobility impaired street users described unsegregated shared use paths as 'scary', noting that there sometimes is not enough awareness that cyclists can use the same space as pedestrians. It was suggested that there needs to be education of what space is permissible for use by pedestrians and cyclists and that this would make both more responsible users of shared space. Even a white line was not seen as sufficient by all mobility impaired users:

- Participant comment: “I wasn’t sure where the cycle lanes were, and someone gave me a double expletive because I wasn’t sure where I was, and I wasn’t aware that one half was a cycle lane and one half was for pedestrians.” [mobility impaired male]
- 22.4.10. This group also agreed that a tactile edge is better than a white line and that corduroy tactile edges would be better for mobility impaired users than just a line. However, it was also noted that wheelchair users could get their wheels caught in this, leading to a risk of being tipped out.
- 22.4.11. Mobility impaired street users outlined that kerb delineation was agreed to be good as long as it was of at least a minimum height and some of the more informed participants quoted the PAMELA<sup>71</sup> research that a minimum of 60mm as being required for visually impaired users. One participant mentioned that they are aware of an example of kerbed delineation which was not well executed<sup>72</sup> - it was good for a cyclist, but not for a wheelchair user.
- 22.4.12. Kerbs were considered by the mobility impaired group to be the most suitable measure to define spaces as they provided them with more knowledge of where cyclists are going to be:
- Participant comment: “Ideally, you would want to keep cyclists, motorists and pedestrians separate - disabled people are proportionally more likely to be pedestrians” [mobility impaired male].
- 22.4.13. A kerb was also considered to be a better option than separation by grass on the basis of detectability. Ideally, cyclists, motorists and pedestrians should be separated, not just by markings, but through different height levels such as kerbs. While there needs to be a kerb, it was noted that these need to be dropped kerb at certain points, with a flat area on the footway wide enough for two wheelchairs to pass alongside to avoid a camber issue / adverse slope (see difficulties encountered with camber / slope above).
- 22.4.14. Among visually impaired respondents, some form of kerb was considered to be the best option as a delineator between a cycleway or the cycle area in a shared use path and the pedestrian area (agreed throughout the groups). There was also mention of this being preferable to the other solutions discussed, including using tactile edges, which are said to provide insufficient delineation:
- Participant comment: “Tactile marking will not stop cyclists turning onto it.” [visually impaired male]
- 22.4.15. It was also noted that colour delineation was insufficient in many cases, so having some tactile contrast was agreed to be better. Guide dogs may not be able to understand colour line delineation alone, and dogs (if capable) would also need to be taught how to interact with corduroy paving (since they instinctively follow kerbs). Indeed, the complexity of modern-day public spaces was said by one guide dog user to restrict the accessibility of spaces that rely on markers that are unfamiliar or confusing to guide dogs.
- 22.4.16. Finally, it was noted that visually impaired users who had some hearing loss had difficulty hearing bicycles or could not hear them at all, either in urban areas (due to background traffic noise) or in other areas meaning that they did not know when cyclists are approaching. It was identified that there was often too much reliance on the cyclist or guide dog identifying each other as an obstacle and a potential hazard and therefore knowing when to stop.

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71 Refer 11. Tyler 2017, Appendix A1 – Literature review

72 A similar observation was made in the literature review - refer to Imrie and Kumar (2011)

22.4.17. As above, there are some notable differences between the groups on what impacts upon each group level of access. Similarly, there is agreement that some form of kerb demarcation is ideal for disabled street users, although, there is an acceptance for tactile demarcation by hearing impaired and deafblind groups. Visually impaired and mobility impaired users prefer some form of kerb demarcation, for visual impaired users it is about confidence / comfort to access the area, while for mobility impaired users it is acceptable with kerb and dropped kerb provision. There is also concern about the trip hazard which tactile paving presents to wheelchair or stick users.

### **Key message – cycleways and unsegregated shared use paths**

22.4.18. Table 7 summarises the factors that support access by disability group in relation to cycleways.

22.4.19. From the collective feedback, it is evident that kerbed demarcation to cycleways is essential for disabled street users. The provision of some form of kerb demarcation increases the level of access for visually impaired and mobility impaired groups in particular, with all groups expressing the most comfort / least anxiety **(FGD11)**.

**Table 7 - Inclusive design public realm features - Cycleways summary**

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Less Enabling</b>
<b>Hearing</b>	<p>A form of kerbed demarcation (ideal).</p> <p>Tactile line demarcation / colour contrast highlighting demarcation.</p> <p>Line marking as a minimum.</p>	<p>No demarcation.</p>
<b>Visually</b>	<p>A form of kerbed demarcation.</p>	<p>Line marking demarcation only.</p> <p>Tactile surface demarcation only.</p> <p>No demarcation.</p>
<b>Deafblind</b>	<p>A form of kerbed demarcation.</p>	<p>Line marking demarcation only.</p> <p>Tactile surface demarcation only.</p> <p>No demarcation.</p>
<b>Mobility</b>	<p>A form of kerbed demarcation (ideal).</p> <p>Tactile line demarcation / colour contrast highlighting demarcation.</p>	<p>Line marking demarcation only.</p> <p>No demarcation.</p>
<b>Learning / Non-Visible</b>	<p>A form of kerbed demarcation.</p> <p>Tactile line demarcation / colour contrast highlighting demarcation.</p>	<p>Line marking demarcation only.</p> <p>No demarcation.</p>

## 22.5 People orientated streets

- 22.5.1. During the research study, it became clear that the 'shared space' term meant different things to different people, resulting in a level of confusion when discussing specific features that impact on access to the town centre / busy street environment. To assist with the focus group discussions, the participants were asked to explore four options considered as 'people orientated streets'.
- Level surface high street with restricted **service vehicle** access (pedestrianised street).
  - Level surface high street with **local access** only (pedestrianised street).
  - Level surface high street with **no vehicle restriction**.
  - Kerb demarcation high street with no vehicle restriction.
- 22.5.2. Again, respondents were asked to consider each of the different street types and to explain which factors impact on the access in a town centre / busy street environment.
- 22.5.3. If participants wished to discuss 'shared space' they were asked to refer to features which impacted on their level of access.

### **Level surface high street with service vehicle access (perceived low flow / low speed) – pedestrianised street**

- 22.5.4. In the main, those participants with a hearing impairment considered that restricted time access for service vehicles was acceptable. Mobility impaired street users also found it supports their access to have a level street with vehicles only at certain times, as long as it is completely flat and the surface quality good. Furthermore, it was agreed that service vehicles for deliveries need to have access, but required to be managed, consistent between and within areas, and that streets need to be well-designed.
- 22.5.5. Pedestrianised streets that allow access for service vehicles at strict times were acceptable to mobility impaired users, as long as the location of motor vehicles was defined / predictable. If there are restrictions and enforcement of the access times for service vehicles, then this was considered as supporting access for mobility impaired users.
- 22.5.6. Visually impaired street users also commented that loading and unloading at specific times seemed acceptable but noted that it can be frustrating having delivery vehicles parked up at certain times, although this could be addressed by planning to pass through areas at different times of the day and / or service vehicle parking in designated area.
- 22.5.7. In addition, some visually impaired users noted that audible warnings on service vehicles are not particularly helpful, as it was not always clear whether the vehicle was moving towards or away from them. Overall, there was an acknowledgement of the need to carry out deliveries, but a message that these need to be regulated and adherence with scheduled times enforced.
- 22.5.8. Deafblind respondents highlighted that it can be difficult to navigate around parked lorries and there was, therefore, a key question of where they should be allowed to park on a shared level surface. This was consistent with views from participants with a hearing impairment, that both drivers and pedestrians would need to be educated on which part of the street area they should be using.



- 22.5.9. There was a clear message that consistent design and communication should be used to better manage the pedestrian and vehicle access in streets where deliveries are made.

### **Level surface high street with local vehicle access (perceived low flow / low speed) vehicle access**

- 22.5.10. Level surface streets with local vehicle access made visually impaired users feel vulnerable and they noted that people tended to be less observant of their surroundings when they did not need to look out for cars. This can lead to pedestrians / cyclists being less predictable when using level shared surface, such as walking in front of others, criss-crossing over streets, etc. and this can be hazardous, especially for visually impaired individuals who are unable to visually predict the behaviour of fellow pedestrians.
- 22.5.11. One visually impaired participant also described pedestrian behaviour changes at different times of the day / week as resulting in 'different kinds of busy'. At particularly busy times (e.g. morning and afternoon rush-hour), the behaviour of other pedestrians can make areas uncomfortable to access, and without personal assistant support, the participant said that they would avoid the area. A number of mobility impaired participants made similar comments about avoiding busy locations during the festive period, at festivals or during special events, e.g. Christmas markets.
- Participant comment: "You think you might go down as a pedestrian on a Monday afternoon, but you don't know if anything is going to come down, so it has either got to be pedestrianised or open to vehicles with suitable pavements - trying to have a mixture doesn't work." [visually impaired female]
- 22.5.12. Among the mobility impaired group, the level surface streets with (low flow) local resident access, there seemed to be some concern with residents perhaps feeling that they have priority over pedestrians and service vehicles. This may mean that they are more likely to use the space inappropriately, and in a way that made disabled street users feel unsafe.
- 22.5.13. Most mobility impaired users considered service vehicle access to a level surface high street acceptable, but that the introduction of residents' vehicles (low traffic flow) made the area feel less comfortable. Hearing impaired street users suggested that they are 'fine' with a level surface high street with residents' access, although even on a low flow street, there are concerns about bicycles using this area, cyclists need to be more considerate in such environments.
- 22.5.14. On a general note, comments were also made that people-orientated streets with vehicular access (either resident or service vehicles) would be easier to navigate with confidence for those who are familiar with the space, compared to visitors to the area. This is because such spaces are often not accompanied by clear and accessible signage and wayfinding which sets out what the access rules are. Even where signage is present, this can be placed in unsuitable locations (e.g. too high up for wheelchair users to read) or not be made available in accessible formats (i.e. no braille alternatives), meaning that visitors to the area are unlikely to know what to expect. It was suggested that the street design, while navigable for those familiar with the space, may be inappropriate for visitor use.

## Level surface high street with no vehicle restrictions

- 22.5.15. Visually impaired and deafblind participants were asked to expand on their previous comments in relation to level surface. They reiterated the importance of having safe predictable space and clutter-free pavement areas. When asked about the general traffic levels being considered in this option, they considered this option to have most impact on their access on the town centre / busy street and presented a high level of discomfort to the point of users avoiding the area. Some form of clear demarcation is essential, with a kerb being expressed as preferred.
- 22.5.16. Deafblind street users mainly indicated that they would not be comfortable navigating such a level surface space, since they do not like streets without delineation and likened it to the experience that a sighted person would have if it had been snowing and all demarcation was covered / removed.
- 22.5.17. Hearing impaired participants identified that level surface high streets with vehicle access can be confusing as to where vehicles can go and where they can park, including parking outside businesses and becoming an obstacle in the process. For these participants it was considered risky, as they need to look for where it is safe to cross and cannot hear traffic. The lack of demarcation / level surfaces was also identified as being unsafe, as it is unclear where / when they can walk and who has right of way. On busy streets with a lot of people walking, those with a hearing impairment indicated that they could unintentionally block traffic flow by holding vehicles up.
- 22.5.18. Among the non-visually impaired participants, it was discussed that the number of pedestrians using a space (i.e. how busy it is) was likely to have a bearing on how comfortable respondents found it to use - generally busier streets are more difficult to navigate, and some suggested that streets with lots of traffic are 'terrifying' to use.
- 22.5.19. The hearing impairment group suggested that a sign to indicate the operation of level surface areas might be helpful, so that pedestrians and drivers know the characteristics of the street they are entering (but, as above, such signage needs to be accessible and consistent and readily available to visitors to the area in pre-planning their journeys).
- 22.5.20. Mobility impaired participants initially responded positively to level surface shared space, as in their view it supported their needs. They indicated that if they utilised disabled parking spaces they could access / egress from their vehicle more easily. However, further discussion in which they considered using the spaces and potentially having children with them changed their perspective. A consensus was reached that these spaces are uncomfortable in terms of how they interact with these environments.
- 22.5.21. In the learning disabilities and non-visible disabilities group, there was a sense that while good in theory, there is often confusion about how level surface high streets work in terms of permissible use of space by pedestrians and vehicles:
- Participant comment: "Good spaces, but nobody really knows how to use them... that's the problem - pedestrians or cyclists tend to panic when they see a car." [cognitively impaired male with non-visible disability]
- 22.5.22. It was further noted that significant design work would be needed to help reduce the speed of any traffic that is present, which would reduce potential hazards.
- 22.5.23. On streets with lower vehicle speeds, it was considered that level street designs could work as long as they had a clear design, which included managed vehicle speeds:

- Participant comment: “If the design is such that a car cannot go fast, it can work, but it really needs to be designed in a way that ensures that nothing can go fast, otherwise it is hazardous. I think if you have really slow traffic and really good clear design, it should work for most people.” [cognitively impaired female with non-visible disability]

## **Summary of level surfaces – people orientated streets**

- 22.5.24. Across the groups, in relation to people-orientated streets with level surfaces, the greatest level of acceptance was with service vehicle access restrictions, with perceived low-flow low-speed traffic, and with clear definition of the appropriate areas for vehicles and pedestrians, removal of street clutter and appropriate vehicle use.
- 22.5.25. There was further agreement that any residential or general traffic on level surface streets where it is not low-flow / low-speed conditions was unacceptable without the provision of some form of kerb demarcation.

## **Kerb demarcation high street with no vehicle restriction**

- 22.5.26. Across all the groups, there was a preference for some form of kerb demarcation to distinguish between the pavement and carriageway / road, when there is general traffic in the area. During the discussion of the three options, with an option to introduce low flows (local residents’ access) into level streets, the importance of some form of kerb demarcation came up quickly. With general traffic, it was considered as essential to enable access.
- 22.5.27. There was a sense that some form of kerb demarcation made it clear which area was for the pedestrian to use, therefore making it feel safer and more comfortable to use than a tactile edge. Use of some form of kerb (with suitable drops to allow crossing) was also preferred by mobility impaired individuals (including wheelchair users) as tactile edging could present a trip hazard. Deafblind respondents questioned how useful tactile paving would be if covered in snow and so also agreed that kerbs are preferred.
- Participant comment: “Concerned about this level surface with tactile demarcation, that seems a tripping hazard. You either have something that is a more traditional barrier, or you have nothing at all - a small tactile thing could be a problem.” [mobility impaired male]
- 22.5.28. For visually impaired street users, it was also mentioned that guide dogs require a kerb to navigate and, without one, it was very possible for the guide dog to become disorientated. Therefore, the consensus was that including kerbs feels safer and gives confidence to the wide range of disabled street users, although there was less consensus around what the height of the kerb should be.
- Participant comment: “We are so ingrained with having that height differential with a kerb, as what demarcates road and pavement, that to change that seems a bit of leap!” [mobility impaired male]

## **Summary – people orientated streets**

- 22.5.29. Table 8 summarises the factors that support access by disability group in relation to people orientated streets.
- 22.5.30. From the collective feedback, the provision of some form of kerb in town centres and busy street areas between pedestrian areas and the carriageway is required to support access by a wide range of disabled street users. While there is a lack of

consensus on the kerb height, some informed participants referred to the PAMELA research quoting 60mm. There is agreement that a kerb is considered to be appropriate with tactile (paving) edging regarded as insufficient **(FGD12)**.

- 22.5.31. The same message was repeated for demarcation to cycleways and cycle areas: to support disabled access in town centres and busy street areas the pedestrian area needs to be free from obstruction and clearly demarcated from cycleways and cycle areas through the provision of some form of kerb and free from obstruction. This minimises the level of discomfort in accessing these spaces **(FGD13)**.
- 22.5.32. The provision of Level Surface streets with tactile demarcation can be considered in exceptional circumstances with low flow (vehicles and wheeled modes) / low speed conditions after consultation with local disabled street users, in particular the visually impaired **(FGD14)**.
- 22.5.33. Attention needs to be paid to the street design as well as to the wider traffic management / strategy. It should be acknowledged that this option does present a level of discomfort to visually impaired street users and may impact upon them adversely if not designed correctly and / or if the low flow / low speed situation is not achieved. Therefore, it is essential that consultation is undertaken with existing local disabled street users that could be impacted upon as there may be locations where level surface streets may be considered to support mobility impaired access, i.e. historical streets.

**Table 8 - Inclusive design public realm features – People orientated streets**

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Less Enabling</b>
<b>Hearing</b>	A form of kerb demarcation in town centres and busy streets with general traffic (i.e. not low-flow / low-speed).	Level surface town centres with low-flow / low-speed conditions with clear demarcation.
<b>Visually</b>	A form of kerb demarcation in town centres and busy streets with general traffic (i.e. not low-flow / low-speed).	Level surface town centres with low-flow / low-speed conditions with clear demarcation.
<b>Deafblind</b>	A form of kerb demarcation in town centres and busy streets with general traffic (i.e. not low-flow / low-speed).	Level surface town centres with low-flow / low-speed conditions with clear demarcation.
<b>Mobility</b>	A form of kerb demarcation with dropped kerbs in town centres and busy streets with general traffic (i.e. not low-flow / low-speed).	Level surface town centres with low-flow / low-speed conditions with clear demarcation.
<b>Learning / Non-Visible</b>	A form of kerb demarcation in town centres and busy streets with general traffic (i.e. not low-flow / low-speed).	Level surface town centres with low-flow / low-speed conditions with clear demarcation.

## 22.6 Key messages

22.6.1. Based on the collective feedback from focus groups in relation to pedestrian and vehicle mode segregation, the key messages set out below were identified.

- **FGD15** - Lateral segregation between pedestrian street users and vehicles, including pedal cycles, is required in a town centre / busy street environment to support access by all disabled street users. This segregation ensures vehicles are located in predictable positions and provides a level of comfort to pedestrians. This segregation can be achieved by a form of kerb demarcation which creates a tactile / 'step off' level change that informs the pedestrian they have entered a different street space.
- **FGD16** - In town centres / busy streets the formation of a horizontal segregated, unobstructed, pedestrian corridor is required between the building line and some form of demarcation to vehicles.
  - This should ideally have at least 2.0 metres (1.8 metres is required for two wheelchairs to pass) clear effective width and should have no moveable street features. Participants in the focus group suggested the demarcated pedestrian corridor should not exceed 4.0 metres to ensure the visually impaired are not disorientated.
  - Wider pedestrian areas can be provided outside this demarcated area for those with no visual impairment. Colour and tonal contrast are essential for street features and pavement in all weather conditions, and paving patterns need to be given consideration.
  - Focus group participants did not express a specific preference for the location of the corridor within the space between the carriageway and the building line.
  - However, the corridor needs to be straight and demarcated in a way that can be detected by the disabled street user.
- **FGD17** - Within a town centre / busy street environment, determining a standard kerb height requires careful consideration as this can affect access for other street users. This particularly impacts on the slope / camber to dropped kerbs and reduces the effective level width at the top of slope, which can impact on those with reduced mobility. Additional to these considerations (presented by the disabled street user focus groups) is cycle pedal clearance height on a cycle track adjacent to the footway: if the kerb is too high, the cycle track width would need to be wider, as a cyclist will cycle further away from the kerb. This can result in reduced footway width.
- **FGD18** - Successful street design that results in an increased number of pedestrians in that area can potentially have an indirect impact on access for disabled street users who find these areas become too demanding / challenging to interact with.
- **FGD19** - Surface maintenance and building quality / standards are key considerations impacting on inclusive access<sup>73</sup>.

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73 Poorly maintained footways are not inclusive; and they are a significant source of injury. For example, in Glasgow City an annual average of 272 slight pedestrian casualties were recorded in police traffic collision statistics from 2012-2016 (Transport Scotland, 2016). On the other hand, Glasgow City Council dealt with 320 footway trips and slips claims (all involving injury) in 2016 – figures which are unlikely to be included in the Transport Scotland traffic collision statistics. This fell to around 150 claims in 2018 after a programme of maintenance for highly trafficked footways (Glasgow City Council, 2018). Sources: Glasgow City Council, Land and Environmental Services Roads Infrastructure Status & Options Report 2018, Transport Scotland (2016) Reported Road Casualties Scotland 2016.

## 23. Obstructions and ‘street clutter’

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### 23.1 Introduction

23.1.1. In relation to obstructions to access and street clutter, the focus group discussions covered two themes. The first related to supporting vehicles which improve access to busy street / town centre areas. The second theme covered obstructions and ‘street clutter’ such as bollards, seating, lighting columns, signage, etc. These focus group discussions allowed for the examination of the qualitative factors that influence obstructions and methods of managing ‘street clutter’ and how they impact on access for disabled street users in town centre / busy streets areas.

### 23.2 Supporting vehicles

#### Disabled parking

- 23.2.1. There was broad agreement regarding the need for disabled parking provision in busy street environments. Hearing impaired participants commented that parking needs to be available next to a path / footway as some older car parks just have car spaces and no designated path / footway from anything other than the closest bays. In these circumstances, it can be possible to be walking along and not notice traffic nearby. When designing a car park, it should ideally have a pedestrian foot / pathway from every bay, especially disabled bays, and this was seen as a good practice design feature.
- 23.2.2. Deafblind respondents indicated that there was a drive to reduce the number of disabled parking bays, although no further detail was given. They noted that this should be avoided.
- 23.2.3. Mobility impaired respondents noted that disabled parking bays are enabling only if they are located in appropriate areas, for example if a ramp needs to come out, that it does not do so into another parking bay or that there are not bollards located nearby. There also needs to be awareness that these bays do not necessarily always have a dropped kerb, so disabled drivers may sometimes find that they are unable to navigate safely and smoothly from the parked vehicle onto the footway:
- Participant comments “I was out with one of the (charity organisation) ambassadors and she ended up in the middle of the road trying to get into her car: she ended up having to go right down in the middle of the street in the middle of a busy street in the city centre because there wasn’t a dropped kerb... she was like ‘I can’t get up!’” [mobility impaired female]
- 23.2.4. In the interests of meeting the needs of those with non-visible disabilities, there was also a suggestion for accessible parking bays that are marked as such. Having bays that are more generic (rather than being for blue badge holders only) was seen as essential for making busy street spaces accessible for those who had limiting conditions, but who did not qualify for a blue badge or other parking permit. This may include older adults with general mobility challenges, or adults with mental health impairments who may find allocated parking easier to use than general parking spaces. Respondents noted that they had more confidence that such accessible spaces would be sufficiently self-managed if made available (for example, similar to parent and child parking bays).

## Taxi bays

- 23.2.5. Across the groups, it was agreed that having defined taxi bays are essential, although the main concern was a need for more accessible taxis which can accommodate a wider range of mobility needs, including wheelchairs with different specifications. One individual in the mobility impaired group suggested that licences for traditional black cabs as accessible vehicles should be withheld, as in this individual's view they do not meet the acceptable requirements when compared to other modern taxis.
- 23.2.6. Issues were highlighted with rear access taxis specifically around alighting onto the kerb from the back of the taxi. People want to be able to travel as independently as possible and without the need for assistance (if it was not wanted / needed) and so easier ways of alighting different vehicle types should be explored. Compared to rear access taxis, side access taxis seem to be more supported by the various groups, on the whole.
- 23.2.7. Mobility impaired participants also mentioned the need to have accessible taxis as well as taxi facilities which are clutter free and in central locations. Among visually impaired respondents, it was noted that taxis provide a point to point service which is vital for orientation, wayfinding and so being able to be dropped off locally was key:
- Participant comment: "It's a fixed spot, plus the taxi driver knows how to find me if I'm using that spot to pick the taxi up." [mobility impaired male]
- 23.2.8. Taxi bays and ranks support access in terms of wayfinding and orientation, for all disability, but in particular for blind users.

## Bus stops

- 23.2.9. Bus stop raised boarding areas were considered very enabling by the mobility impaired group, while visually impaired users suggested that great care was needed in using them. It was noted between groups that certain bus companies do not like raised boarding zones for buses and the buses nearly always have to use a ramp anyway. Another issue raised by wheelchair users was that buses are often not flush (i.e., where the foot of the bus door is parallel and level to the kerb) like trams. Mobility impaired users commented that bus stops need to be clutter free, with a shelter present which is large enough to have sufficient width for wheelchairs to enter.

## Vehicle charging points

- 23.2.10. There were mixed views with regards to electric vehicle charging points. Deafblind participants identified that charging points could be an obstacle, but this largely depends upon where they are positioned. Clutter associated with plugged in vehicles could also be a barrier to visually impaired users when walking on pavements. Existing designs were said to be potentially bulky and easy to bump into. One respondent who was deafblind also commented that charging points were often not accessible for wheelchair users, making it difficult for them to connect their car to the charging point.

## Disabled tricycle parking

- 23.2.11. Few respondents had experience of using adapted bikes and so few considered themselves to be in a position to be able to comment on what would be enabling / disabling when considering the positioning of bike parking in street designs. The one group where participants were users of adapted bikes suggested that similar

principles should apply to non-adapted bikes, i.e. should be in the same location as standard bicycles and placed somewhere non-obstructive. One respondent who was a user of a hand cranked cycle stressed the importance of having secure storage for wheelchairs at the places where they alight / change to handcycles, especially for home to work trips.

## Summary

23.2.12. Table 9 summarises the factors that support access by disability group in relation to supporting vehicles.

**Table 9 - Inclusive design public realm features – Support vehicles**

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Enabling</b>
<b>Hearing</b>	Disabled parking with accessible footway. Bus stops.	
<b>Visually</b>	Disabled parking with accessible footway. Taxi bays and ranks support access in terms of wayfinding and orientation. Bus stops.	Vehicle charging point – are considered an obstacle. Disabled tricycle parking – are considered an obstacle.
<b>Blind and Visually</b>	Disabled parking with accessible footway. Taxi bays and ranks support access in terms of wayfinding and orientation. Bus stops.	Vehicle charging point – are considered an obstacle. Disabled tricycle parking – are considered an obstacle.
<b>Mobility</b>	Disabled parking with accessible footway. Taxi bays and ranks support access in terms of wayfinding and orientation. Accessible taxi vehicles. Bus stops – correct orientation of bus to kerb for ramp and appropriate kerb height and clearance for ramp.	Disabled tricycle parking – limited to few users and need for additional storage. Non-tricycle users consider them to be obstacles similar to cycle racks.
<b>Learning / Non-Visible</b>	Disabled parking. Taxi bays.	
<b>Common themes</b>	The provision of access for support vehicles generally improves access for disabled street users, but the location of parking and other supporting features (such as charging points) requires careful consideration in order that these do not contribute to street clutter.	



## 23.3 Obstructions and ‘street clutter’

### A-frame signage

- 23.3.1. A-frame signage was considered problematic and disabling by the majority of respondents across all groups, largely due to the ad-hoc nature in which they are placed. Hearing impaired participants noted that they can cause issues for lip reading due to increased risk of collision for companions / support assistants who may be turned towards each other if lip reading.
- 23.3.2. Visually impaired participants stressed that they could interfere with canes or be problematic for guide dogs to navigate. Wheelchair users could be forced off the pavement and onto the road if A-frame signage are placed inappropriately. Overall, there was consensus that the placement of A-frame signage and other advertising boards needs to be overseen by local authorities, with clear regulations in place governing their use and regular monitoring of compliance.
- 23.3.3. One group of participants had been engaged in efforts to achieve the removal of A-frame signage in a busy area of Edinburgh and cited this as an example of where pressure to control the use of advertising had been successful in making streets less cluttered and more accessible for a wider range of street users. It should be noted that there was also discussion around ‘fixed’ boards being safer as they would not be blown over / move during bad weather conditions, creating unanticipated hazards. It was noted that having boards in defined locations had been successfully implemented in certain locations e.g. Perth and Edinburgh.

### Waste bins

- 23.3.4. Waste bins were similarly considered too often be an obstacle on busy streets. As with A-frame signage they were considered more acceptable if laid out in a consistent and ordered manner, and fixed public waste bins were seen as less hazardous and more acceptable than wheelie bins or industrial bins, which are often placed more haphazardly and irregularly and are subject to changing location. The distinction between bins in fixed locations and moveable waste bins such as wheelie bins should be noted – essentially, that one type is predictable due to its fixed location and the other is less predictable, i.e. moveable.
- 23.3.5. All participants accepted the necessity of waste bins / recycling in busy street areas to minimise littering and spilled rubbish, which can itself be hazardous to those using walking aids, wheelchairs or to those with visual impairments. However, as with A-frame signage more could be done to monitor and enforce inappropriate placing or location of waste facilities. Other suggested solutions included making refuse collection times during ‘out of hours’ time periods when pedestrian footfall was likely to be less and storing bins on the road instead of the path (although this poses risks to vehicular traffic).

### Bollards

- 23.3.6. The main issues raised in relation to bollards were visibility (including detectability for visually impaired adults) and positioning (placement). Mobility impaired street users noted that bollards need to have sufficient clearance to allow a wheelchair to pass through, while for deafblind and visually impaired respondents, there was the issue of how detectable bollards are. For example, bollards made of similar material or a material that reflects the surrounding area such as stainless steel, and also materials of the same colour as the street / pavement, can make them difficult to distinguish at a distance, as well as difficult to see in poor light conditions. There was also an issue of size, in that smaller or shorter bollards are difficult to detect. It was

identified that bollards should be constructed in a contrasting colour or illuminated, wherever possible.

- 23.3.7. Several respondents also queried the general purpose of bollards and noted that in their view the use of bollards in some public spaces was not justified i.e. use should be restricted only to areas where it was likely that cars would otherwise mount the pavement in order to park, which has been recently prohibited in Scotland. As such, there may be a reduced need for bollards when the newly approved pavement parking regulations are enforced<sup>74</sup>.

### **Café seating**

- 23.3.8. Across all groups, the view was that barriers around café seating are welcome and necessary in order to confine people to a particular area. Some visually impaired street users identified that café seating without boundaries could act as an access deterrent, not least because it could present an unanticipated obstacle e.g. if street furniture spills onto streets that are usually clear and where the street user expected the space to be clear. Visually impaired participants also stressed that barriers are more enabling, as they can prevent collisions with people sitting having hot drinks; could help to protect guide dogs by providing a clear boundary; and prevent café users from encroaching out further onto the street. While broadly welcomed, barriers were seen as only serving their maximum functionality if they reached the ground, so that they can be detected by being tapped by stick / cane users.

### **Seats and benches**

- 23.3.9. Seating was welcomed as a general street feature, especially for older individuals and those with physical impairments to support regular rest intervals. Seating should, however, be positioned so that it is possible to see from a distance i.e. to allow journey planning. Similarly, seating options needed to be clearly signposted for people who are unfamiliar with the area to allow them to know when to anticipate potential for breaks in their journey.
- 23.3.10. This linked to the view of visually impaired street users that seating did not support their access unless they are familiar with the street. For someone in a wheelchair or with reduced mobility the positioning of seating is supportive when it is in a fixed position at regular intervals and can support access as a means of orientation as well as to allow for an opportunity to rest. It was noted that push up bars / handles on seating are also helpful in allowing older people and those needing to move between seats and wheelchairs to get up more easily. Across all groups, it was considered necessary to place seating well away from the main thoroughfare, and at regular intervals where possible.

### **Tactile maps**

- 23.3.11. Visually impaired participants noted that tactile maps are helpful in general terms, but often seem to be confined to certain locations such as railway stations and other transport interchanges. Wider use of tactile maps in busy street / town centre areas would be welcomed by some visually impaired (with some sight) respondents, however blind respondents said that they did not find tactile maps useful in unfamiliar locations, and they could be difficult to find them without support.

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74 <https://www.livingstreets.org.uk/news-and-blog/press-media/pavement-parking-ban-approved-in-scotland>

## Other wayfinding features

- 23.3.12. A number of hearing impaired participants said that they did not find audible navigation aids helpful, as the poor sound quality often makes these very difficult to hear and understand. A number of respondents across different groups highlighted that smartphone apps are instead perhaps more helpful as audible aides for wayfinding. Such audible apps are also seen as helpful for those who may have difficulty reading or interpreting maps:
- Participant comment: “There are a number of apps that have wayfinding features - as someone who is dyslexic, I sometimes have problems reading maps or reading literature.” [mobility impaired male]
- 23.3.13. Those in the visually impaired group suggested that while apps can be helpful, not everyone can afford them and not everyone has smartphones that enable them. They are also dependent on phones being in working order and being charged. Participants noted that apps can also become quickly outdated. For example, it was mentioned that for visually impaired users, it would be difficult to navigate using a smartphone in noisy areas.
- 23.3.14. Among sensory impaired participants, landmarks were also highlighted as a way to navigate, including making use of certain smells present in a town centre environment to follow familiar routes, etc. However, it was acknowledged that this only works for those that are familiar with the area. For those that are not, alternative way finding features are needed.
- 23.3.15. It should be noted that visually impaired participants considered a kerb line, change in light between one area and another, e.g. daylight between building lines at junctions, as well as key locations such as shops, as significant wayfinding features.

## Hedges and planting

- 23.3.16. Across the groups, a few participants highlighted that hedges and planting in street areas can become hazardous if they are overgrown, as people can walk into them. They should, therefore, be properly and regularly maintained. This was particularly voiced among those with a visual impairment. Raised flowerbeds were mentioned as a specific obstacle to visually impaired respondents as they “often have sharp corners that can be collided with”.

## Trees

- 23.3.17. Trees were largely considered to be aesthetically pleasing in urban street design; however, it was noted that the effective street width would have a bearing on their suitability. Visually impaired participants stressed that in some cases, trees could impact on the level of access, especially due to lower tree canopy / branches on the trees, as they can strike the body / face / wheelchair if not maintained. One person in the group disagreed and found trees enabling as helpful to navigate and stay separate from traffic (however, this was a minority view).
- 23.3.18. Leaf fall was also mentioned by several respondents across different groups as this can make it difficult to navigate through a town centre space if surfaces become slippery or tactile surfaces are obscured. There was an additional issue for manual wheelchair users, with leaves and other waste matter on the wheel moving onto the hands, and an emphasis, therefore, on the importance of street maintenance / street cleaning.
- Participant comment: “Falling leaves are a blind man’s fog.” [visually impaired male]

23.3.19. Finally, participants noted that the base surrounding trees planted in street areas should, ideally, be a flat surface (something raised by respondents in different groups). Grills surrounding trees were seen as acceptable as they can be kept level and do not become a trip hazard. Resin bound gravel was also seen as suitable for tree bases by one group of mobility impaired users.

### **Cycle stands / cycle parking**

23.3.20. Visually impaired and deafblind participants suggested that they found cycle stands (including bike share) impacted on their level of access if poorly located, especially if placed in locations like entrances to stations / other public buildings. Similar to other street features, good positioning is key. Alternatively, it was considered by some that cycle stands could be located on the road in car parking spaces.

- Participant comment: “As a cyclist, I often feel guilty locking up my bicycle in the proper place, as I feel like it is taking up space on the pavement - somebody could bump into it easily. Off the pavement would be much, much better.”  
[mobility impaired male]

23.3.21. Mobility impaired participants agreed that it would be good to have cycle parking kept off the pavement where possible, but not to the detriment of disabled parking provision. It is also important that they have a good colour differential from the ground.

### **Summary – ‘street clutter’**

23.3.22. Table 10 summarises the factors that support access by disability group in relation to street features.

**Table 10 - Inclusive design public realm features – ‘Street clutter’**

<b>Impairment / Disability</b>	<b>More Access / More Enabling</b>	<b>Less Access / Enabling</b>
<b>Hearing</b>	Seating and benches - correctly located.  Cycle stands – correctly located.  Café seating with barriers.	A-frame signage.  Bollards.  Waste Bins.  Café seating without barriers.  Hedging / trees – if not maintained it negatively impacts on head clearance and root intrusion results in path deformation.  Tactile maps that are limited or poorly located.
<b>Visually</b>		
<b>Blind and Visually</b>		
<b>Mobility</b>	Seating and benches at regular intervals.  Cycle stands – correctly located.	A-frame signage.  Waste bins.  Bollards.  Café seating with / without barrier.  Hedging / trees – if not maintained it negatively impacts on head clearance and root intrusion results in path deformation.
<b>Learning / Non-Visible</b>	Seating and benches at regular intervals.	A-frame signage.  Bollards.
<b>Common themes</b>	Straight, pedestrian corridor clear of obstruction, with some form of demarcation*.  Street features located in designated area.  Should be at least 2 metres wide and ideally no more than 4 metres wide.	Pedestrian corridor with a number of obstructions and no demarcation.  Street features that are irregular and poorly located.  Moveable street features, discarded objects and unexpected obstructions.

\* The reference to demarcation has been taken from the ‘people orientated street’ section in the focus group discussions considering its inter-relationship with a ‘clutter’-free environment and designated areas for street features that support other disabled street users.

## 23.4 Key messages - obstructions and 'street clutter'

23.4.1. Based on the collective feedback from focus groups in relation to obstructions and 'street clutter', the key messages set out below were identified.

- **FGD20** - Within town centre / busy street environments, all street features should be outside / away from the pedestrian clear corridor and be appropriately placed with some form of demarcation.
- **FGD21** - Within town centre / busy street environments, consideration should be given to locating cycle racks and waste bins in the carriageway, but this should not be at the expense of disabled parking.
- **FGD22** - Within town centre / busy street environments street features that support pick up and drop off by support vehicles improves access for disabled street users. Features that facilitate support vehicles (e.g. charge points) are considered potential obstacles and could impact on access for disabled street users.
- **FGD23** - It is essential to properly regulate the use and location of moveable temporary street features, e.g. domestic waste wheelie bins on footways including post collection or tables and chairs. Erratic and / or unpredictable placement of moveable street features negatively impact on access for disabled street users.
- **FGD24** - The regulation of A-frame advertising boards in the cities of Edinburgh and Perth was welcomed and well received by disabled communities. Similar approaches to the regulation of A-frames and other temporary moveable street furniture are required if a clear pedestrian corridor through town centre / busy street environments is to be delivered in practice.

## 24. Inclusive physical design measures - summary of key messages

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### 24.1 Discussion point - need for national guidelines

- 24.1.1. There was a shared view across the focus groups that there is a current lack of reference to existing good practice guidance and policy around inclusive street design.
- 24.1.2. Current guidance on street design was described as generally outdated and 'prehistoric' by some and needed to be replaced by standards (which were less likely to be interpreted loosely than guidance) or minimum requirements. It was considered that if there were standards set down there would be less need for in-depth consultation as designs would be based on standards that have already been agreed.
- 24.1.3. A few participants argued for regulations as well as standards as a way of ensuring that standards are applied and adhered to. It was stressed that more education was needed among planners, designers and contractors.

**Key message (FGD25):** Common guidelines are required to ensure consistency of approach and adherence with good practice in all areas of the country; not just large urban areas, but also smaller and more rural / remote communities. Development of standard arrangements must be evidence-based and informed by the experiences of disabled street users.

### 24.2 The key messages drawn from the research

- 24.2.1. The key messages drawn from the disabled street users with regards to inclusive physical design measures are included in the table below. A review of the alignment between these messages and existing guidance is included.
- 24.2.2. Existing national guidance is included under Appendix I of the main report.

**Table 11 – Key messages from disabled street user focus groups on inclusive physical design measures in relation to existing guidance**

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>Crossings</b>		
<b>FGD1</b>	<b>Unmarked courtesy crossings</b> are considered the option that gives the least access to disability groups, with visually impaired participants expressing a high level of discomfort, and avoidance of such facilities.	No mention of user preference or level of discomfort within existing guidance.
<b>FGD2</b>	<b>Raised continuous footways</b> have a level of acceptance from disabled street users if designed correctly, with a clear distinction between the carriageway and footway at the crossing with contrasting and tactile paving to define the area.	TfL Streetscape Guidance and CEC Street Design Guide outline a raised (table) entry treatment, which is aligned with visual impaired street user expectations of detectable crossings.
<b>FGD3</b>	<b>Pedestrian refuge islands</b> are helpful but need to be designed to an appropriate width and not be too narrow. However, some consideration needs to be given in refuge island design to ensure that it is apparent that there is another carriageway to cross for those who are visually impaired / blind, i.e. the tactile paving should not be laid across the full depth of the refuge.	Manual for Streets refers to refuge islands, with photographic examples in Figure 10 referring to the above shown.  Guidance on the Use of Tactile Paving Surfaces (currently being updated). Figure 10 shows layouts for pedestrian refuge islands less the 2 metres, with no non-tactile gap as shown in Figure 11.  This reflects other guidance (TfL, CEC).
<b>FGD4</b>	<b>Dropped kerbs</b> are helpful but need to be appropriately located and designed to comply with standards for maximum gradients, crossfall and kerb upstand. Otherwise they become more of a barrier than a help to disabled people.	Manual for Streets parts 6.3.27-3.3.28 refer to level clearance: “normal footway crossing should be maintained as far as practicable from back of footway (900mm minimum).”  Aligns with current guidance, with the following exception. There are variations in guidance with regards to impact on level footways at the back slope, with some guidance suggesting a slope to the back of footway and others a level surface.  TfL Street Design Guides mentions discomfort with slope for mobility impaired.



Nr	Key Message	Alignment and Gaps with Existing Guidance
<p><b>FGD5</b></p>	<p><b>Zebra crossings</b> are preferred over courtesy crossings by non-visually impaired participants. Visually impaired focus group participants expressed a high level of discomfort and avoidance of these facilities, similar to their experience of courtesy crossings.</p>	<p>Traffic Signs Manual chapter 6 - Traffic Control, outlines PSED under the Equality, section 15.2 Accessibility, and importance of undertaking consultation. There is no mention of level comfort / anxiety on certain disabled street user.</p> <p>Manual for Streets presents minimum delay to pedestrians in the right location (no mention of visual impaired discomfort). It makes reference to signalised crossings being preferred by older and visual impaired users by providing greater certainty (driver compliance) when crossing.</p> <p>CEC Street Design Guide highlights signalised controlled preference over zebra crossings for street users, in particular visually impaired, young and old pedestrians.</p> <p>TfL guidance discuss comfort in terms of pedestrian density on footway.</p>
<p><b>FGD6</b></p>	<p><b>Signal controlled crossings</b> are considered by all users as the option that presents most access to disability groups, although visually impaired participants still expressed a level of discomfort with such facilities as they required assurance (by listening) that vehicles had stopped. Additional concerns were raised by visually impaired participants on some older traffic signal installations with poor location and orientation of the push button unit. A few mobility impaired participants expressed a preference for the push button unit to be located on a level area rather on the slope at the dropped kerb.</p>	<p>Traffic Signs Manual chapter 6 - Traffic Control, outlines under Equality, section 15.2 accessibility, and the importance of undertaking consultation. There is no mention of level of comfort or anxiety for certain disabled street users.</p> <p>Existing guidance outlines the Push Button Unit (PBU) location should be the right-hand side. Further consideration in guidance is for PBUs to be located on a level area or stipulate maximum slope for mobility impaired (wheelchair user).</p>

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD7</b>	<p>User preference for the type of pedestrian crossing is influenced by an individual's level of confidence, ability and any personal adaption, including their familiarity or otherwise with the local street environment. All disability groups preferred signalised crossings, with visually impaired users expressing that they experience the least amount of discomfort with signalised crossings.</p>	<p>Manual for Streets makes reference to signalised crossings being preferred by older and visual impaired users by providing greater certainty (driver compliance) when crossing.</p> <p>CEC Street Design Guide makes reference to use of non-signalised crossings and the impact on access for certain street users.</p> <p>Existing guidance does not make any reference to crossing type preference or comfort / confidence but does direct designers to undertake consultation with local users under their PSED of the Equality Act.</p>
<b>FGD8</b>	<p>There is a level of acceptance to the use of non-signalised crossings on town centre / busy streets by disabled street users who were not visually impaired. In addition, visually impaired street users would consider refuge islands and continuous footways when familiar to them, although this is dependent on the traffic and pedestrian flow and a good standard design arrangement (tactile paving / kerb edges, i.e. any kerb edge running parallel to a carriageway). These crossings become more acceptable when disabled street users are escorted (personal adaption) by a personal assistant / carer.</p>	<p>Manual for Streets makes reference to signalised crossings being preferred by older and visual impaired users by providing greater certainty (driver compliance) when crossing.</p> <p>CEC Street Design Guide makes reference to use of non-signalised crossings and the impact on access for certain street users.</p> <p>Existing guidance does not make any reference to crossing type preference or comfort / confidence but does direct designers to undertake consultation with local users under their PSED of the Equality Act.</p>

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD9</b>	<p>Tactile paving and kerb edges, i.e. any kerb edge running parallel to a carriageway (representing good standard design arrangement) improve the level access / comfort when street users interact with a crossing in a town centre / on a busy street. The research has shown that the standard requirement at a crossing should include dropped kerbs, suitable slope / camber, tactile paving in the correct orientation, colour and contrast and a minimal kerb upstand at the dropped kerb (6mm maximum).</p> <p>Furthermore, at a signalised crossing the pole position and push button unit orientation must be correct and pedestrian detection to extend the crossing time is beneficial.</p>	<p>Traffic Signs Manual chapter 6 - Traffic Control.</p> <p>Manual for Streets (sections 6.3.27-3.3.28) makes reference to level clearance: “normal footway crossing should be maintained as far as practicable from back of footway (900mm minimum)”. It recommends dropped kerbs with tactile treatment, i.e. an uncontrolled crossing every 100 metres.</p> <p>Guidance on the Use of Tactile Paving Surfaces (currently being updated).</p>
<b>Segregation between pedestrians and vehicles / Level or reduced level surfaces</b>		
<b>FGD10</b>	<p><b>Footways</b> - from the collective feedback, it is evident that clear, straight demarcated pedestrian footway / pavement areas that are free from obstacles are essential for disabled street users.</p>	<p>Manual for Streets makes reference to obstructions, surface quality, and no maximum footway / pavement width.</p> <p>Designing Streets make reference to clear pedestrian corridor free from obstruction. TfL Streetscape Guidance includes a preferred minimum footway width of 2m.</p> <p>Existing guidance does not highlight the need for detectable demarcation and the corridor to be straight / linear. Maximum width of the pedestrian corridor is not defined.</p>

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD11</b>	<p><b>Cycleways</b> - from the collective feedback, it is evident that kerbed demarcation to cycleways is essential for disabled street users. The provision of some form of kerb demarcation increases the level of access for visually impaired and mobility impaired groups in particular, with all groups expressing the most comfort / least anxiety.</p>	<p>Cycling By Design (being updated).</p> <p>Cycling Infrastructure Design (being updated).</p> <p>CD 195 Design for Cycle Traffic (DMRB) outlines that kerb demarcation between cycleway and footway. Minimum kerb between stepped cycleway and carriage way of 50mm and cycleway to stepped footway 25-50mm.</p> <p>TfL London Cycling Design Standards – 50mm kerb demarcation (note between footway and carriageway this increases to 60mm). Reference to supporting the visual impaired.</p> <p>Edinburgh street design guide covers 50mm kerb height hard segregation.</p>
<b>FGD12</b>	<p><b>People Orientated Streets</b> - the provision of some form of kerb in town centre and busy street areas between pedestrian areas and the carriageway is required to support access by a wide range of disabled street users. There is lack of consensus on the kerb height, with some informed participant referring to research quoting 60mm.</p>	<p>As per FGD11.</p> <p>Manual for Streets references the importance of kerb demarcation (parts 7.2.10 to 7.2.12).</p> <p>LTN 1 / 11: Shared Space (withdrawn) references requirement to undertaken local consultation before removal of kerb demarcation but does not stipulate kerb height.</p>
<b>FGD13</b>	<p><b>People Orientated Streets</b> - to support disabled access in town centres and busy street areas, the pedestrian area needs to be clearly demarcated from cycleways and cycle areas through the provision of some form of kerb and free from obstruction from cycleways. This minimises the level of discomfort in accessing these spaces.</p>	<p>As per FGD10 and FGD11.</p> <p>TfL Streetscape Guidance and London Cycling Design Guide discuss pedestrian orientated streets and the need for a kerb (50mm between the cycleway and footway) demarcation to support visual impaired users.</p> <p>CEC design guidance includes good practice examples where a 50mm kerb height between cycleway and footway has been adopted.</p>

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD14</b>	<p>Within a town centre / busy street environment a level surface street (potentially with tactile paving demarcation) could be considered in low flow / low speed situations. Attention needs to be paid to the street design as well as to the wider traffic management / strategy.</p> <p>It should be acknowledged that this option does present a level of discomfort to visually impaired street users and may impact upon them adversely if not designed correctly and / or if the low flow / low speed situation is not achieved. Therefore, it is essential that consultation is undertaken with existing local disabled street users that could be impacted upon, as there may be locations where level surface streets may be considered to support mobility impaired access, i.e., historical streets.</p>	<p>LTN 1 / 11: Shared Space (withdrawn) references requirement under PSED to undertake local consultation with disabled street users, including visually impaired users who are impacted by the proposals, before removal of kerb demarcation.</p> <p>LTN 1 / 11 stated that the maximum benefit of pedestrians sharing space is achieved when vehicle flows are in the order of low-flow (&lt;100vph) and low-speed streets (&lt;15 mph). Although higher flows can be successful.</p>
<b>FGD15</b>	<p>Vertical segregation between pedestrian street users and vehicles, including pedal cycles, is required in a town centre / busy street environment to support access by all disabled street users. This segregation ensures vehicles are located in predictable positions and provides a level of comfort to pedestrians. This segregation can be achieved by a form of kerb demarcation which creates a tactile / 'step off' level change that informs the pedestrian they have entered a different street space.</p>	<p>For cycleway to pedestrians:</p> <ul style="list-style-type: none"> <li>- Cycling By Design (being updated).</li> <li>- Cycling Infrastructure Design (being updated).</li> <li>- FGD10, FGD11, FGD12 and FGD13 outline guidance regarding kerb segregation between pedestrian and cyclists.</li> </ul> <p>For cycleway to carriageway:</p> <ul style="list-style-type: none"> <li>- SCOTS National Road Development Guideline recommends a 40mm in 'shared space' schemes.</li> <li>- TfL Streetscape Guidance and London Cycling Design Guide (125mm) CEC Street Design Guide (75-100mm).</li> </ul>

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD16</b>	<p>In town centres / busy streets the formation of a horizontal segregated, unobstructed, pedestrian corridor is required between the building line and some form of demarcation to vehicles. This should ideally have at least 2.0 metres (1.8 metres is required for two wheelchairs to pass) clear effective width and should have no moveable street features. Participants in the focus group suggested the demarcated pedestrian corridor should not exceed 4.0 metres to ensure the visually impaired are not disorientated. Wider pedestrian areas can be provided outside this demarcated area for those with no visual impairment. Colour and tonal contrast are essential for street features and pavement in all weather conditions, and paving patterns need to be given consideration. Focus group participants did not express a specific preference for the location of the corridor within the space between the carriageway and the building line. However, the corridor needs to be straight and demarcated in a way that can be detected by the disabled street user.</p>	<p>As per FGD10 (Manual for Streets).</p> <p>TfL Streetscape Guidance and CEC Street Design Guidance include a minimum pedestrian clear corridor of 2 metres width, with wider clearance permissible to support pedestrian comfort. The TfL approach is related to pedestrian density / level of service).</p> <p>The guidance highlights obstruction free, but no mention of demarcated pedestrian corridor.</p> <p>TfL Streetscape Guidance outlines colour and tonal contrast paving and physical street features.</p>

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD17</b>	<p>Within a town centre / busy street environment, determining a standard kerb height requires careful consideration as this can impact on the level of access for other street users. Kerb height impacts on the slope / camber to dropped kerbs and reduces the effective level width at the top of slope which will impact on those with reduced mobility. Additional to these considerations (presented by the disabled street user focus groups) is cycle pedal clearance height on a cycle track adjacent to a footway: if the kerb is too high, the cycle track width would need to be wider, as a cyclist will cycle further away from the kerb. This can result in reduced footway width.</p>	<p>As per FGD15.</p>
<b>FGD18</b>	<p>Successful street design that results in an increased number of pedestrians in that area can potentially have an indirect impact on access for disabled street users who find these areas become too demanding / challenging to interact with.</p>	<p>TfL Streetscape Guidance and CEC Street Design Guide include a minimum pedestrian clear corridor of 2m width, with wider clearance permissible to support pedestrian comfort. TfL approach is related to pedestrian density / level of service).</p>

Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD19</b>	Surface maintenance and building quality / standards are a key consideration impacting on inclusive access.	<p>SCOTS National Road Development Guideline refers to Designing Streets which includes a good level of detail, but does not mention how good maintenance, build quality etc. can support access.</p> <p>Manual for Streets outlines the importance of surface quality and maintenance.</p> <p>TfL Streetscape Guidance is more detailed than the CEC Street Design Guide with regard to material choice, build quality, surface quality, maintenance and opportunities to improve access / facilities. There is no guidance or mention of how poor maintenance impacts on access.</p>
<b>Obstructions and ‘street clutter’</b>		
<b>FGD20</b>	Within town centre / busy street environments, all street features should be outside / away from the pedestrian clear corridor and be appropriately placed with some form of demarcation.	<p>Designing Streets.</p> <p>Manual for Streets.</p> <p>TfL Streetscape Guidance.</p> <p>CEC Street Design Guide.</p> <p>Guidance could be stronger with regards to demarcation and pedestrian clear corridors.</p>
<b>FGD21</b>	Within town centre / busy street environments, consideration should be given to locating cycle racks and waste bins in the carriageway, but this should not be at the expense of disabled parking.	<p>Designing Streets.</p> <p>Cycling by Design.</p> <p>Current guidance does cover cycle parking location but does not highlight the need to preserve disabled parking provision.</p>



Nr	Key Message	Alignment and Gaps with Existing Guidance
<b>FGD22</b>	Within town centre / busy street environments, street features that support pick up and drop off by support vehicles improves access for disabled street users. Features that facilitate support vehicles (e.g. charge points) are considered potential obstacles and could impact on access for disabled street users.	Inclusive Mobility (being updated) covers support vehicles.
<b>FGD23</b>	It is essential to properly regulate the use and location of moveable temporary street features, e.g. domestic waste wheelie bins on footways (post collection) or tables and chairs. Erratic and / or unpredictable placement of moveable street features negatively impacts on access for disabled street users.	Manual for Streets makes reference to the Making Space for Waste Bins document.
<b>FGD24</b>	The regulation of A-frame advertising boards in the cities of Edinburgh and Perth was welcomed and well received by disabled users. Similar approaches to the regulation of A-frames and other temporary moveable street furniture are required if a clear pedestrian corridor through town centre / busy street environments is to be delivered in practice.	No specific guidance on street clutter regulation.
<b>General</b>		
<b>FGD25</b>	Common guidelines are required to ensure consistency of approach and adherence with good practice in all areas of the country, not just large urban areas, but also smaller and more rural / remote communities. Development of standard arrangements must be evidence-based and informed by the experiences of disabled street users.	N / A

# Appendix C.1

## Focus group guide



## Focus Group – blind and partially sighted users











### Theme B - Inclusive street design features




Please think about physical features you may encounter on a high street or busy street on a typical day-to-day journey.



### Here is a list of typical street features.











On a scale from ‘very disabling’ to ‘very enabling’, please indicate how you feel about each of these features. For example, do they make it easier or more difficult for you to move around these areas? Please tick not relevant if you feel that these features do not apply to you.

**If you need further information on a feature mentioned, we have some images / show cards to help.**

 <b>Footway Features</b> E.g. pavements						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Narrow footway</b> Less than 1 metre wide 						
<b>Standard footway</b> 2 metres wide 						
<b>Wide footway</b> More than 2 metres wide 						

	<b>FOOTWAY FEATURES</b> E.g. pavements
	<b>What is the main footway width listed above that most enables you when in a street environment?</b>
	<b>Please explain why this is the case..</b>

	<b>What is the main footway width listed above that most disables you when in a street environment?</b>
	<b>Please explain why this is the case..</b>

 <b>Cycleway features</b> E.g. Cycle lanes, cycle tracks, segregated cycleway.						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Shared footway / cycleway with no demarcation</b> E.g. No tactile separation between cycles and pedestrians - perhaps painted markings. 						
<b>Alongside footway with tactile demarcation</b> E.g. Raised studs / surface texture separating cycles and pedestrians 						
<b>Alongside footway with kerb and tactile demarcation</b> E.g. As above, but including kerb separating cycles and pedestrians 						
<b>Separate from footway</b> E.g. With grass verge / planting separating cycles and pedestrians 						



**Cycleway features**

E.g. lanes, tracks, segregation



**What is the main cycleway feature listed above that most enables you when in a street environment?**













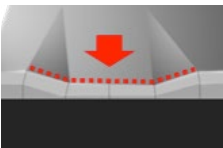
**Please explain why this is the case..**








**What is the main cycleway feature listed above that most disables you when in a street environment?**















**Please explain why this is the case..**











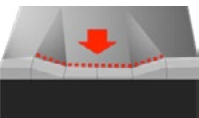

<p><b>People orientated streets / shared space</b>                      E.g. streets where pedestrians interact with other road users</p> 						
	<p><b>Very Disabling</b></p>	<p><b>Somewhat disabling</b></p>	<p><b>Neutral</b></p>	<p><b>Somewhat enabling</b></p>	<p><b>Very enabling</b></p>	<p><b>Not relevant</b></p>
<p><b>Pedestrianised high street with limited service vehicle access</b>                      E.g. Lorries loading/unloading goods share unsegregated space with other users</p> 						
<p><b>Pedestrianised high street with limited access for residents' vehicles</b>                      E.g. Vehicles accessing homes share unsegregated space with other users</p> 						
<p><b>Level surface high street with tactile demarcation between footway and carriageway</b>                      E.g. Street with footway and roadway at the same level, but with tactile edging to segregate users</p> 						
<p><b>Low kerb demarcation high street between footway and carriageway, with drop kerbs</b>                      E.g. Low kerb with drop kerbs to aid crossing</p> 						

	<b>People orientated streets / shared space</b> Streets where pedestrians interact with other road users
	<b>What is the main people orientated street / shared space feature listed above that most enables you when in a street environment?</b>
	<b>Please explain why this is the case..</b>

	<b>What is the main people orientated street / shared space feature listed above that most disables you when in a street environment?</b>
	<b>Please explain why this is the case..</b>



 <b>Crossing types - Main roads and minor road</b> E.g. ways of crossing roads						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Signalised junction with pedestrian / cyclist facilities</b> E.g. Traffic controlled lights with crossing 						
<b>Uncontrolled 'courtesy' crossing (shared space)</b> E.g. Crossing with no lights or push button operation 						
<b>Zebra Crossing on main road (with Belisha beacons)</b> E.g. Flashing beacons visible to drivers and other road users 						
<b>Mini Zebra Crossing (without Belisha beacons)</b> E.g. Without flashing beacons 						
<b>Controlled Signalised Crossing for pedestrians only (Pelican / Puffin)</b> E.g. Traffic controlled lights with push button operated crossing 						

 <b>Crossing types - Main roads and minor road</b> E.g. ways of crossing roads						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Controlled Signalised crossing for pedestrians and cyclists (Toucan)</b> E.g. Traffic controlled lights with push button operated crossing 						
<b>Pedestrian Refuge islands</b> E.g. No traffic signals, but raised 'safe' area for users crossing the road 						
<b>Raised Continuous footway</b> E.g. Crossing raised up to same level as the footway 						
<b>Drop Kerbs only</b> E.g. Drop kerbs to aid crossing of the roadway 						
<b>Access road with lowered footway</b> E.g. Vehicle access with lowered kerb 						



**CROSSING TYPES - MAIN ROADS AND MINOR ROAD**

E.g. Ways of crossing roads



**What is the main crossing type feature listed above that most enables you when in a street environment?**

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**Please explain why this is the case..**

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**What is the main crossing type feature listed above that most disables you when in a street environment?**

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**Please explain why this is the case..**

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 <b>Supporting vehicle</b> E.g. ways to make access to vehicles easier for users						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Disabled Car Parking at key facilities</b> E.g. Designated disabled bays 						
<b>Pick up and Drop off facilities at key facilities for car and taxi</b> E.g. Layby or bay for loading/unloading 						
<b>Disabled Tricycle Parking at key facilities</b> E.g. Parking location for tricycles 						
<b>Accommodation of tricycle or adapted cycles on dedicated cycle infrastructure.</b> E.g. Cycle lane with features to aid users on adapted cycles and tricycles 						

 <b>Supporting vehicle</b> E.g. ways to make access to vehicles easier for users						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Accessible facilities at Taxi ranks (i.e. level footway for temporary ramps)</b> E.g. Raised or level footway to enable easier loading and unloading of taxis for wheelchair users 						
<b>Bus Stop with High Kerbs to access buses</b> E.g. Raised footway to enable easier access for wheelchair users 						
<b>Charging points for mobility scooters/ wheelchairs</b> E.g. Provision of locations to charge electrically powered mobility aids. 						



**SUPPORTING VEHICLE MOVEMENT FEATURES**

E.g. Ways to make access to vehicles easier for users



**What is the main supporting vehicle movement feature listed above that most enables you when in a street environment?**













**Please explain why this is the case..**











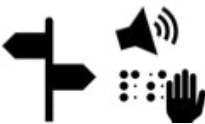



**What is the main supporting vehicle movement feature listed above that most disables you when in a street environment?**










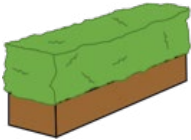

**Please explain why this is the case..**







 <b>Various Street Features</b> E.g. typical elements of a busy high street / main street						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Advertising boards on street</b> E.g. A-frame signs or permanent advertising features in the footway 						
<b>Waste bins</b> E.g. Recycling and waste bins located in the footway 						
<b>Bollards</b> E.g. To segregate traffic or prohibit entrance to certain streets / lanes 						
<b>Seating (at regular intervals)</b> E.g. Seating laid out in a consistent manner 						
<b>Seating (not at regular intervals)</b> E.g. Seating laid out sporadically 						

 <b>Various Street Features</b> E.g. typical elements of a busy high street / main street						
	Very Disabling	Somewhat disabling	Neutral	Somewhat enabling	Very enabling	Not relevant
<b>Café seating and tables with no barriers</b> E.g. Seating for café users with no segregation from main flows of people 						
<b>Café seating and tables with barriers</b> E.g. Seating for café users with segregation from main flows of people 						
<b>Tactile maps</b> E.g. Maps to aid navigation for those with visual impairments 						
<b>Wayfinding features that are tactile or audible</b> E.g. Features to aid navigation which use audible or tactile information 						
<b>Trees (leafed / deciduous)</b> E.g. Trees with a leafed canopy 						



 <b>Various Street Features</b> E.g. typical elements of a busy high street / main street						
	<b>Very Disabling</b>	<b>Somewhat disabling</b>	<b>Neutral</b>	<b>Somewhat enabling</b>	<b>Very enabling</b>	<b>Not relevant</b>
<b>Trees (non-leaved / coniferous)</b> E.g. Trees without a leaved canopy 						
<b>Tree with guard / cage</b> E.g. Trees which have a metal frame or cage to aid their growth / prevent damage to the tree 						
<b>Hedging</b> E.g. Hedges and other planting being integrated into the street 						
<b>Cycle racks / storage in parking bay areas</b> E.g. Cycle stand in car park area 						

<b>VARIOUS STREET FEATURES</b> E.g. Typical elements of a busy high street / main street	
	<b>What is the main street feature listed above that most enables you when in a street environment?</b>
	<b>Please explain why this is the case..</b>

	<b>What is the main street feature listed above that most disables you when in a street environment?</b>
	<b>Please explain why this is the case..</b>

# Appendix D

Designer, implementer and promoter perspectives



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## Appendices

Appendix d .1

DIP Survey

## **Introduction**

### **24.3 Background to the project**

- 24.3.1. This Appendix to the main research report entitled 'Inclusive Design in Town Centres and Busy Street Areas' summarises the consultation with designers, implementers and promoters. The consultation was undertaken through a series of one-to-one consultations and online surveys to understand how designers, implementers and promoters consider inclusive engagement and design.

## 25. Overview of the research methodology

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### 25.1 Introduction

- 25.1.1. The experience and views of designers, implementers and promoters were considered as part of this research. We have defined designers, implementers and promoters as follows:
- Designers - designers of street design schemes.
  - Implementers - local authorities commissioning and overseeing the delivery of public realm schemes.
  - Promoters - budget holders and funders of public realm schemes, who are not local authorities.
- 25.1.2. This research group is actively involved in the design and delivery of projects which alter the built environment in some way. Therefore, their role in designing and / or delivering schemes has a direct or indirect effect on users and their ability to access and navigate through public spaces and streets.
- 25.1.3. An online consultation approach was undertaken to engage with designers, implementers and promoters. It was considered that this would allow the greatest opportunity for different parties to contribute to the research.
- 25.1.4. The online survey comprised a series of open questions (Appendix D.1) that allowed participants to respond in detail to the questions that were most relevant to their role. This approach allowed for themes to be identified from the participants, as well as identifying any variation between participants' profession, sector and geographic region.
- 25.1.5. Online participants were invited to leave their contact details if they wished. This allowed for additional one-to-one interviews to be undertaken to further explore the qualitative survey responses, where necessary. A number (n=7) of one-to-one interviews were subsequently undertaken and the additional information provided has been incorporated into the survey findings presented in Section 7.2.

### Overview of the survey period

- 25.1.6. The online survey was open from 29 January to 16 February 2020. The research team were contacted by several participants who requested a short extension to the submission deadline, which was granted. The last submission was received on 18 February 2020.

## Survey participants

25.1.7. Promotion of the online survey was focussed to ensure that it received contributions only from designers, implementers and promoters. Candidate organisations were approached and asked to circulate the survey within closed groups. It should be noted there was no obligation by these organisations to circulate / promote the survey if they chose not to. The full list of candidate organisations originally targeted is presented below (\*denotes organisations that confirmed wider circulation of the survey):

- RTPI - The Royal Town Planning Institute.
- ADEPT\* - The Association of Directors of Environment, Economy, Planning & Transport.
- SCOTS\* - Society of Chief Officers of Transportation in Scotland.
- Sustrans\*.
- Living Streets.
- RIBA - Royal Institute of British Architects.
- RIAS - The Royal Incorporation of Architects in Scotland.
- A&DS- Architecture and Design Scotland.
- NRAC\* - National Register of Access Consultants.
- CIHT\* - Chartered Institution of Highways and Transportation.
- HOPS\* - Heads of Planning Scotland.
- ICE - Institution of Civil Engineers.

25.1.8. In total, 106 responses were received. Table 12 to 15 below provide a summary of the composition of the designers, implementers and promoters study group. Any survey submissions which did not provide written responses to any of the open questions (Q6 to Q12) were removed from the analysis (76 in total). This reduced the total number of valid responses to 30 responses.

**Table 12 - Q1. Are you responding as:**

Category	Number	Percentage (%)
Individual	10	33%
Public Sector Organisation	11	37%
Private Company	9	30%
	30	100%

25.1.9. As shown in Table 13, the main role of the majority of participants was consultant or designer.

**Table 13 - Q2. What is your or your organisation's role in the design process? (please tick all that apply):**

<b>Role</b>	<b>Number</b>	<b>Percentage (%) (n=30)</b>
Consultant / Designer	21	64%
Standard / Guidance Body / Organisation	2	6%
Statutory Authority	8	24%
Promoter / Implementer - Non-Government	1	3%
Promoter / Implementer - Local Government	8	24%
Promoter / Implementer - Regional Government	-	0%
Promoter / Implementer - National Government	-	0%
Promoter / Implementer - Regional Transport authority	1	3%

25.1.10. Table 14 shows that the survey participants, as a group, covered a broad range of technical areas of expertise.

**Table 14 - Q3. What is your / your organisation's area of expertise? (please tick all that apply)**

<b>Role</b>	<b>Number</b>	<b>Percentage (%) (n=30)</b>
Urban Design	14	42%
Landscape Architecture / Urban Designer	13	39%
Engagement / Stakeholder management	13	39%
Transport Planning	10	30%
Town Planning	10	30%
Highway / Civil Engineer (Designer)	10	30%
Master Planning	8	24%
Access Consultancy	7	21%
Multi-disciplinary consultancy	6	18%
Building Services	4	12%
Architecture	3	9%



25.1.11. As shown in Table 15, the majority of participants were based in Scotland and practiced in Scotland. Approximately one third of participants were based in England, with over one third of participants practicing in England.

**Table 15 – Q4 & Q5. Please say where is your main base of work and place of work for undertaking Public Realm work**

Location	Number	Base of work (%) (n=30)	Number	Place of work (%) (n=30)
England	10	33%	11	37%
Scotland	18	60%	18	60%
Wales	1	3%	0	0%
Northern Ireland	1	3%	1	3%
Outside of the UK	0	0%	0	0%

## 25.2 Limitations to the designers / implementers / promoters research

- 25.2.1. The online survey sought to allow designers, implementers and promoters the opportunity to outline their approaches to inclusive engagement and design, as well as the challenges they face. This was achieved through the use of open questions. Therefore, the analysis of survey responses is purely qualitative, with main themes identified, rather than being quantitative in nature.
- 25.2.2. Based on a review of the responses provided, it is considered by the research team that approximately 25% of the participants to the open questions had a good level of appreciation (depth, breath and level of response) of inclusive design and / or engagement. There was representation from each role within this sub-group. The other participants to the online survey had less confidence in their responses in particular with regards to inclusive engagement. This outcome could in itself illustrate the disparity in the level of experience in the wider industry and the need for improvement. This may require further consideration.
- 25.2.3. It should also be acknowledged that the response rate per question varied as all questions were optional. Some questions were answered by more participants than others. The level and detail of responses also varied between questions. Despite this, all relevant responses were considered to inform the research findings and conclusions.
- 25.2.4. Throughout the research project as a whole, opportunities were taken (where appropriate or requested) for one-to-one engagement. This approach was also extended to designers, implementers and promoters. To enhance the findings of the online survey, additional one-to-one interviews were undertaken to better examine and consolidate the underlying issues which emerged from the survey responses. The review of the survey findings highlights where these additional conversations were used to assist with interpreting the online survey responses (as necessary).

## 26. Approaches to engagement

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### 26.1 Introduction

- 26.1.1. The findings of the survey and additional engagement relating to approaches to engagement are presented in this section. The survey questions covered under this section are Questions 6 to 9.

### 26.2 Question 6

Q6. Please define your current approach to public engagement to inform the inclusive street design development process. Can you outline how you have planned, promoted, recorded these public engagements to make them inclusive for the community, in particular for disabled people and other vulnerable street users or similar?

- 26.2.1. 29 responses were received regarding the approach each organisation has towards public engagement, and responses could be grouped into four key themes.
- Forms of engagement.
  - Proportionate engagement.
  - Funding requirements.
  - Education and training.
- 26.2.2. The responses relating to each of these issues are summarised below.

#### Forms of engagement

- 26.2.3. Responses suggest that the most common forms of engagement are public and stakeholder engagements by way of open-access consultation activities and focussed workshops with invited participants.
- 26.2.4. Among participants, several had developed their own strategy when approaching engagement. These strategies had been based upon their own previous experience, or from working alongside / with other engagement groups, as well as from the processes set out in the Scottish National Standards for Community Engagement<sup>75</sup>.
- 26.2.5. Key individuals and organisations generally involved in the engagement groups were local authorities, local organisations, individuals with local experience and disability groups.
- 26.2.6. Engagement examples undertaken by participants were proportionate to the scale of the specific project or programme and included:
- Setting up inclusive design working groups for the duration of a project.
  - Full day conferences for disabled stakeholders who wish to input their views in early stages of design.
  - Organised 'walkabouts' with small groups of disabled stakeholders to understand how each of them uses the streets and spaces and what needed to be tackled.

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75 [http://www.voicescotland.org.uk/media/resources/NSfCE%20online\\_October.pdf](http://www.voicescotland.org.uk/media/resources/NSfCE%20online_October.pdf)

## Access panels / project steering groups

- 26.2.7. Access panels include local groups made up of pan-disability representation. Several of the participants (designers and engineers) engage with the local Access Panels and run steering groups to ensure each relevant project is able to mitigate any local issues which form key barriers for disabled groups.
- 26.2.8. Access panels were identified by the participants as being particularly successful in allowing people to contribute fully to the project during the initial stages of planning and design. These groups provide a valuable insight that may otherwise not be incorporated into the design. Access panels are also invited by some designers to audit the outcome once construction has ended:
- **Participant comment: “As part of construction process auditing, we invite experts / local panels in order to deal with any faults and collect information for lessons learnt.” [principal designer]**
- 26.2.9. The survey responses indicate that local panels are regularly involved in engagement events and are often asked by various bodies to take part in new projects.
- 26.2.10. In one-to-one discussions with two participants, they outlined that they had developed a working relationship with the local Access Panel; they regularly attended meetings and presented to them. The two participants valued the local perspective and broad range of disabilities that the Panel represented, as well as allowing for national disability organisations perspectives to be reviewed in context with other disabilities.

**Key Message (DIP1):** Form an inclusive design working / steering group (in absence of an active Access Panel) at the project inception stage of any project or programme which may result in alterations to the public realm. This working group will then be able to discuss and agree on the relevant users to be represented, the appropriate forms of engagement required to be undertaken, as well as the timing and scale of engagement activities.

## Collaborative design

- 26.2.11. Collaborative design has potential to help put disabled and vulnerable users at the heart of the decision-making process. Designers, consultants and authorities have been implementing these schemes and setting up a joint governance structure between the stakeholders that includes representation from local Access Panels. According to some of the participants, it has been found that this form of working is most effective for large-scale projects where all groups must come together with equal opportunity to input their views and needs throughout the project:
- **Participant comment: “Meaningful engagement and collaborative design are undertaken at all stages of the project from inception to construction.” [principal designer]**
- 26.2.12. This approach also reduces the intrinsic barriers and loss of information between the different stakeholders. As one respondent identified, on occasion local authorities do not get enough information from discussions between designers / consultants and vulnerable users, which translates into a lack of understanding from the decision makers of the needs and insight of disability groups.
- 26.2.13. In one-to-one discussions with one participant, they indicated that their approach was less collaborative, involving consultation only, as they considered this approach to be more successful in informing design, and not setting expectations that the

needs of all disabilities as well as other street functions (e.g. movement of traffic) can be achieved between existing building lines. It also allowed them to take a view on conflicting needs between different disability perspectives.

**Key Message (DIP2):** Collaborative design practices help to ensure that the local community, including disabled and vulnerable users, feel able to influence the design of the spaces and places in which they live, work and play. This approach can also break down the ‘them and us’ perception which is often associated with professional designer-led approaches and encourages shared decision making and conflict resolution.

### Place standard tool

- 26.2.14. Several strategies are used to initiate engagement in events, with a number of participants mentioning that the Place Standard Tool<sup>76</sup> has been used effectively in informing discussion and appreciation of other perspectives with stakeholders, councils and community groups.
- 26.2.15. The Place Standard Tool is widely used by several organisations to initiate the interactive activities when running workshops and events with people from different organisations and disabilities, as it helps all parties understand the differences each person faces within the same situational context. This approach can highlight the measures which are considered beneficial for some groups, but which can have a negative impact on others. This tool can therefore help inform discussions between parties in a way that assists in collaboration / dialogue to identify potential options which may have a more positive outcome for more people:
- **Participant comment: “Experience of using the Place Standard Tool has given the local community a voice in the process as they can easily demonstrate the issues they face as well as suggesting ways of changing those issues.” [local government officer]**
- 26.2.16. Participants identified that all the different forms of engagement discussed were most successful when implemented in the early stages of the project (RIBA Stages 1 and 2) and carried throughout the lifecycle of the project.

**Key Message (DIP3):** Stakeholders and community representatives should be encouraged and supported to review and assess local places and spaces using a simple and easy to use method such as the Place Standard Tool. This should be undertaken early on in the project lifecycle to help agree the scope of the project and inform the project objectives and scheme options development process.

### Proportionate engagement

- 26.2.17. A number of participants stated that the scale of their engagement approach was dependent on the size or scale of the project. However, their view was that although the scale and strategies may vary, engagement should always include all vulnerable groups’ insights and start in the early stages of the project, then be maintained throughout the lifecycle of the project:
- **Participant comment: “Holistic approach to public engagement, with the scale dependent on the size of the project. Generally, engagement has included two elements: stakeholder and public. Stakeholder engagement includes key individuals and organisations impacted by the scheme and who could dictate the success of the scheme.” [principal designer - multi-disciplinary consultancy]**

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76 <https://www.placestandard.scot/>

- 26.2.18. It was widely accepted that the level of promotion of events would also depend on the type of event that was being held, but would typically include promotion via the project website, social media, local press, posters throughout the project area, leaflets to residents, posters in windows, pop-up tents in the street, stakeholder communications channels, phone calls and emails.
- 26.2.19. In the one-to-one interviews, one organisation outlined the extensive community engagement programme they had undertaken, which included early engagement, 'walkabouts' and regular engagement with local groups, including the local Access Panel and disabilities groups. They felt there was a need for guidance on when organisations had undertaken sufficient / reasonable level of engagement.

**Key Message (DIP4):** Working with local stakeholders and the community, including disabled and vulnerable users, can help ensure that the correct scale of engagement and engagement forms for a project are undertaken and at the most suitable times.

### Funding requirements

- 26.2.20. One of the survey responses, which was from a funder, highlighted that funders are not usually directly responsible for designing or delivering engagement strategies for projects. However, they require, through their funding guidelines, that those involved in running engagement activities do so according to best practice, as well as requiring an Equality Impact Assessment (EQIA) to be initiated in the early stages of a project and maintained as a live document throughout the development of the project:
- **Participant comment: “The EQIA’s should be backed up by robust community engagement that endeavours to reach seldom heard groups, as set out in our own community engagement guidance, which is sent to all projects that receive funding.” [funding body representative]**
- 26.2.21. This funding body said that they worked with partners to identify target groups that may have been missed during community engagement events to feed into the EQIA. In larger projects, evidence of engagement with people from a broad range of demographics was expected to be included in the reports and support for running accessible workshops was provided.

### Education and training

- 26.2.22. As with the street user focus groups, there are several survey responses relating to the lack of training of design professionals, consultants, authorities, engineers and contractors that are not directly involved in inclusive design, but who still have a role to play in ensuring that designs and resulting outputs are accessible.
- 26.2.23. The survey responses and one-to-one interviews suggest that there are often efforts to ensure that disabled groups are engaged with throughout all (RIBA Plan of Work) stages<sup>77</sup> of a design project.

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77 <https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-plan-of-work#available-resources>

## 26.3 Question 7

Q7. Can you give any examples of where you have undertaken engagement on street design with a representative selection of the community, in particular with disabled people and other vulnerable street users or similar? Please highlight what worked well and what did not work well.

- 26.3.1. A substantial number of responses stated that project steering groups were good to engage with local stakeholders, including vulnerable user groups. Respondents indicated that interactive group activities allow people to directly input their views and need to be included into the design process. These groups provide valuable local knowledge regarding local trip generators and attractors, desire lines, and other streetscaping elements, it was suggested.
- 26.3.2. Several participants mentioned the importance of having interactive group activities, such as workshops and 'walkabouts'. These types of activities tended to be reported as working well, however there was concern raised that some people do not actively voice their views and opinions when a counter view is being discussed. It was identified that this issue can be effectively mitigated by ensuring enough time and space is provided for everybody to openly voice their views.
- 26.3.3. Participants outlined that, while developing engagement strategies, it was important to ensure representation from a wide range of disabled people / groups. This gives much more valuable inputs to the design process. Therefore, it was reported that it is often easier to do specific smaller events rather than one larger scale event.
- **Participant comment: "For a project in the (location removed) we held an event in an accessible shopping mall, which successfully reached a number of disabled people with views on the project being delivered." [funding body representative]**
- 26.3.4. Participants outlined that keeping people engaged / involved throughout the project has been a key element for the success of the strategies. As an example, the redesign and layout of a suburban town centre had people with visual and physical disabilities inputting their opinions throughout the different stages, including design, materials and delivery of the project.
- 26.3.5. The benefits from this approach showed that communities were more engaged, even after completion of the project, by feeling they had a level of 'ownership' of the area and a better sense of responsibility to help with maintenance and upkeep.
- 26.3.6. On the other hand, participants stated that the resources and time associated with these engagement strategies were often high, and so engagement can sometimes be limited due to budget constraints.
- 26.3.7. One planning consultant participant outlined that they had applied three different techniques throughout recent projects in Scotland, which varied depending on the nature of the area being developed:
- For city centre areas, as well as key arterial / suburban town centres, a combination of setting up (i) design working groups, (ii) full day conferences with disability groups and (iii) walkabouts with smaller groups have been shown to work positively, responding to the need of each particular project.
  - For town centre areas, (ii) full day conferences have not been implemented.

- 26.3.8. This variety of approaches shows the importance of understanding the needs of each project and how to best engage with vulnerable users and the wider community in the most appropriate ways to ensure they are able to play a full part in the process.
- 26.3.9. One response from a Local Authority participant outlined that they followed the Scottish National Standards for Community Engagement, always working alongside the local Access Panel as well as stakeholders and vulnerable street users, including children. These engagement activities tended to be organised in schools or council offices, ensuring facilities were fully accessible for everyone, so that no group's needs were better represented than others, in order to guarantee the best output possible from the sessions:

- **Participant comment: “We ensure that all of our consultation events are accessible to all people.” [local government officer]**

Key Message (DIP5): Engagement activities which involve the project team going to places where different user groups are, including disabled and vulnerable users, is often more effective than expecting users to come to meet the project team. This approach often ensures that a more balanced representation of views is achieved and inputs from a wider range of users can be used to inform the project outcomes.

### **Success stories and opportunities for improvement**

- 26.3.10. Positive feedback from a project in London also included a mix of engagement techniques, with the key being early engagement to include views and needs from the first stages of design. These techniques included round table sessions, visual presentations, co-development of access principles, on site ‘walkabouts’ and dynamic activities with all the engaged groups to design the streetscape. All these engagements and visits had been recorded in various forms in compliance with the Equality Act.
- 26.3.11. Some of the challenges mentioned by a number of participants were that, when organising workshops and events with disability groups, it was typically observed that not all of the disabilities were represented and that on some occasions the needs of some disability groups generated barriers for other groups. Indeed, making sure that certain groups are not underrepresented was a common theme from the responses.

## **26.4 Question 8**

Q8. During this engagement, how did you respond to comments on design by street users with a disability? How was it recorded, and did you successfully or unsuccessfully address the issue raised? What was the final outcome for the street user?

### **Meeting minutes and feedback**

- 26.4.1. A number of participants (n=4) stated that they recorded ‘issues and comments’ in meeting minutes from the discussions held with disability groups. These were then considered in the design process and translated into risk mitigation by disability groups. Summaries and notes were also used to note down the comments, with feedback provided to all those involved in the engagements. The feedback was often verbal or written, with designers making a record and following up as necessary. One consultant reported that they record all presentations (verbal or written), also presenting consideration relevant to the design process in a ‘design register’, recording the action to be taken:

■ **Participant comment: “On large projects we report back a ‘you said - we did’ summary in exhibitions and online.” [multi-disciplinary consultant]**

- 26.4.2. One Scottish Local Authority designer who had undertaken public realm interventions outlined the benefits of engagement with vulnerable groups, including disabled people, by way of ‘walkabouts’ to identify the improvements within the existing public realm which would have the greatest benefit for all users. This had generated good results for the final scheme, where most local users could now move easily and in an accessible way, showing the benefits of engagement activities from early design stages.
- 26.4.3. One English Local Authority that responded undertook street audits as well as analysing travel plans and recorded the inputs in a tabular form which was then circulated for feedback from the stakeholders. Efforts were made to accommodate most, if not all, of the needs stated by the vulnerable street users.
- 26.4.4. Other organisations reported using a similar way of noting down the key findings in spreadsheets and tables.

**Key Message (DIP6):** All outcomes from engagement events and activities should be recorded in a clear and concise accessible form (simple spreadsheet / word table). These outcomes should be shared with those parties who have taken part in the engagement activities, if they have consented to receiving further communications. At future project stages, the engagement outcomes of previous project stages should be reviewed to ensure that relevant issues are carried forward i.e. ‘you said, we did’. This will demonstrate to consultees how previous engagement has helped shape the project to date and will help increase confidence and interest in the process, particularly on longer projects and projects with time gaps between stages.

### **Alternative ways of recording engagement**

- 26.4.5. One of the consultants that took part in the survey used methods such as photos and videos of accessibility audits and detailed maps which are cross-referenced with the audit reports. As with other designers and consultants, formal notes of workshops and meetings with stakeholders are circulated amongst those involved, encouraging feedback for key aspects.
- 26.4.6. In one-to-one interviews, when questioned on accessible formats, they responded that they had made it clear that these were available but had never been asked for any alternative formats to be provided.

**Key Message (DIP7):** The approaches to recording and maintaining engagement outcomes should be appropriate to the scale and needs of each project. New and innovative methods for recording and presenting engagement outcomes should be considered, where appropriate, and their success reviewed as part of a process of continuous improvement and learning lessons.



## EQIA and other regulations

- 26.4.7. A number of designers surveyed online and in the one-to-one interviews included the use of the “ongoing EQIA reporting to capture key inclusive design issues and reasonable adjustments” as outlined in Transport Scotland Roads for All guidance 2013<sup>78</sup>.
- 26.4.8. One Scottish Local Authority had implemented measures through their own street design guidance, which included inputs from the local Access Panel in the final project, aiming to ensure that pedestrians and disability groups were given the highest priority when designing streets and public realm in the city. Kerb heights, tactile paving and other measures for all new projects have been agreed jointly by collaborating with the local Access Panels and recording the information in accordance with the city’s street design guidance:
- **Participant comment: “This aims to ensure that pedestrians are at the top of the hierarchy of street user needs and that people with accessibility needs are provided for within this.” [principal designer - local government]**

Key Message (DIP8): The EQIA / Access Audit (or similar) should form the central document for demonstrating compliance with the relevant legislation and regulations associated with inclusive design and engagement. More than this, the EQIA / Access Audit (or similar) can also be an important tool in documenting how the design process has considered the needs of all users throughout the project lifecycle, and where and how reasonable adjustments to the design have been made.

## Impacts on Design

- 26.4.9. A little over half of participants who identified as having a designer project role reported that they used meeting minutes and formal notes to record the views and needs from groups, which had been obtained throughout different engagement sessions. On occasion, these minutes and notes were circulated for final feedback and approval. A few participants described how they record and take forward these responses:
- **Participant comment: “We recorded the information from the engagement which specifically affected how we designed the height of kerbs from carriageways, material types, finishes and colours, and tactile paving.” [principal designer]**

## 26.5 Question 9

Q9. What are the main challenges you face to undertaking engagement as part of the planning / design process for inclusive design? Were you successful in overcoming these challenges, or what lessons were learned for the next project?

- 26.5.1. A review of the responses to this question identified that there are four main challenges in developing meaningful engagement that need to be targeted. These challenges are discussed below.

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78 <https://www.transport.gov.scot/media/43830/roads-for-all-good-practice-guide-for-roads-july-2013.pdf>

## Challenge 1: time and budget

26.5.2. That there is often a constraint in resources and time is a view which is shared by several participants, stating that, although early and in-depth engagement is beneficial, there is usually not enough time or budget to allow for this, which mirrors comments from the street users who took part in the focus groups:

- **Participant comment: “Our picture across Scotland is that meaningful engagement that reaches communities including seldom heard groups is resource intensive. This often leads to partners trying to deliver light touch engagement without sufficient opportunity to involve communities in the design decisions.” [funding body representative]**

26.5.3. When not enough programme time and budget is allocated to engaging with vulnerable groups, there is a missed opportunity to identify key aspects that would greatly improve the project’s outcome. It is usually voluntary groups and organisations that push for consideration of all users during design. It was explained, however, as there is often no remuneration made available for time, travel and support staff costs, this limits the number of projects which these groups can provide input to as well as the extent to which they are able to input into specific projects.

**Key Message (DIP9):** In order to address the challenge of time and budget constraints, a programme of proportionate and effective engagement should be included as part of the project commissioning and scope. The allocation of an appropriate level of project budget (or equivalent) to remunerate consultees and those supporting consultees for their time and expenses during the engagement process will significantly increase the capacity of voluntary groups and individuals to attend and contribute to engagement events and activities.

## Challenge 2: Wider representation of disability groups

26.5.4. Participants reported that representing all the users’ needs is particularly challenging when working across different areas and with different guidelines. A common response from local governments, designers, promoters, disability Access Panels and other stakeholders was that disability groups have a great variety of needs which are not always easy to identify and therefore fully take into consideration.

26.5.5. When working on smaller projects, which have proportionally smaller budgets for all activities, including engagement, the number of vulnerable users that are able to input into the project is often limited to those who are aware of the engagement / project and able to give time to provide this feedback.

26.5.6. A key part of the engagement and feedback is that it is developed in a conscious way, with true interest in getting valuable information for the design and implementation of schemes. Concern was raised by some participants that some projects develop engagement strategies to fulfil the promoter’s requirements and not to fully understand the needs of inclusive design:

- **Participant comment: “Rushing local people through a process never results in high quality inclusive design! We MUST begin to treat local people as equal partners - they are the end users. Service, political and other changes should not impact on the amount of time set aside for engagement. The council process and hierarchy has resulted in a reduced amount of engagement and definitely more tick-box than quality conversation and learning from local people.” [local government officer]**

- 26.5.7. Projects with a larger scale and with greater resources in time and budget can have better engagement with a wider group of disabled users. Again, however, responses suggest that, although efforts are made to encourage all disabled user groups to take part, there are occasions when certain groups are under-represented. These groups included younger age disabled people, people with mental health issues and people living with dementia. It was recognised that visible and non-visible disabilities should all be considered, but that this was not always achieved.

**Key Message (DIP10):** In order to address the challenge of ensuring a wider representation of disability groups, an effective process is necessary to allow designers, implementers and promoters to identify those groups who should be engaged with as part of forming the engagement strategy for a new project. This could be achieved by the designer / promoter / implementer maintaining a live GDPR compliant, mailing list of organisations and community representatives who agree to be contacted early in the project lifecycle. There is then also an onus on the relevant contacted parties to decide whether they wish to engage with the project or focus their time and resources elsewhere.

### Challenge 3: Outdated guidance and practice

- 26.5.8. A number of participants noted that some design guidance is out of date and that there may be a culture of not challenging the status quo within the industry. There was concern that many designers, consultants, engineers, project managers and others involved in delivering inclusive projects are not up to date or directly involved with the requirements of truly inclusive design. Participants identified that a lot of valuable comments are not taken forward due to lack of design guidelines and a lack of people with the necessary knowledge to deliver against the comments provided during construction.

- **Participant comment: “The industry needs more specific training in how to continue engagement throughout and the skills required to deliver.”**  
[principal designer]

**Key Message (DIP11):** In order to address the challenge of outdated guidance and practice, updated design guidance which has the broad support of different disability groups and users is necessary to allow designers to make more informed design decisions. The new guidance should also aim to reduce the burden on disability groups and users to provide similar feedback on similar issues on each project they are consulted on. This will allow more focus and attention to be given to the consideration of, and feedback on, new and innovative design features.

### Challenge 4: Negative views / distrust

- 26.5.9. The final challenge that was highlighted in survey responses related to a lack of positive communication and trust, where some street users / consultees have bypassed the formal engagement process and disseminated (sometimes inaccurate) information about a project to other groups or the media. This does not support an environment where views are openly shared.

**Key Message (DIP12):** In order to address the challenge of negative views and distrust held between different disabled street users and / or between street users and designers, a collaborative design approach should be used to encourage different groups to consider the needs of all users and resolve potential points of conflict together.

## 27. Public realm / street features

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### 27.1 Introduction

27.1.1. The findings relating to public realm and street features, which includes responses to survey questions Q10 and Q11, are summarised in this section.

### 27.2 Question 10

Q10. We would be grateful if you can outline the public realm / street features you have included and excluded to support inclusive design on our high streets and busy streets, and how you have reported your decision making within the design process. You may wish to consider outlining the design considerations you made in relation to the type of disability, as well as other factors, i.e. vehicle movements, different transport mode, speed, etc.

27.2.1. The answers received in the survey included views and previous experience from designers, implementers and promoters who gave their insights of the best ways of implementing inclusive design throughout the different stages of a project. However, the emphasis was mainly on the engagement with disabled groups in design stages of a project (rather than at implementation or post implementation stage). This reflects the responses from the type of participants who are primarily involved at the earlier stages of street design.

27.2.2. A range of engagement approaches are required to meet the needs of all stakeholders. Some participants identified that there are limits to implementing these approaches by organisations due to budgetary constraints (for example there may be insufficient budgetary allowance to allow for walk-throughs to support inclusive engagement). Funders stated that they push for some measures but are not fully in control of implementation as they are not directly involved in undertaking the engagement, design or scheme implementation.

**Key Message (DIP13):** Sufficient budget needs to be included at the commissioning stage of a scheme to ensure that an adequate range of engagement approaches and tools can be applied. Guidance on engagement needs to be explicit as to the inclusive engagement requirements to avoid a 'gap' between funders, implementers and designers.

27.2.3. The range of experiences from one organisation to another was reflected in the answers from the survey. This provides an understanding of where the key challenges are, as well as the success drivers that improve inclusive design in the public realm. From this range of experience and answers it was possible to categorise the responses into sub-categories where comments were grouped together into:

- Pedestrian priority.
- Design principles.
- Street furniture.
- Accessibility.
- Reporting and decision making.

## Pedestrian priority

- 27.2.4. Pedestrian priority refers to all the measures that have been implemented or are currently being tested to make spaces that put pedestrians at the centre of design processes. Designers, consultants, promoters and funders all mentioned some of these measures as a key factor to making streets and the public realm a safer and more welcoming environment and creating areas which are accessible to vulnerable users.
- 27.2.5. The most common answer in this category was designing clear footways with sufficient width to allow users to move freely without any obstacles and allow enough space for disabled street users.
- **Participant comment: “Ensuring a clear footway width was provided throughout the scheme to mitigate conflicts with visually impaired users.” [engineering firm team member]**
- 27.2.6. Several responses recommended that footways should be designed as continuous areas, avoiding any form of obstacles such as railings that would interrupt the flow of pedestrians and obstruct the desire line. In a one-to-one interview with one Local Authority designer, it was reported that based upon their experience, while the footway can be continuous it does require some form of tonal contrast and tactile demarcation (highlighting where the footway crosses the carriageway) to make it user friendly for some groups of street users.
- 27.2.7. Another element that was highlighted by a funder to avoid when designing inclusive streets were courtesy crossings, as they do not represent the highest street user hierarchy of provision for pedestrians which is required when making a safer environment. Instead, signalised crossings or crossing facilities at junctions that stopped general traffic and confirmed by tactile or audio signal should be implemented where needed.
- 27.2.8. It was also recommended by some survey participants to have raised tables on side roads at junctions in order to protect pedestrians. Alternatives, such as courtesy crossings were not supported among survey participants as it was considered that these features retain priority for motor vehicles over pedestrians.

**Key Message (DIP14):** In England and Scotland the policy position is clear that the needs of pedestrians should be considered first when making decisions on street design.<sup>79,80,81</sup> On this basis, street features which reinforce this priority should be given the greatest consideration when making design decisions relating to high streets and busy streets.

## Design principles

- 27.2.9. In recent decades, in town centres and busy street areas, shared space (as a design concept) principles have been implemented as a way of reducing speed and making streets not only for cars but for active modes of transport. These principles to create shared space are primarily based upon a reduction in the delineation and / or segregation between street user zones. There was a range of opinions throughout the survey on shared space, which included differentiating levels of segregation between pedestrian and vehicle areas. However, there was a consensus towards the need for protecting pedestrians from all other moving vehicles, including bicycles.

79 The National Transport Strategy (NTS2), Transport Scotland 2020

80 Designing Streets, Scottish Government 2010

81 Manual for Streets, DfT 2003

- 27.2.10. According to the participants, streets have often been designed for car use, placing other street users at a lower level of the street user hierarchy. Car dominated streets were not considered friendly spaces for vulnerable road users such as children and elderly pedestrians, and even less so for disabled groups who face challenges while navigating the streets and public realm.
- 27.2.11. Achieving a reduction in traffic speeds in shared space (as a design concept) areas was recommended by three participants to make conditions safer for all users including the most vulnerable users. However, no participants identified specific measures to achieve this.
- 27.2.12. Cyclists have often been accommodated in shared space (as a design concept) areas without restrictions and on occasions are permitted to use a footway / cycleway with pedestrians rather than use the carriageway. Participants highlighted that cyclists can be a hazard for pedestrians and disabled street users. In some contexts, it was suggested that it may be necessary for cyclists to dismount or have a segregated area to protect pedestrians and vulnerable users who may be unaware of the presence of a cyclist.
- 27.2.13. There were recommendations from participants to avoid the implementation of level surfaces and delineate areas with physical features such as having different heights along streets for each type of user, e.g. kerb demarcation.
- 27.2.14. The participants' proposals for the optimal height of upstands (kerb demarcation) to mark the difference between user spaces ranged between 25mm to 60mm. It was considered important that upstand heights are sufficient to create guides for disabled users while still allowing the easy movement of pedestrians and cyclists throughout the area.

- **Participant comment: “A detectable upstand height (25mm) reduces the risk of users entering the carriageway accidentally if the same grade was retained for the footway and carriageway.” [multi-disciplinary consultancy team member]**

**Key Message (DIP15):** Schemes which reduce segregation between vehicles and pedestrians through the use of techniques such as level surfaces should only be considered appropriate where vehicle speeds and volumes are ‘perceived’ as low. Even if these criteria are met there should be provision for clear pedestrian-only movement corridor(s) within the space with tactile or other types of demarcation, i.e. planters, seating etc. In other circumstances, i.e. where vehicle speed and / or volumes are perceived as high then a form of demarcation is required, such as kerb or kerb with tactile. Further consideration needs to be given to the definition of ‘low flow and low speed’ situation.

### Street furniture

- 27.2.15. Street furniture was also mentioned in the survey responses. The main issue identified was that streets are often too cluttered, and this impedes free flow of movement for all types of user, particularly people with visual impairments who can find it difficult to navigate spaces with many obstacles.
- 27.2.16. Decluttering public spaces and streets does not necessarily mean removing all the street furniture, it was suggested, but it requires the pedestrian desire lines to be identified so that movement corridors are kept clear of potential obstacles for disabled users. Street furniture can then be located in a defined zone and the unobstructed width for pedestrians is maximised.
- 27.2.17. It was recognised that street furniture plays an important role in enhancing the sense of place of a street and can be the gateway to certain areas. Some

participants recommended including seated areas with a variety of seat heights, back rests and armrests to allow for pedestrians and disabled users to rest, if necessary, in a safe and comfortable environment. Soft landscaping and sheltered green seating areas were also encouraged.

- 27.2.18. Participants also noted that there are essential elements of street furniture, such as street lighting and public transport stops. It was considered difficult to eliminate these elements altogether, but alternative solutions can be found which can reduce obstructions along the pedestrian corridors.

**Key Message (DIP16):** A collaborative design approach between designer and street users which helps to identify the requirements and location of different types of street furniture is recommended to maintain a clear pedestrian corridor. This approach can help ensure that the use of street furniture is rationalised in terms of number and location and best meets the needs of the people most likely to use it and benefit from it.

### Accessibility

- 27.2.19. The three topics described above focused on making streets safer for pedestrians while creating an easier environment to move around. However, participants also highlighted that there are specific measures that need to be considered and implemented for vulnerable groups and disabled street users. These interventions aim to make it easier for people who have either a physical or mental disability while trying to make streets friendlier environments for all.
- 27.2.20. Tactile paving and surface treatments provide information, delineate areas for visually impaired users and help reduce tripping hazards along the street. Clearly contrasting tones are recommended to emphasise the limits of a footway or footpath and when approaching higher risk areas.
- 27.2.21. Although it was recommended that courtesy crossings should be avoided, participants also reflected that it is important to keep dropped kerbs where needed to allow those with reduced mobility to be able to cross streets where other options such as raised tables at junctions are not technically feasible. These measures are in line with keeping level changes to a minimum, which are physical obstacles for disabled groups who cannot easily overcome the level changes.
- 27.2.22. Other measures which were identified by participants included accessible and sensory play equipment as part of a wayfinding strategy for the streets and public realm. In addition, proximity sensors (such as radio frequency identification) that share information to disabled users on locations and destinations in the nearby area, as well as conceptual design for background sounds and noises to help people identify what section of the street they are in were supported in the survey responses.
- Participant comment: “Accessibility - we still design our public realm around car provision and many of the city’s streets and centres are not child friendly, disability friendly, age friendly, cyclist friendly or indeed people friendly.” [local government officer]

## Reporting decision making

27.2.23. Several participants detailed the way in which design decisions are recorded throughout the process.

- **Participant comment: “Design decisions were included in design development logs and hazard registers (residual hazard of conflicting with street furniture still present but reduced).” [multi-disciplinary consultancy team member]**

### 27.3 Question 11

Q11. When considering inclusive design, public realm / street features, what has worked well in a design project and / or what has not worked well?

- 27.3.1. As in the previous questions, the wide range of experience and expertise among participants raised several positive elements in designing inclusive public realm and streets, and areas of opportunity to explore in future projects.
- 27.3.2. Examples that have worked well included replacing public utility covers with recessed covers (paving flaps, tactile paving) and anti-skid covers which provide safer environments for pedestrians and cyclists, reducing the risk of skidding and tripping. Comments from a multi-disciplinary consultant, however, highlighted that there are challenges when liaising with public utility providers over such resources as there seems to be a lack of understanding of the impacts on vulnerable users.
- 27.3.3. One participant stated that metallic tactile studs can help visually impaired people, but they are a trip hazard as they become very slippery under wet conditions and other alternatives with increased grip would be safer to use.
- 27.3.4. Another positive element identified by participants was early engagement with specific groups, such as the Mobility and Access Committee for Scotland (MACS)<sup>82</sup>, and getting them involved in the decision-making process while actively seeking to improve policies and designs based on best practice from engagement with disability groups.
- 27.3.5. Participants highlighted that although projects are making improvements and working towards more inclusive design, there are still a lot of project delivery improvements that need to take place to create better spaces for all users, including disabled groups. Crucially, there remains a lack of hierarchy for implementing measures when two or more required elements are in opposition with each other. It is unclear which one takes precedence and designers find it difficult to select options as there is no clear guidance on who should be making these decisions and how the decision is to be made:
- **Participant comment: “Still a long way to go to create an inclusive city and a long, long way off inclusive design.” [local government officer]**
- 27.3.6. **Key Message (DIP17):** There remains a lack of guidance on how to decide which measures to implement when two or more required elements are in opposition with each other.
- 27.3.7. It was recognised that input from disabled groups has a great impact, as they are most affected by the decisions made during the design of spaces. Regarding previously discussed topics, the views from one local Access Panel were that shared footway / cycleways or paths do not always work best for all users and having segregated cycleways could be a better option when implementing new schemes.

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82 <https://www.transport.gov.scot/our-approach/accessible-transport/mobility-and-access-committee-for-scotland-macs/>



27.3.8. Finally, participants felt that understanding the community and their specific needs through the design process is key for the success of the measures implemented:

- **Participant comment: “The project example is still within design phase, but what has worked well so far has been the engagement with the disability Access Panel group and the discussion / ideas this has prompted.” [local government officer]**

Key Message (DIP18): Undertaking a post-implementation project review can be an important part of the inclusive design process and hand over to the client. This ensures that promoters and designers are able to take forward the lessons learned about what worked well and what could have been improved. This helps to inform subsequent design projects. Including the disability groups and users engaged during the design phase in the review allows their views on the engagement, design process and outcomes to be considered as well as building on these relationship for the next project.

## 28. Potential changes to inclusive engagement and design features

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### 28.1 Introduction

- 28.1.1. The findings relating to potential changes to inclusive engagement and design features, based on the responses to survey question Q12, are summarised in this section.

### 28.2 Question 12

Q12. Reflecting on your public realm design experience, what changes would contribute to better inclusive design, both in terms of engagement and design features? You may wish to consider the guidelines, statutory requirements, standards, policies, procurement / budget / timescales, training and appreciation of different needs of disabled people in terms of design and engagement.

- 28.2.1. Several participants agreed that there must be greater research on the interaction between user groups on different type of paths, such as paths where different users are separated by an upstand, paths where spaces for different users are delineated with lining, and paths with no delineation or segregation between different users.
- 28.2.2. Three participants stated that there is also the need to understand the interactions of continuous footways and bus stops and bypasses and how they impact disabled and vulnerable street user groups.

**Key Message (DIP19):** There is a need to understand the interactions of continuous footways, bus stops and bypasses and how they impact disabled and vulnerable street user groups.

- 28.2.3. Promoters, designers and funders identified that that there should more widely available inclusive engagement training for designers and all those involved in the decision-making process.
- 28.2.4. One participant stated that 'decision makers' do not always have an adequate understanding of the needs of communities and groups with a wide range of different disabilities to fully understand the various needs associated with both visible and non-visible disabilities. There needs to be greater involvement with local disability groups and organisations, allocating sufficient time and resources in the project to allow meaningful feedback to happen and avoid making decisions that would have a greater impact without taking appropriate consultation first.

**Key Message (DIP20):** There should more widely available inclusive engagement training for designers and all those involved in the decision-making process to encourage a fuller understanding of the needs of communities and groups with a wide range of different disabilities and the various needs associated with both visible and non-visible disabilities.

- 28.2.5. Another comment identified that guidance should be developed to outline how best to engage with a wide range of disability groups and how to include their views and needs in the projects that are being developed. Good practice guidance and case studies for engagement from previous EQIAs / Accessibility Audit (or similar) could be carried out as joint work to publish guidelines that would work as a platform for future projects.

28.2.6. Finally, support was given to updated guidelines and street design guides which should include specifications on the use of inclusive design and busy street environments to give confidence to vulnerable users of a space that is safer and easier to use:

- **Participant comment: “Clear guidelines for engagement and an emphasis placed on ensuring any engagement captures all relevant local stakeholders.” [engineering firm team member]**

Key Message (DIP21): There is a need for clearer guidance on both inclusive engagement approaches and inclusive physical design measures to aide designers and to increase their confidence in the development of practical and applicable inclusive design solutions that encourage disabled street user confidence / comfort in the use of a space.

## 29. Summary

29.2.1. The key messages drawn from the designers, implementers and promoters are shown in the table below alongside a review of the alignment between the key message and existing guidance for Inclusive Engagement and Inclusive Physical Design measures.

**Table 16 – Key Messages from Designers, Promoters and Implementers on Inclusive Engagement and Physical Design measures in relation to existing guidance**

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP1</b>	Inclusive Engagement	Form an inclusive design working / steering group (in absence of an active Access Panel) at the project inception stage of any project or programme which may result in alterations to the street design. This working group will then be able to discuss and agree on the relevant users to be represented, the appropriate forms of engagement required to be undertaken, as well as the timing and scale of engagement activities.	<p>Current guidance does not specifically cover the formation of inclusive design working / groups.</p> <p>There are Local Design Review Panels (A&amp;DS) in Scotland and similar groups in England, Wales and Northern Ireland. Further research is required to determine the level of detail and coverage.</p>
<b>DIP2</b>	Inclusive Engagement	Collaborative design practices help to ensure that the local community, including disabled and vulnerable users, feel able to influence the design of the spaces and places in which they live, work and play. This approach can also break down the ‘them and us’ perception which is often associated with professional designer-led approaches and encourages shared decision making and conflict resolution.	Covered under existing guidance, including ‘The National Standards for Community Engagement’ (‘working together’), ‘Shaping better places together: Research into facilitating participatory placemaking’, ‘Community engagement: guidance for local authorities’, and ‘New Conversations 2.0: LGA guide to engagement’ (co-production).

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP3</b>	Inclusive Engagement	Stakeholders and community representatives should be encouraged and supported to review and assess local places and spaces using a simple and easy to use method such as the Place Standard Tool. This should be undertaken early on in the project lifecycle to help agree the scope of the project and inform the project objectives and optioneering process.	Covered under existing guidance, including 'The National Standards for Community Engagement' which refer to the place standard tool. 'Shaping better places together: Research into facilitating participatory placemaking', 'Community engagement: guidance for local authorities', and 'New Conversations 2.0: LGA guide to engagement'.
<b>DIP4</b>	Inclusive Engagement	Working with local stakeholders and the community, including disabled and vulnerable users, can help ensure that the correct scale of engagement and engagement forms for a project are undertaken and at the most suitable times.	Covered under existing guidance, including 'The National Standards for Community Engagement' and 'New Conversations 2.0: LGA guide to engagement' with relation to budget constraints and expectations.
<b>DIP5</b>	Inclusive Engagement	Engagement activities which involve the project team going to places where different user groups are, including disabled and vulnerable users, is often more effective than expecting users to come to meet the project team. This approach often ensures that a more balanced representation of views is achieved and inputs from a wider range of users can be used to inform the project outcomes.	EHRC 'Engaging with disabled people: an event planning guide' suggests venues that are familiar with attendee and using existing groups for recruitment. Similar to 'Community Planning Toolkit - Community Planning' which suggests the same approach. The other guidance covers accessible consultation / venue – there is however no mention of making use of existing community groups who regularly meet.

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP6</b>	Inclusive Engagement	<p>All outcomes from engagement events and activities should be recorded in a clear and concise accessible form (simple spreadsheet / word table). These outcomes should be shared with those parties who have taken part in the engagement activities, if they have consented to receiving further communications. At future project stages, the engagement outcomes of previous project stages should be reviewed to ensure that relevant issues are carried forward i.e. ‘you said, we did’. This would demonstrate to consultees how previous engagement has helped shape the project to date can help increase confidence in the process and maintain interest, particularly on longer projects and projects with time gaps between stages.</p>	<p>Covered under existing guidance, ‘The National Standards for Community Engagement’ and ‘New Conversations 2.0: LGA guide to engagement’ through communication plans.</p> <p>Although there is little emphasis on recording, assessing and responding.</p>
<b>DIP7</b>	Inclusive Engagement	<p>The approaches to recording and maintaining engagement outcomes should be appropriate to the scale and needs of each project. New and innovative methods for recording and presenting engagement outcomes should be considered, where appropriate, and their success reviewed as part of a process of continuous improvement and learning lessons.</p>	<p>Covered under existing guidance, ‘The National Standards for Community Engagement’ and ‘New Conversations 2.0: LGA guide to engagement’ through communication plans.</p> <p>Although there is little emphasis on recording, assessing and responding.</p>

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP8</b>	Inclusive Engagement	<p>The EQIA / Access Audit (or similar) should form the central document for demonstrating compliance with the relevant legislation and regulations associated with inclusive design and engagement. More than this, the EQIA / Access Audit (or similar) can also be an important tool in documenting how the design process has considered the needs of all users throughout the project lifecycle, and where and how reasonable adjustments to the design have been made.</p>	<p>Transport Scotland ‘Road for All’ Guidance outlines the requirement for an EQIA.</p> <p>The DfT Traffic Advisory Leaflet (TAL 05/11) ‘Quality audit in the street design process’ outlines the requirement for Accessibility Audits and EQIA’s.</p>
<b>DIP9</b>	Inclusive Engagement	<p>In order to address the challenge of time and budget constraints, a programme of proportionate and effective engagement should be included as part of the project commissioning and scope. The allocation of an appropriate level of project budget (or equivalent) to remunerate consultees and those supporting consultees for their time and expenses during the engagement process will significantly increase the capacity of voluntary groups and individuals to attend and contribute to engagement events and activities.</p>	<p>Covered under existing guidance ‘New Conversations 2.0: LGA guide to engagement’ which covers budget constraints and expectations.</p> <p>‘The National Standards for Community Engagement’ outlines where budget could be required to support engagement but is silent on budget constraints and expectations.</p>

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP10</b>	Inclusive Engagement	<p>In order to address the challenge of ensuring a wide representation of disability groups, an effective process is necessary to allow designers and promoters to identify those groups who should be engaged with as part of forming the engagement strategy for a new project. This could be achieved by the promoter / implementer maintaining a live, GDPR compliant, mailing list of organisations and community representatives who agree to be contacted early in the project lifecycle. There is then also an onus on the relevant contacted parties to decide whether they wish to engage with the project or focus their time and resources elsewhere.</p>	<p>Covered under existing guidance 'New Conversations 2.0: LGA guide to engagement' which suggests undertaking stakeholder mapping on a project by project basis.</p> <p>'The National Standards for Community Engagement' is vague on this subject.</p>
<b>DIP11</b>	Inclusive Engagement and Physical Design Measures	<p>In order to address the challenge of outdated guidance and practice, updated design guidance which has the broad support of different disability groups and users is necessary to allow designers to make more informed design decisions. The new guidance should also aim to reduce the burden on disability groups and users to provide similar feedback on similar issues on each project they are consulted on. This will allow more focus and attention to be given to the consideration of, and feedback on, new and innovative design features.</p>	<p>Not covered in existing guidance.</p>



Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP12</b>	Inclusive Engagement	In order to address the challenge of negative views being held between different disabled street users, a collaborative design approach should be used to encourage different groups to consider the needs of all users and resolve potential points of conflict together.	Covered under existing guidance, including ‘The National Standards for Community Engagement’ (‘working together’), ‘Shaping better places together: Research into facilitating participatory placemaking’, ‘Community engagement: guidance for local authorities’, and ‘New Conversations 2.0: LGA guide to engagement’ (co-production).
<b>DIP13</b>	Inclusive Engagement	Sufficient budget needs to be included at the commissioning stage of a scheme to ensure that an adequate range of engagement approaches and tools can be applied. Guidance on engagement needs to be explicit as to the inclusive engagement requirements to avoid a ‘gap’ between funders, implementers and designers.	Covered under existing guidance ‘New Conversations 2.0: LGA guide to engagement’ which covers budget constraints and expectations.  ‘The National Standards for Community Engagement’ outlines where budget could be required to support engagement but is silent on budget constraints and expectations.
<b>DIP14</b>	Inclusive Physical Design Measures	In England and Scotland the policy position is clear that the needs of pedestrians should be considered first when making decisions on street design. On this basis, street features which reinforce this priority should be given the greatest consideration when making design decisions relating to high streets and busy streets.	Transport Scotland National Transport Strategy 2 affirms pedestrian priority over other modes.  DfT ‘Gear change: a bold vision for cycling and walking’ emphasises that cyclists are treated as vehicles and pedestrians have priority.

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP15</b>	Inclusive Physical Design Measures	<p>Schemes which reduce segregation between vehicles and pedestrians through the use of techniques such as level surfaces should only be considered appropriate where vehicle speeds and volumes are 'perceived' as low. Even if these criteria are met there should be provision for clear pedestrian-only movement corridor(s) within the space with tactile or other types of demarcation, i.e., planters, seating etc. In other circumstances, i.e., where vehicle speed and / or volumes are perceived as 'high' then a form of demarcation is required, such as a kerb, or kerb with tactile. Further consideration needs to be given to the definition of 'low vehicle flow and low vehicle speed' situation.</p>	<p>Manual for Streets makes reference to the importance of kerb demarcation (parts 7.2.10 to 7.2.12).</p> <p>LTN 1/11: Shared Space (withdrawn) made reference to Equality and PSED in guidance on undertaking local consultation before removal of kerb demarcation / level surface. However, LTN 1/11 did not stipulate the height of a kerb.</p>
<b>DIP16</b>	Inclusive Physical Design Measures	<p>A collaborative design approach between designer and street users which helps to identify the requirements and location of different types of street furniture is recommended to maintain the pedestrian clear corridor. This approach can help ensure that the use of street furniture is rationalised in terms of number and location and best meets the needs of the people most likely to use it and benefit from it.</p>	<p>Covered under existing guidance, including 'The National Standards for Community Engagement' ('working together'), 'Shaping better places together: Research into facilitating participatory placemaking', 'Community engagement: guidance for local authorities', and 'New Conversations 2.0: LGA guide to engagement' (co-production).</p>

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP17</b>	Inclusive Physical Design Measures	There remains a lack of guidance on how to decide which measures to implement when two or more required elements are in opposition with each other.	Transport Scotland 'Roads for All' gives a test reasonableness which could inform such decisions. However, there is lack of guidance on balancing two or more requirements to support different disabled street user which have opposing requirements.
<b>DIP18</b>	Inclusive Physical Design Measures	Undertaking a post-implementation project review can be an important part of the inclusive design process and hand over to the client. This ensures that promoters and designers are able to take forward the lessons learned about what worked well and what could have been improved. This helps to inform subsequent design projects. Including the disability groups and users engaged during the design phase in the review allows their views on the engagement, design process and outcomes to be considered as well as building on these relationship for the next project.	There is no existing guidance on this subject.
<b>DIP19</b>	Inclusive Physical Design Measures	There is a need to understand the interactions of continuous footways and bus stops and bypasses and how they impact disabled and vulnerable street user groups.	Current guidance is expected to be reviewed based up the TRL research (refer to Appendix E).

Nr	Engagement / Design	Key Message	Review against Existing Guidance
<b>DIP20</b>	Inclusive Engagement	<p>There should more widely available inclusive engagement training for designers and all those involved in the decision-making process, to encourage a fuller understanding of the needs of communities and groups with a wide range of different disabilities and the various needs associated with both visible and non-visible disabilities.</p>	<p>Existing guidance, including ‘The National Standards for Community Engagement’, ‘Shaping better places together: Research into facilitating participatory placemaking’, ‘Community engagement: guidance for local authorities’, and ‘New Conversations 2.0: LGA guide to engagement’.</p> <p>EHRC ‘Engaging with disabled people: an event planning guide’.</p> <p>There is no apparent training in the application of this guidance in street design development.</p>
<b>DIP21</b>	Inclusive Engagement and Physical Design Measures	<p>There is a need for clearer guidance on both inclusive engagement approaches and inclusive physical design measures to aide designers and to increase their confidence in the development of practical and applicable inclusive design solutions that encourage disabled street user confidence / comfort in the use of a space.</p>	<p>These are covered under existing guidance (as set out above) but the designer feedback indicates that more clarity is required in the guidance.</p>

# Appendix D.1

DIP Survey



**This Appendix contains survey material used as part of the research.**

The survey request was as follows:-

“Transport Scotland, working with the Department for Transport and the Scottish Government Planning and Architecture Division are currently reviewing guidance on what makes streets fully accessible for all. This work aims to address concerns raised about the accessibility of some town centres and busy areas, particularly in relation to the requirements of blind and visually impaired people.”

“WSP has been appointed to undertake research into methods and approaches to help deliver inclusive street design environments within town centres and busy street areas. The outcome of the research will inform the development of future national guidance.”

“The aim of the research is to propose recommendations and key principles on how inclusive engagement approaches and physical design measures can provide an inclusive environment for pedestrians and other users of high streets and busy street areas. “

“We would value your views as a promoter / implementer / designer of these public realm schemes, to understand what you have found to be successful and also less successful in your experience. Please take a few moments to share your thoughts with us.”

“Any personal information, like your contact details that you provide to us, will be held according to the General Data Protection Regulation (GDPR). This means that it will be kept completely confidential and will not be shared with anyone outside of the research and client team. All personal information will be deleted after the report is drafted.”

If you have any queries about the survey, please contact [TSResearch@wsp.com](mailto:TSResearch@wsp.com)

The opening date for the survey is 29th January 2020 (revised)

The closing date for the survey is 12th February 2020 (revised – 10 working days from when date live)

## Inclusive Design In Town Centres And Busy Street Areas

Q1. Are you responding as:

- i. Individual
- ii. Public Sector Organisation (please specify)
- iii. Private Company / Organisation (please specify)

Q2. What is your or your organisation's role in the design process (please tick all that apply):

- i. Consultant / Designer
- ii. Standard / Guidance Body / Organisation
- iii. Statutory Authority
- iv. Promoter / Implementer – Non-Government
- v. Promoter / Implementer – Local Government
- vi. Promoter / Implementer - Regional Government
- vii. Promoter / Implementer - National Government
- viii. Promoter / Implementer - Regional Transport authority
- ix. Other (please specify)

Q3. What is your / your organisation's area of expertise? (please tick all that apply)

- i. Multi-disciplinary consultancy
- ii. Architecture
- iii. Urban Design
- iv. Transport Planning
- v. Town Planning
- vi. Highway / Civil Engineer (Designer)
- vii. Landscape Architecture / Urban Designer
- viii. Master Planning
- ix. Engagement / Stakeholder management
- x. Access Consultancy
- xi. Building Services
- xii. Others (please specify)

Q4. Please say where is your main base of work (tick one)

- i. England
- ii. Scotland
- iii. Wales
- iv. Northern Ireland
- v. Outside of the UK

Q5. Please say where in the UK you mainly undertake public realm work (tick one)

- i. England
- ii. Scotland
- iii. Wales
- iv. Northern Ireland
- v. Outside of the UK

## Introduction to the open questions

The remainder of the questionnaire is made up of a series of open questions. We would be grateful if you can share your views and experience on what inclusive design means in particular for disabled people and other vulnerable street users' or similar, through your perspective and experience as designer / implementer / promoter etc.

The questions are split into three areas, "approaches to engagement" and "inclusive design features" and the "challenges to inclusive design." We would value your views and experience of these areas and would ask you where possible to make reference to policy / design guidance / audits, you have used in the engagement and design development process.

The questionnaire is strictly confidential, and you have the option to provide your email if you would like to take part in a short confidential 1 to 1 interview over the phone.

## Engagement

Q6 – Please define your current approach to public engagement to inform the inclusive street design development process. Can you outline how you have planned, promoted, recorded these public engagements to make them inclusive for the community, in particular for disabled people and other vulnerable street users' or similar.

Q7– Can you give any examples of where you have undertaken engagement on street design with a representative selection of the community, in particular with disabled people and other vulnerable street users' or similar. Please highlight what worked well and what did not work well.

Q8 – During this engagement, how did you respond to comments on design by street users with a disability? How was it recorded, and did you successfully or unsuccessfully address the issue raised? What was the final outcome for the street user?

Q9. What are the main challenges you face to undertaking engagement as part of the planning/design process for inclusive design? Were you successful in overcoming these challenges, or what lessons were learned for the next project?

## Public realm / street features

Q10. We would be grateful if you can outline the public realm / street features you have included and excluded to support inclusive design on our high streets and busy streets, and how you have reported your decision making within the design process. You may wish to consider outlining the design considerations you made in relation to the type of disability, as well as other factors i.e. vehicle movements, different transport mode, speed etc.

Q11. When considering inclusive design, public realm / street features, what has worked well in a design project and/or what has not worked well?

## Challenges to inclusive design (engagement and design features)

Q12. Reflecting on your public realm design experience, what changes would contribute to better inclusive design, both in terms of engagement and design features?

You may wish to consider the guidelines, statutory requirements, standards, policies, procurement / budget / timescales, training and appreciation of different needs of disabled people in terms of design and engagement.

Thank you for taking the time to complete this survey. Please provide your email address if you are happy for us to contact you to take part in a short confidential 1 to 1 interview over the phone



# Appendix E

Summary of “the accessible public realm: updating guidance and further research” TRL Ltd, 2020



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## 30. Introduction

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- 30.1.1. This Appendix to the main research report entitled “Inclusive Design in Town Centres and Busy Street Areas” summarises the research report: Accessible Public Realm: Updating Guidance and Further Research - Overview and recommendations (TRL Ltd., 2020)<sup>83</sup>.
- 30.1.2. The Department for Transport (DfT) Inclusive Transport Strategy<sup>84</sup> included a commitment to review two existing guidance documents to determine where and how they need to be updated. The guidance documents are:
- Inclusive Mobility: A guide to best practice on access to pedestrian and transport infrastructure (2002).
  - Guidance on the use of tactile paving surfaces (1998).
- 30.1.3. In 2018, DfT commissioned a scoping study, involving a literature review and stakeholder consultation, which concluded that these guidance documents need updating and identified several areas to be considered. The results of the scoping study were published as Updating Guidance on the Accessible Public Realm (Greenshields et al. 2018).
- 30.1.4. Accessible Public Realm: Updating Guidance and Further Research - Overview and recommendations (TRL Ltd., 2020)<sup>85</sup> presents findings from further research based on the outcomes of the 2018 scoping study to inform forthcoming updates to Inclusive Mobility (2002) and Guidance on the Use of Tactile Paving Surfaces (1998).
- 30.1.5. The research considered the following main themes:
- Real-world implementation of tactile paving and how users interpret different tactile surfaces.
  - Guidance on the dimensions of mobility devices.
  - Additional or updated guidance requirements for different street user characteristics, including mental health conditions, older age, dementia, and non-visible disabilities.
  - Identifying new technologies and infrastructure not currently considered within Inclusive Mobility.
- 30.1.6. During cross-working discussions between the DfT’s Accessible Public Realm research team and the research team for Inclusive Design in Town Centres and Busy Street Areas, it became evident that there was overlap between the two research projects. Therefore, it was agreed in November 2019 that the Inclusive Engagement and Design research should exclude any research which the DfT study was undertaking, since it was then at a more advanced stage. It was also agreed that a summary of the DfT research findings would be provided in this report. This summary is set out in the following section.

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83 <https://www.gov.uk/government/publications/accessible-public-realm-updating-guidance-and-further-research>

84 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/728547/inclusive-transport-strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728547/inclusive-transport-strategy.pdf)

85 <https://www.gov.uk/government/publications/accessible-public-realm-updating-guidance-and-further-research>

## 31. Summary of the accessible public realm research findings

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### 31.1 Introduction

- 31.1.1. The main findings of the Accessible Public Realm research are presented below. These have been grouped under the main themes covered by the study.

### 31.2 Review of guidance on tactile paving

- 31.2.1. The research identified a need for a simplification of tactile surface typologies from both users and practitioners. Most users were able to reliably identify blister paving; however, just under half of participants recognised the corduroy surface type, and only a minority recognised other types. Design practitioners also had good awareness of blister and corduroy, but the other surface types were less well-known.
- 31.2.2. The research findings recommend a reduction in the number of surface types from the existing seven to just four surface types for future schemes. However, it states this still needs to be considered through further consultation, research, and trials. The four tactile surface types which are proposed to be retained are set out below.
- **Blister:** The report states that this should only be used to warn of a crossing point where there is no detectable kerb, and not for stems leading to the crossing points (for which the 'guidance' surface type may be preferable).
  - **Hazard / corduroy:** The report states that this should be used as currently and as a replacement for the ladder / tramline surface type (see below).
  - **Platform edge (on-street) / lozenge:** The report states that this should be used for all tram / rapid transit platforms (including, for consistency, those which may be off-street) and on raised bus stop platforms.
  - **Guidance:** The report states that this should continue to be used as currently specified, as well as for stems leading to the blister surface at controlled crossings.
- 31.2.3. The report also recommends that the ladder / tramline tactile surface should no longer be used due to widespread user and practitioner confusion, and due to safety concerns of cyclists. This surface type should be replaced by hazard / corduroy surface type laid in 'ladder' orientation across the whole path. The report also states that the delineator strip can continue to be used as currently.

### 31.3 Review of the dimensions of wheeled mobility aids

- 31.3.1. The research found no compelling evidence to justify recommending further changes to Inclusive Mobility in relation to any of the following:
- Width of wheeled mobility aids.
  - Manoeuvring space required for users of wheeled mobility devices.
  - Overall height or eye height of device users.
  - Overall mass of devices.
- 31.3.2. The study identifies that further research is needed to obtain robust evidence on the prevalence and use of different classes (including sizes) of wheeled mobility device.

## **31.4 Additional or updated guidance requirements for different street user characteristics**

### **Tonal and colour contrasting materials**

- 31.4.1. The report found that tonal contrast is particularly useful for visually impaired users. It recommends that the primacy of tonal contrast over colour contrast should be emphasised in design guidance, with examples used to help inform the practitioner. However, the report also recommends the increased use of colour contrasting materials to encourage active travel by older people. The report concludes that further research is required on how best to assess tonal and colour contrast, including the performance of different materials in different weather conditions.

### **Pedestrian realm ‘clutter’ and obstructions**

- 31.4.2. The report states that, where pedestrian environments are not easily navigable for older people or those living with dementia and other non-visible disabilities, individuals may find it difficult to access other services or facilities that are important to their mobility and independence, such as bus stops and railway stations.
- 31.4.3. The study found that the important issues for older people in the pedestrian environment include:
- Obstacles e.g. street furniture and uneven surfaces;
  - Crossing the road (including identifying large enough gaps in motorised traffic);
  - Tactile paving (particularly when the footway is sloped); and
  - Navigating slopes and ramps.
- 31.4.4. Where the pedestrian environment is unsuitable, it can lead to an increased risk of personal injury due to trips and falls and also reduced perception of safety.
- 31.4.5. Stakeholders participating in the study stated that the design of the pedestrian environment should better consider and promote the need for wider footways that are better maintained, less cluttered, and provide enough room for pedestrians to walk around tactile paving wherever it is used, if required.
- 31.4.6. The study recommends that the guidance tactile surface type is used where pedestrians need to be guided around obstacles. However, care should also be taken in siting street furniture to ensure that such problems are not created.

### **Segregation between pedestrians and vehicles**

- 31.4.7. The blister tactile surface should be installed in the absence of a kerb upstand at both controlled and uncontrolled crossing points where either:
- The footway has been dropped flush with the carriageway; or
  - The carriageway has been raised to the level of the footway.
- 31.4.8. The report states that the question of whether 25mm remains an appropriate boundary between what is / is not ‘flush’ should be subject to further consideration.
- 31.4.9. One of the key recommendations of the study to encourage active travel amongst those with dementia was the avoidance of ‘shared space’ schemes and ‘cross-use’ of spaces, as these can be disorientating and confusing for those with dementia. Instead, simple environments with distinct spaces, clear lines of sight and clear signage to support easy navigation and feelings of familiarity were recommended.

## **Crossings**

- 31.4.10. The report findings recommend increasing the number of pedestrian crossings and where possible to include signalised crossings. However, no recommendation of the maximum distance between crossings is presented. The report recommends removing or reducing the use of underpasses and enclosed walkways.

## **Public transport waiting and boarding**

- 31.4.11. For boarding / alighting from train carriages, the study recommends that there should be a reduced gap between the train and the platform. This should be achieved by increasing the width and length of steps at train doors.
- 31.4.12. Participants in the study with mental health conditions identified that, where possible, bus shelters should be used, rather than bus stops.

## **Parking**

- 31.4.13. The report does not consider the availability and location of vehicle parking. However, an infrastructure solution identified through engagement with people living with a mental health condition was the need to reduce / remove incidents of vehicles parking on footways.

## **32. Conclusions of the accessible public realm research**

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- 32.1. The Accessible Public Realm research study and associated recommendations have covered a range of important areas relating to the needs of disability groups and the design of the public realm. Most of the scope covered by the study do not overlap directly with the scope of Inclusive Design in Town Centres and Busy Street Area. Areas where there is overlap between the two studies include:
- Pedestrian realm 'clutter' and obstructions.
  - Segregation between pedestrians and vehicles.
  - Crossings.
- 32.1.1 It is considered that the findings of the Accessible Public Realm research study are complementary to this Inclusive Design study and do not present conflicting outcomes or recommendations.
- 32.1.2 It is considered that the recommendations presented in the Accessible Public Realm Research study, if taken forward, should result in more effective design and better interpretation and understanding of the public realm by all users.

# Appendix F

Good practice examples of inclusive engagement





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## 33. Good practice examples of inclusive engagement and design

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### 33.1 Introduction

33.1.1. This Appendix to the main research report entitled “Inclusive Design in Town Centres and Busy Street Areas” summarises good practice examples which have been identified through the study that demonstrate how key principles of inclusive engagement and inclusive physical design measures have been successfully applied. This Appendix sets out the key principles identified from these good practice examples, and these are drawn into the findings and recommendations from the research.

33.1.2. The three good practice examples are:

- 1 – Transport for Greater Manchester – Disability Design Reference Group.
- 2 – City of Edinburgh Council – Street Design Guidance.
- 3 – Network Rail - Glasgow Queen Street Station Redevelopment.

33.1.3. These examples are described in greater detail below.

### 33.2 Good practice example 1 - transport for Greater Manchester - Disability Design Reference Group

33.2.1. Historic examples of good practice were illustrated by the “Achieving inclusive design: consultation with disabled people” Paper<sup>86</sup>. There was one example for inclusive design identified within this Paper which illustrates how effective inclusive engagement can influence good design.

33.2.2. This example is the Transport for Greater Manchester’s Disability Design Reference Group (DDRG<sup>87</sup>) outlined below, including the relevant section of the Paper’s extract.

33.2.3. **Abstract:** “Transport for Greater Manchester (TfGM) recognises the importance of continuing to innovate and improve accessibility across all modes of transport and associated infrastructure within the conurbation. In 2008, when work began to expand the Metrolink light rail system, TfGM established a consultative group entitled the Disability Design Reference Group (DDRG) to support this major civil engineering project. The DDRG enables TfGM to discharge its legal and ethical duties by providing a means of influencing the next generation of inclusive design by anticipating and proposing practical solutions in relation to gaps in existing accessibility guidance and standards. This Paper details the approach taken to enable the DDRG to support meaningful and appropriate consultation using the life experience and technical knowledge of disabled people to support delivery of tangible project outcomes. The DDRG consultation process, recognised as a model of best practice by the UK Equality and Human Rights Commission, encompasses the whole project life cycle, from concept design stage, through detailed design, through to physically testing the installed works. The Paper concludes with suggestions on how the model could be applied to other projects”.

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86 Achieving inclusive design: consultation with disabled people. Authors: Alan William Lowe, BEng, , David Robert Partington, BA, MBE, , and Scott Graham Richardson, BA.

87 <https://tfgm.com/accessibility>

33.2.4. The DDRG is still active since its formation in 2008 and the Paper outlines how it was developed to support and inform inclusive mobility issues through design development:

- The DDRG concept was proposed by TfGM. The group formation and management was undertaken by the pan-disability organisation Breakthrough UK<sup>88</sup> (BUK).
- BUK is responsible for the member recruitment and requires prospective members to comply with the following criteria:
  - Familiarity and understanding of disability issues, especially in relation to travel and use of public transport in Greater Manchester.
  - The ability to work as part of a team and contribute constructively in meetings and group discussions.
  - Experience of using, or of trying to use, Metrolink (applications were welcomed from people who live, work, study and / or socialise in the proposed expansion zones).
  - Enthusiasm for and interest in making public transport accessible to all;
  - The ability to absorb, analyse and give feedback on information (with appropriate support as necessary).
  - A willingness to work flexibly; and
  - Personal experience of disabling barriers in relation to using public transport (applications were only sought from those who identified as disabled people).
- DDRG members were made aware of what was required of them in terms of knowledge and conduct.
- The consultation and involvement process was constructive and informed. It was considered essential that those involved in DDRG activities have knowledge of standards and best practice relating to inclusive design. TfGM have taken steps to provide members with information and training to provide this knowledge. The Paper goes into the detail of the format of the training as well as meetings.
- DDRG meetings were held regularly, with information made available in advance (which was adapted / lessons learned) to make it more accessible to members.
- Comments Tracker – the group developed a comments tracker to outline the nature of the comment and record ‘resolution’ responses. This became a key document, which enabled TfGM to demonstrate ‘you said, we did’ improvements back to the members.

33.2.5. This example illustrates that there are mutual benefits to undertaking quality engagement and that these benefits are not limited by design process.

“‘The project life-cycle’ approach, consultation with the DDRG has led to accessibility being built into the Metrolink expansion programme, offering value for money, while also ensuring the best possible product for the customer”. (Section 8, P52 of “Achieving inclusive design: consultation with disabled people”<sup>89</sup> research paper).

33.2.6. TfGM’s customer-first approach, which incorporates a ‘you said, we did’ philosophy, is summed up by the following quote by a DDRG member:

“I never thought, after the first couple of meetings (when I saw the quality of the discussions), that we were being ignored or just ticking boxes. I always thought

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88 <https://www.breakthrough-uk.co.uk/disability-design-reference-group>

89 Achieving inclusive design: consultation with disabled people. Authors: Alan William Lowe, BEng, , David Robert Partington, BA, MBE, and Scott Graham Richardson, BA.

that they were listening to every word and gave a proper, considered answer to everything... Yes, I always thought we were having an effect”.

- 33.2.7. The working relationship with DDRG has been achieved through meaningful and appropriate consultation with DDRG. This extended throughout the scheme implementation process through to the delivery, in partnership with the project designers and contractors.

### **33.3 Good practice example 2 – City Of Edinburgh Council – Street Design Guidance**

- 33.3.1. Another example of good practice is City of Edinburgh Council (CEC), which has developed a similar approach to TfGM by establishing a working relationship with the Local Access Panel through which CEC engages with the Local Access Panel at their regular monthly meetings, i.e. CEC ‘goes to them’. The schemes discussed are generally street design schemes.
- 33.3.2. CEC officers have made a number of key decisions with the Local Access Panel, including sign-off of their “Street Design Guidance”<sup>90</sup>; the ban of A-frame signage (this was raised at almost all of the disabled street user focus groups); as well as agreement of 50mm chamfered kerb to demarcate between pedestrian footway and cycleways. The latter was achieved through CEC creating a real size (1:1) scale model of a street including a variable kerb height. The kerb height was altered and discussed with all stakeholders present in the meeting.
- 33.3.3. As well as agreeing guidance and design principles, CEC engaged actively with local stakeholders and disability organisations during the design development, with at least two engagements at key design stages going through the proposed scheme plans ‘end-to-end’.
- 33.3.4. CEC have not had any issues regarding accessibility of the material presented, as most organisations / representatives bring support to assist with interpretation of plans.
- 33.3.5. To inform this research, a one-to-one telephone consultation was undertaken with a design consultancy who were working on a CEC project. This consultation outlined how the design consultants had worked with both CEC’s transport team and Council departments to identify all key stakeholders or organisations in the study area. This resulted in a comprehensive list of stakeholders and consultees. The design consultant also developed the following:
- Communication and Engagement Plan – initiated at project inception and maintained throughout the project.
  - Equality Impact Assessment based upon the Transport Scotland “Roads for All” guidance – initiated at project inception and maintained throughout the project.
  - Comments Tracker (same as the DDRG example).
  - ‘You said, we did’ feedback (same as the DDRG example).

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90 <https://www.edinburgh.gov.uk/directory/10232/edinburgh-design-guidance>

### **33.4 Good practice example 3 – Network Rail – Glasgow Queen Street Station Redevelopment**

- 33.4.1. The redevelopment of Glasgow Queen Street Station was raised during a disabled street user focus group as another good example of inclusive engagement.
- 33.4.2. The research team held a one-to-one interview with one of the designers working on this project to investigate this further. The designer attributed the success of inclusive engagement and design to having an Access Consultant (who themselves had a disability) working on the project from the inception phase. The Access Consultant understood the issues related to inclusive design and coordinated discussions with relevant parties through the form of an inclusive engagement group. The designer stated that the presence of a very strong chairperson (who was able to ensure the inclusive engagement group retained focus) was a further important success factor.
- 33.4.3. The research team held a one-to-one interview with the ex-chairperson (who oversaw Queen Street) for the Network Rail “Built Environment Accessibility Panel”<sup>91</sup> (BEAP). They outlined they had also undertaken a recruitment process (similar to DDRG) to ensure that they had the right people on the group who were empathetic to wider disability needs and had a keen interest in improving accessibility. In a manner similar to DDRG they provided training, paid for the attendance / travel expenses / cost of a personal assistant for the panel attendees, as well as providing lunch. The chairperson would give guidance to designers in advance of any meeting on how to make the material accessible (similar to DDRG) and ensure that sufficient time was allowed for communication through BSL or similar. The chairperson outlined that there was an optimal size to the group not exceeding 25 participants.

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91 <https://www.networkrail.co.uk/who-we-are/diversity-and-inclusion/access-and-inclusion/inclusive-design/built-environment-accessibility-panel/>

## 34. Good practice examples – key findings

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### 34.1 Introduction

- 34.1.1. The good practice examples outline engagement approaches, underpinned by dedicated or semi-dedicated disabled user groups which have supported the development of inclusive designs with robust input from disabled street users. The TfGM DDRG and Network Rail BEAP approach has been tried and tested over more than a decade. In Edinburgh, the CEC partnership working with the City Access Panel as well as DPO appears to work well based upon research feedback from independent discussions.
- 34.1.2. These groups provide value to the design process in discharging its legal (PSED) and ethical duties by anticipating and proposing practical design solutions, informing accessible design guidance / standards and by informing the design through the whole project life cycle.
- 34.1.3. The TfGM DDRG consultation process, recognised as a model of best practice by the UK Equality and Human Rights Commission, encompasses the whole project life cycle.
- 34.1.4. These groups are not a substitute for public consultation and engagement, but can provide valuable insight into the emerging design, and advice on the wider engagement. These groups are a good starting point for the designer to engage with disabled users and to seek advice on how the public consultation should be undertaken. The groups can support with direct and indirect promotion of consultation with the wider disabled community.

### 34.2 Key findings from good practice examples

- 34.2.1. The following aspects have been identified as being common to all three good practice examples.

#### Group formation and sustainability

- 34.2.2. **GP1:** Interested members – a common theme to all three examples is that the inclusive engagement has been driven by a group formed and maintained by members who are from the disabled community and have a genuine interest in improving accessibility.
- 34.2.3. **GP2:** Selectivity - the bespoke formal groups included in the good practice examples (the Transport for Greater Manchester's Disability Design Reference Group and the Network Rail Built Environment Accessibility Panel) have established recruitment and training processes to ensure that their membership is balanced and support the wider accessible agenda, thereby ensuring a pan-disability focus and reducing the risk of a few 'louder' voices being disproportionately catered to.
- 34.2.4. The Edinburgh Access panel has a number of participants in the Disabled Street user focus groups who give wider representative views of different disabilities and from their input it was evident that the individuals involved had a design background.
- 34.2.5. **GP3:** Behaviours - there are a number of factors that have contributed to the success of the good practice examples identified:
  - The presence of a strong chairperson / leadership role within the engagement groups.
  - A culture of seeking to avoid a 'them and us' attitude.

- Ensuring the groups conduct themselves in a proactive and solution-led manner, as well as being reasonable and considerate of other disabled street users' needs.
- Ensuring that welfare needs of participants are in place.
- A clearly defined meeting etiquette and process including agreement on the manner in which material is to be presented in an accessible format.

### Supporting the design process

- 34.2.6. **GP4:** Training – the membership of these groups has been trained in an appreciation in the design process, engagement, good meeting etiquette, their role, their chair's role, and the role of each person / designer attending.
- 34.2.7. **GP5:** Managing expectations - the process supports the management of expectations from both the disabled street users and the designers. The disabled street user group membership is seeking reassurance that their needs and concerns are being recognised, while the designers are seeking valued input to the design process. By ensuring the design team responds visibly to the comments ('you said, we did'), the group membership views are being valued, heard and, if necessary, consulted further upon to collaboratively address issues raised.
- 34.2.8. **GP6:** Accessible venue and materials – in addition to ensuring that all the material is in accessible format, a key success factor has been the willingness of designers to go to the disabled user group meeting venue. This ensures that the group is fully supported in terms of an accessible venue, translation, personal assistance and welfare facilities.

# Appendix G

## Equality legislation overview





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## 35. Equality legislation overview

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### 35.1 Introduction and limitations

- 35.1.1. This section of the research seeks to present an overview of current equality legislation and the principles of incorporating this into the built environment engagement and design process. It also deals in more detail with other legislation that is referenced elsewhere in this report. This should not be treated as a definitive legal view of the implications of the Equality Act and other legislation for street design and maintenance. Rather, the chapter represents the informed views of non-legal experts working in the sustainable transport field<sup>92</sup>. It is not intended as legal advice and as such it should not be viewed or referenced in such a way.
- 35.1.2. It is recommended that more in-depth legal research should be undertaken by appropriate legal specialists.

### 35.2 Overview of the Equality Act 2010

- 35.2.1. The Equality Act<sup>93</sup> prohibits various forms of discrimination against people with one or more of nine 'protected characteristics', as follows:
- Age.
  - Marriage and civil partnership.
  - Religion and belief.
  - Disability.
  - Pregnancy and maternity.
  - Sex.
  - Gender reassignment.
  - Race.
  - Sexual orientation.
- 35.2.2. Those prohibited from discriminating by the Act are so-called 'service providers' which refers to anyone (covering the public, private and voluntary sectors) who provides goods, facilities or services to the public or to a section of the public, whether or not they are paid for. Examples of service providers include:
- Local Authorities, i.e. Road / Transport public space maintenance, redevelopment, etc.
  - Transport service provider, i.e. bus, rail, taxi, etc.
  - NHS.
  - Disability organisation / charities providing support services.
  - Businesses i.e. shops, banks, builders, estate agents, gyms, cinemas, etc.

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92 This chapter is based on a presentation given by the Equalities and Human Rights Commission (EHRC) at a workshop on the Equality Act and Streetscape in January 2016, and revised, updated and presented by Tom Rye (in consultation with the EHRC) at a subsequent Transport Scotland workshop on Inclusive Streets in January 2017. This has been supplemented by the wider WSP team.

93 <https://www.legislation.gov.uk/ukpga/2010/15/contents>

- 35.2.3. The following forms of discrimination are prohibited under the Act. Those most relevant to street and road schemes and maintenance and are explained in further detail below:
- Direct discrimination - for example prohibiting a disabled person from accessing a certain street.
  - Indirect discrimination.
  - Discrimination arising from disability.
  - Failure to make reasonable adjustments.
  - Harassment.
  - Victimisation.
  - Failure to give equal pay.

### **35.3 Indirect discrimination**

- 35.3.1. In this case, a service provider applies a provision, criterion or practice (PCP) to everyone and the PCP puts people with a protected characteristic at a particular disadvantage. If the impacts of the PCP on people with protected characteristic(s) have not been analysed by the service provider and / or there is no argument for saying that the PCP allows the service provider to achieve a legitimate aim, then there is no reasonable justification for the PCP.
- 35.3.2. An example might be the following: vehicle crossovers across footways (pavements) to allow vehicles to access premises increase the slope of the pavement from the back to the kerb (the crossfall). Crossfalls in excess of 2% can be dangerous to negotiate for people with reduced mobility or those in wheelchairs. If a local authority's practice is for its footway maintenance schemes to replace any crossover with a like for like crossover with a steep crossfall, this may be indirect discrimination – since low cost alternatives with much reduced impacts on disabled people do exist.

### **35.4 Discrimination arising from disability**

- 35.4.1. A service provider discriminates against a disabled person if they treat them less favourably because of something arising in consequence of their disability. For example, if a scheme is designed so that a busy stretch of pavement is less than 2m wide, then this may mean that people in wheelchairs are being treated unfavourably in comparison to those who are not, since the former could not pass two abreast on the stretch of footway.
- 35.4.2. However, discrimination arising from disability can be justified under the Equality Act if it is a proportionate means of achieving a legitimate aim. This means that discrimination need not be eliminated completely if the service provider has analysed the impact on people with protected characteristics who are affected by the scheme and has weighed against these negative impacts the other positive outcomes that it wishes to achieve with it. It should also take into account in such a process the reasonable adjustments (e.g. speed reducing measures, existing or proposed signalised crossing) that it could build into the scheme to mitigate the negative impacts on the people with protected characteristics and demonstrate that there is no alternative that would achieve the same outcomes that it seeks, but that would have a lesser impact on people with protected characteristics.

## 35.5 Reasonable adjustments

35.5.1. Where a person with a protected characteristic, such as a disability, is put at a substantial disadvantage compared to person without the same protected characteristic by a scheme or a practice, there is a duty to make changes to provisions, criteria or practices. Physical features; and / or auxiliary aids and services may need to be provided in order to reduce (but not necessarily to wholly eliminate) that disadvantage. This is the idea of a 'reasonable adjustment'. They have to be planned for in advance and must be paid for by the service provider. Any legal case to assess whether a reasonable adjustment has not been made has to be brought by a disabled person directly affected. A substantial disadvantage could be, for example, an individual being forced to use their wheelchair in the carriageway between their home and the nearest bus stop due to a lack of dropped kerbs.

### What is reasonable?

35.5.2. Some organisations (for example Transport Scotland 'Roads for All' guidance) have developed a standard 'test of reasonableness' to assess when an adjustment is reasonable. The Act offers the following guidance on this assessment in terms of factors to take into account:

- Whether the adjustment would be effective.
- How practicable it would be to make the adjustment.
- Financial and other costs of making the adjustment, and whether financial assistance is available to pay those costs.
- Any disruption which making the adjustment would cause, including the impact on other objectives of a scheme.

35.5.3. Some service providers also take into account in their test of reasonableness the number of people with the protected characteristic likely to use the scheme. The assessment of reasonableness means of course that not every possible adjustment will necessarily be judged to be reasonable and therefore all possible adjustments are not required in order to comply with the Act. Making no adjustments at all, however, is unlikely to be judged to be reasonable, and having no systematic process by which to assess possible adjustments and their reasonableness is likely to be unlawful.

### Examples of reasonable adjustments

35.5.4. Aberdeen City Council has for many years used its existing powers under Roads Traffic Regulation Act (RTRA) 1984 to prohibit footway parking<sup>94</sup> where it causes substantial disadvantage by implementing a Traffic Regulation Order that is then enforceable in the same way as other parking and loading restrictions in the city. This is a reasonable adjustment made to ensure that the footway is passable for those with mobility difficulties.

## 35.6 Public Sector Equality Duty (PSED)

35.6.1. The intention of Section 149 of the Equality Act 2010 is for local authorities and those working on their behalf to positively advance equality in their decision making and in their policies and schemes.

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94 Transport (Scotland) Act 2019 – proposes the introduction of a Scotland-wide ban on pavement and double parking to make it easier for local authorities to ensure pavements and roads are safer and more accessible to all.

- 35.6.2. Therefore, the Equality Act requires government officials and those contracted to them at all levels to seek opportunities for positive action that supports equality. This can be achieved through improved understanding of the needs of those with protected characteristics who live and interact within the proposed environment and this understanding can be derived through engagement and training.
- 35.6.3. In brief, the focus of the PSED is on organisational change to eliminate discrimination, rather than individual cases of discrimination and related reasonable adjustments. However, there is a clear link between the two since the PSED, if properly implemented, will ensure that an organisation's processes, including the planning of schemes, will be carried out in such a way that indirect discrimination is identified more systematically and rigorously and corresponding adjustments more likely to be made, meaning that the whole planning process is more inclusive.
- 35.6.4. The PSED covers eight of the protected characteristics, including disability, and all bodies carrying out a public function. It requires these bodies to have due regard to the need to eliminate discrimination, advance equality of opportunity and foster good relations.
- 35.6.5. Public authorities can demonstrate that they have acted with 'due regard' if they show that they have carried out an evidence-based assessment of impacts of policies, practices and schemes before they are implemented and taken active steps to mitigate (although not necessarily completely eliminate) any adverse impact on persons with protected characteristics. In the context of inclusive street design, this would mean involving disabled people in active meaningful consultation on design and maintenance policy and processes, and then in scheme design – although the disabled people involved in the consultation need not be the sole source of evidence of the impacts of the scheme on disabled people; other evidence can also be used. The impact assessment, including the mitigating actions adopted, must be published.

## **35.7 Other legislative and regulatory considerations**

- 35.7.1. The role of engagement and the designer is key to this research, and it is appropriate therefore to have an appreciation of other legislative and regulatory considerations.

### **Gunning principles – consultation law**

- 35.7.2. The Gunning Principles<sup>95</sup> are a set of rules for public consultation that were proposed in 1985 by Stephen Sedley QC, and accepted by the Judge in the Gunning v London Borough of Brent case. There were initially four principles:
- That consultation must be at a time when proposals are still at a formative stage.
  - That the proposer must give sufficient reasons for any proposal to permit intelligent consideration and response.
  - That the product of consultation must be conscientiously taken into account in finalising any statutory proposals.
  - That adequate time must be given for consideration and response.

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95 <https://www.supremecourt.uk/cases/docs/uksc-2013-0116-judgment.pdf>

- 35.7.3. Two further points added by the Supreme Court following *Moseley v Haringey Council* (2014):
- The degree of specificity with which, in fairness, the public authority should conduct its consultation exercise may be influenced by the identity of those whom it is consulting.
  - The demands of fairness are likely to be somewhat higher when an Authority contemplates depriving someone of an existing benefit or advantage than when the claimant is an applicant for a future benefit.
- 35.7.4. The Gunning Principles therefore highlight the importance of adherence by public bodies, the third sector and others to the expectation to engage with communities, following guidance such as the National Standard for Community Engagement<sup>96</sup> (Scotland) and the UK Government publication *Community Engagement: Guidance for Local Authorities*<sup>97</sup>.

### **35.8 Construction (design and management) regulations 2015**

- 35.8.1. Under the Construction (Design and Management) Regulations 2015, there is a responsibility to ensure an appropriate designer is appointed to undertake the design. This is covered in the following extract from paragraph 7 of L153<sup>98</sup> HSE Managing Health and Safety in Construction: Construction (Design and Management) Regulation 2015 – Guidance on Regulation:
- 35.8.2. “Anyone responsible for appointing designers (including principal designers) or contractors (including principal contractors) to work on a project must ensure that those appointed have the skills, knowledge and experience to carry out the work in a way that secures health and safety. If those appointed are an organisation, they must also have the appropriate organisational capability. Those making the appointments must establish that those they appoint have these qualities before appointing them. Similarly, any designers or contractors seeking appointment as individuals must ensure they have the necessary skills, knowledge and experience”.
- 35.8.3. This implies that at the very least, designers and contractors of street schemes should have training on how the Equality Act applies to such schemes, since failing to address equality issues in line with the requirements of the Act could in some circumstances lead to schemes that fail in health and safety terms, either during or after construction.

### **35.9 Legal and technical context**

- 35.9.1. This research does not aim to reproduce the legal and technical context presented in *Manual for Streets* and *Manual for Streets 2* and Scottish Government ‘*Designing Streets*’ policy. These documents do, however, summarise key elements of the following key legal documents and these should be considered as part of any legal review, understanding the function of each in relation to the other,
- 35.9.2. Highway Code outlines a number of rules of the road, with certain rules having legal basis, and being used in court under the Road Traffic Act to establish liability between different street users. The Road Traffic Act 1988 states:
- “A failure on the part of a person to observe a provision of The Highway Code shall not of itself render that person liable to criminal proceedings of any kind

96 [http://www.voicescotland.org.uk/media/resources/NSfCE%20online\\_October.pdf](http://www.voicescotland.org.uk/media/resources/NSfCE%20online_October.pdf)

97 <https://www.gov.uk/guidance/community-engagement-and-eu-exit-guidance-for-local-authorities>

98 <https://www.hse.gov.uk/pubns/priced/l153.pdf>

but any such failure may in any proceedings (whether civil or criminal, and including proceedings for an offence under the Traffic Acts, the [1981 c. 14.] Public Passenger Vehicles Act 1981 or sections 18 to 23 of the [1985 c. 67.] Transport Act 1985) be relied upon by any party to the proceedings as tending to establish or negative any liability which is in question in those proceedings”.

- 35.9.3. The Highways Act 1980 (England and Wales) and the Roads (Scotland) Act 1984 are Acts of Parliament governing the management and operation of the road network.
- 35.9.4. The Road Traffic Act 1988 is an Act of Parliament of the United Kingdom, concerning licensing of vehicles, insurance and road regulation. Part 1 includes a number of traffic offences.

# Appendix H

Further research considered





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## 36. Further research and guidance considered

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### 36.1 Introduction

36.1.1. This Appendix to the main research report entitled “Inclusive Design in Town Centres and Busy Street Areas” summarises further research considered in the development of recommendations outlined in the main report. These are:

- Factors when considering segregation between cyclist and pedestrians;
- Shared space – the impact of shared space on safety;
- Shared space – the impact of shared space on the level of comfort of users (‘user versus avoiders’); and
- Pedestrian crossing intervals.

### 36.2 Factors when considering segregation between cyclists and pedestrians - pedestrianised areas

- 36.2.1. When considering cyclists and pedestrians in town centres and busy street areas, there is existing research and guidance that can be considered. The Transport Research Laboratory (TRL)<sup>99</sup> research report ‘Cycling in vehicle restricted areas’<sup>100</sup> outlines that pedestrians change their behaviour in the presence of motor vehicles but not in response to cyclists. Cyclists, however, respond to pedestrian density, moderating their speed, dismounting and taking other avoiding action when necessary. The research quoted in this paper is from a similar piece of TRL research undertaken in 1993, with the 2003 research corroborating the original findings that it is pedestrian density which has the most influence on cyclist behaviour. The research paper does discuss concerns expressed by the visually impaired on the subject of segregation and suggests “such differentiation can be achieved using low sloping kerbs tactile differentiation may assist blind and partially sighted people”.
- 36.2.2. Current practice is illustrated by Transport Scotland’s ‘Cycling by Design’<sup>101</sup> (para 6.1.2) which takes this research into consideration and defines a framework for considering the combined density of pedestrians and cyclists per metre – this is outlined in Table 17.

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99 <https://www.trl.co.uk/about-us>

100 <https://www.trl.co.uk/publications/trl583>

101 [https://www.transport.gov.scot/media/14173/cycling\\_by\\_design\\_2010\\_rev\\_1\\_june\\_2011\\_.pdf](https://www.transport.gov.scot/media/14173/cycling_by_design_2010_rev_1_june_2011_.pdf)

**Table 17 - Cyclist and pedestrian flow density Table 6.1 ‘Cycling by Design’**

<b>Combined density (users / hr / m)*</b>	<b>Recommended arrangement</b>
< 100	Shared use is usually appropriate (cycles give way).
101 – 199	Segregation may be considered.
> 200	Segregation should be considered.
* Combined density per hour: number of pedestrians and cyclists per hour per metre width.	

36.2.3. ‘Cycling by Design’ outlines the following in relation to use by disabled people:

“Many disabled people, particularly those who are visually impaired, find shared facilities intimidating and stress the importance of segregation by levels. Visually impaired people use kerbs as the basis of the concept that ‘up means safe’”.

36.2.4. It should be noted that ‘Cycling by Design’ is being updated, and Cycle infrastructure design (LTN 1/20) was published in July 2020.

36.2.5. The research team further considered other standards. Much of the UK cycling guidance is drawn from the Dutch CROW<sup>102</sup> (equivalent TRL) research and guidance. The CROW ‘Design Manual for Bicycle Traffic’ guidance (updated in 2017) is based upon on empirical research and suggests the use of threshold indicators in relation to pedestrian density and cyclists sharing the same space. These thresholds are presented in Table 18.

**Table 18 - CROW Design Manual for Bicycle Traffic Table 5-5 (page 126) – “Possibilities for joint use of pedestrian zones on the part of cyclist”**

<b>Pedestrians per hour per meter of available profile width</b>	<b>Recommended design solution</b>
< 100	Full mixture.
100 – 160	Segregation: vehicle path with non-sectional profile (no level difference).
160 - 200	Segregation: vehicle path with sectional profile.
> 200	Combination not desirable.

36.2.6. It should be noted that the CROW guidance outlines when visual segregation is used, it should ensure the cycleway is clear and easy to recognise. When level segregation is used, it should be a ‘soft’ segregation (tactile, road marking) that is integrated into the physical street design. ‘Hard’ level segregation (a kerb) should be avoided as it makes leaving and entering the shared area uncomfortable for cyclists as well as potentially presenting trip hazard for pedestrians.

36.2.7. The CROW manual makes reference to other studies that re-affirm cyclists appropriately modify their behaviour with increased pedestrian density. There is also reference to low level accident potential between cyclists and pedestrians and when collisions do occur the level of severity is low.

102 <https://www.crow.nl/english-summary>

- 36.2.8. **Key message H1** - Sharing a town centre or busy street space between pedestrians and cyclists should be considered in the light of the pedestrian demand. At higher levels of pedestrian demand segregation is advised in order to avoid negatively impacting on disabled street user access. An alternative route which allows cyclists to bypass these areas during high pedestrian demand periods should be provided.
- 36.2.9. In existing guidance in Cycling by Design (section 6.4.1) and Cycle Infrastructure Design (LTN 1/20) designers are being asked to give careful consideration to the provision of defined cycle routes through pedestrianised areas (i.e. where the final destination is not the town centre / busy street) which may be desirable from the pedestrian and cyclist perspective. However, this could lead to higher cycle speed and greater potential for conflict with pedestrians. Therefore, the public realm design should aim to create an attractive and functional environment in which cycle speeds are low and pedestrians clearly have priority.

### 36.3 Research into accident potential and street design

- 36.3.1. It was outlined in the Literature Review (Appendix A) that there is mixed evidence as to whether the introduction of shared use in town centres and busy street areas has resulted in increased injury accident rates.
- 36.3.2. The CIHT report on 'Creating better streets: Inclusive and accessible places'<sup>103</sup> found that in most locations examined injury accident rates reduced. 'Stage 1: Appraisal of Shared Space' research undertaken by MVA Consultancy for the DfT in 2009<sup>104</sup> stated the following, referring to a new approach for analysing injury accident rates related to shared space:

"One of the conclusions is that the new approach (shared space) can be applied for traffic volumes of up to 6,600 motor vehicles per 24 hours without causing a noticeable difference in the number of accidents. Objective statistics show that there is no difference in road safety between the new planning approach and a traditional road layout. The study has shown, however, that applying the new approach to volumes of 13,700 vehicles per 24 hours will have an adverse effect on the number of accidents. There is a grey area for traffic volumes of between 6,600 and 13,700 vehicles per day."<sup>105</sup>

- 36.3.3. The MVA report goes on to conclude with regards to accidents:

"There is some evidence from the Netherlands that at locations with motorised traffic flow of greater than c14,000 vehicles per day Shared Space layouts may have more casualties, relative to traditional layouts and that risk to cyclists may be increased in these settings. It is not presently possible to verify this effect at UK sites as there are no examples of the application of Shared Space at sites with such vehicle flows and cycle flows in the UK are currently generally lower than in the Netherlands."

- 36.3.4. The more recent CIHT 'Creating better streets: Inclusive and accessible places' report gives an example of sites with traffic volumes in order of 25,000 vehicles per day with a reduction in accidents over three years.
- 36.3.5. Care needs to be taken in considering these absolute values as there are a number of contributing factors to accidents in addition to traffic volume and speed. These higher vehicle flows could be due to a good street design that considers the wider

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103 [https://www.ciht.org.uk/media/4463/ciht\\_shared\\_streets\\_a4\\_v6\\_all\\_combined\\_1.pdf](https://www.ciht.org.uk/media/4463/ciht_shared_streets_a4_v6_all_combined_1.pdf)

104 <http://www.bv.transports.gouv.qc.ca/mono/1018971.pdf>

105 Van Gurp, Marc, 'De veiligheid van mooi'Onderzoek naar de verkeersveiligheid en functionaliteit van nieuwe ontwerpen van de openbare ruimte., Goudappel Coffeng, unpublished project report, 2007.

needs of the area as well as taking a holistic approach to considering safety and the needs of all street users.

- 36.3.6. There needs to be a clear distinction between the different types of shared spaces designs in line with the CIHT 'Creating better streets: Inclusive and accessible places' report.
- 36.3.7. Further consideration needs to be given to the definition of 'low flow / low speed' criteria.
- 36.3.8. **Key message H2** - Further research is required into the injury accidents associated with existing 'shared space' sites or similar design concepts within the UK. The research needs to include specific reference to vehicle speeds and flows, as well as the form and nature of the design, including consideration of level surfaces and kerbs with associated tactile paving.

### 36.4 Research on the level of comfort of users ('users versus avoiders')

- 36.4.1. As described in Appendix A, Karndacharuk (2015<sup>106</sup> 2014<sup>107</sup>) outlined that "persons with reduced mobility avoided shared space, and most reports related to visually impaired users". This Auckland-based study researched a number of shared space areas (level surface with tactile demarcation) as well as a control site and appraised them against the performance criteria of Placemaking, Pedestrian Focus, Vehicle Behaviour Change, Economic Impetus and Safety for all users. The statistical analysis revealed that the performance criteria of 'Pedestrian' and 'Safety' had a commanding influence over the other performance measures, with the interconnectivity of the five objectives influencing the perceived success of the urban shared spaces.
- 36.4.2. This research was reflected in comments made during the disabled street users focus groups (included under Appendix C), in which visually impaired street users reported adapting their behaviour to avoid areas (regardless of the street design of the area) if they expect to be too uncomfortable in that space due to pedestrian volumes and unpredictable movement. This was referred to as 'different kinds of busy' (ref para 4.5.11 in Appendix C) by one participant. Participants also explained that they often found wide open spaces added to this feeling of discomfort.
- 36.4.3. The supporting research for LTN 1/11 Shared Space<sup>108</sup> outlined the concept of 'users versus avoiders'. The research states that some participants from each user type (visually impaired, those with reduced mobility, learning difficulties and deaf / hard of hearing) avoid certain streets due to them being busy in terms of pedestrians and vehicles. However, the research did not quantify the number of 'avoiders' nor attempt to assess the possible impact of their behaviour on the number of reported injury accidents in the new street layouts. This is a significant research gap.
- 36.4.4. **Key message H3** - Disabled street users may adapt their behaviour and potentially avoid an area in response to feelings of discomfort resulting from higher pedestrian flows, i.e. an area that is comfortable for a disabled street user to access at a lower level of pedestrian demand may not be comfortable at a higher pedestrian demand.

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106 Qualitative evaluation study of urban shared spaces in New Zealand, Auttapone Karndacharuk a, Douglas J. Wilson b,1, Roger C.M. Dunn b 2015

107 A Review of the Evolution of Shared (Street) Space Concepts in Urban Environments Auttapone Karndacharuk, Douglas J. Wilson & Roger Dunn, 2014

108 <https://www.gov.uk/government/publications/shared-space>

- 36.4.5. However, it should be noted that accessibility for some disabled street users may still be restricted due to the following factors outside of the designer’s control:
- Type of disability.
  - Level of personal adaptation the street user has.
  - The level of (unpredictable) activity on the street.

### 36.5 Pedestrian crossing intervals

- 36.5.1. There is no existing guidance on pedestrian crossing intervals and / or the number of crossings.
- 36.5.2. Napier University undertook research that examined STATS19 data which shows that in urban areas in Scotland, over half of pedestrians killed or seriously injured are crossing the road away from junctions and away from where there is any kind of formal crossing facility. Often, signalled or zebra crossings can be 600m apart or more, even in urban areas, and therefore can require up to an additional 1-2km in walking distance to use a formal crossing. It is unsurprising, therefore, that pedestrians continue to risk crossing at locations without a formal crossing facility in order to avoid such increases in trip length.
- 36.5.3. **Key Message H4:** More formal and informal crossings are needed overall.
- 36.5.4. While there is a need for more crossings in town centre and busy street areas, consideration needs to be given to walking distance without rest, as outlined section 2.4 of the DfT ‘Inclusive Mobility’ guidance.

**Table 19 – Extract from ‘Inclusive mobility’ 2.4**

Impaired group	Recommend distance limit without a rest
Wheelchair user	150 metres
Visual Impaired	150 metres
Mobility impaired using stick	50 metres
Mobility Impaired with walking aid	100 metres

- 36.5.5. There is some additional guidance in the DfT ‘Inclusive Mobility’ guidance which relates to wheelchair users (para 3.1.3):
- “Dropped kerbs and raised crossings (3.13): Level or flush access is essential for the majority of wheelchair users. Such access, either by dropped kerb or raised road crossing must be provided at all Zebra and controlled crossings and at other places on side roads, access points to parking areas etc. used by pedestrians. On longer side roads and residential roads dropped kerbs should, where possible, be provided every 100 metres to avoid the need for wheelchair users to make lengthy detours to cross the road having given due consideration to desire lines for pedestrians and inter visibility.”
- 36.5.6. There is some additional guidance in the DfT ‘Inclusive Mobility’ guidance which relates to improving access at bus stops (section 6):
- “Regular bus services designed particularly with elderly and disabled people in mind have bus stops at more frequent intervals, typically every 200 metres. This figure is in accordance with research that shows that for disabled people, bus use falls off sharply if the distance is more than 200 metres (250 metres for non-disabled people). Where there are places that will be used by disabled people, such

as residential care homes, day centres etc., bus stops should be sited as close as possible and should have a pedestrian crossing (with dropped kerb) in reasonable proximity.”

- 36.5.7. While there is a lack of guidance on the intervals of crossings for disabled street users, the current limited information highlights that longer detours make the crossing less attractive to disabled and non-disabled street users alike.
- 36.5.8. The lack of guidance and research would suggest that this is a site-specific matter and requires consultation with the local community - in particular the disabled street users – to ensure that crossings are suitably sited and provided with sufficient frequency.
- 36.5.9. **Key message H5:** Consideration should be given to relocation / rationalising existing crossing facilities with regards to walking distance without rest in terms of detours for current users and that any proposal that increases the walking distance to a crossing needs to consider rest facilities to support older and disabled users, but without creating an obstruction.

# Appendix I

Existing guidance





## Appendix I - list of existing guidance

This Appendix to the main research report entitled 'Inclusive Design in Town Centres and Busy Street Areas' summarises the existing guidance considered.

### Guidance pertaining to inclusive engagement

- National Standard for Community Engagement<sup>109</sup>, Scotland.
- UK Government Community engagement: guidance for local authorities.<sup>110</sup>
- Local Government Association Guide to Engagement.<sup>111</sup>
- Community Planning Toolkit: community engagement.<sup>112</sup>
- Institute of Community Cohesion: understanding and monitoring tension and conflict in local communities.<sup>113</sup>
- Planning and access for disabled people: a good practice guide.<sup>114</sup>
- Engaging with disabled people: An event planning guide, EHRC (2018) UK.<sup>115</sup>
- Scottish Government, Shaping better places together: Research into the facilitation of participatory placemaking.<sup>116</sup>

### Guidance pertaining to inclusive physical design measures

National guidance:

- Manual for Streets<sup>117</sup>, England and Wales.
- Manual for Streets 2: wider application of the principles<sup>118</sup>, England and Wales.
- Designing Streets: A Policy Statement for Scotland.<sup>119</sup>
- Cycle infrastructure design (LTN 1/20).<sup>120</sup>
- Roads for all - Good practice guide for roads.<sup>121</sup>

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<sup>109</sup> [www.voicescotland.org.uk](http://www.voicescotland.org.uk).

<sup>110</sup> <https://www.gov.uk/guidance/community-engagement-and-eu-exit-guidance-for-local-authorities>

<sup>111</sup> [https://www.local.gov.uk/sites/default/files/documents/New%20Conversations%20Guide%20refresh\\_11.pdf](https://www.local.gov.uk/sites/default/files/documents/New%20Conversations%20Guide%20refresh_11.pdf)

<sup>112</sup> <https://www.communityplanningtoolkit.org/community-engagement>

<sup>113</sup> <http://www.tedcandle.co.uk/publications/033%20Tension%20monitoring%20guidance%20iCoCo%202010.pdf>

<sup>114</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7776/156681.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7776/156681.pdf)

<sup>115</sup> <https://www.equalityhumanrights.com/en/publication-download/engaging-disabled-people-event-planning-guide>

<sup>116</sup> <https://www.dundee.ac.uk/architecture-urban-planning/projects/details/shaping-better-places-together.php>

<sup>117</sup> <https://www.gov.uk/government/publications/manual-for-streets>

<sup>118</sup> <https://tsrgd.co.uk/pdf/mfs/mfs2.pdf>

<sup>119</sup> <https://www.gov.scot/publications/designing-streets-policy-statement-scotland/>

<sup>120</sup> <https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120>

<sup>121</sup> <https://www.transport.gov.scot/publication/roads-for-all-good-practice-guide-for-roads/>

- Traffic Signs Manual (TSM).<sup>122</sup>

The research examined recently developed UK street design guidance. Regional and city street design guidance includes:

- TfL Street design Guidance.<sup>123</sup>
- TfL London Cycling Design standards.<sup>124</sup>
- Edinburgh street design guidance.<sup>125</sup>
- SCOTS National Road Development Guide.<sup>126</sup>

Guidance currently being updated or withdrawn:

- Transport Scotland ‘Cycling by Design’ (being updated).<sup>127</sup>
- Local Transport Note 1/12 ‘shared use routes for pedestrians and cyclists’<sup>128</sup>, (withdrawn), replaced by LTN 1/20.
- LTN 1/11: Shared Space<sup>129</sup> (withdrawn).
- Guidance on the use of Tactile Paving Surfaces.<sup>130</sup>
- DfT Inclusive mobility – a guide to best practice on access to pedestrian and transport infrastructure (being updated).<sup>131</sup>

## Appendix J – Principles and recommendations on inclusive engagement

This Appendix to the main research report entitled ‘Inclusive Design in Town Centres and Busy Street Areas’ summarises the principles and recommendations on inclusive engagement.

NR Principle / Sub-principle recommendation good practice / notes / comments evidence.

1 The individuals and groups representing the views of local disabled street users who will be affected by the proposed changes to the street design should be identified during the planning of the inclusive engagement process. LR1, LR2, FGE2

1.1 Sub-principle: Local disabled street users who make use of the street space, and whose existing level of amenity may be impacted by the proposed changes to the street design, should be included in the engagement. “Existing Level of Amenity” refers to the current use of the street space by disabled street users. The engagement process should identify the impact of the proposed street design changes upon this level of amenity and identify proposed mitigation / reasonable adjustments to be incorporated. LR1, LR2, FGE2, FGE3, FGE4

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122 <https://www.gov.uk/government/publications/traffic-signs-manual>

123 <http://content.tfl.gov.uk/streetscape-guidance-.pdf>

124 <https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit#on-this-page-3>

125 <https://www.edinburgh.gov.uk/downloads/download/13723/edinburgh-street-design-guidance>

126 <http://www.scotsnet.org.uk/documents/national-roads-development-guide.pdf>

127 [https://www.transport.gov.scot/media/14173/cycling\\_by\\_design\\_2010\\_rev\\_1\\_june\\_2011\\_.pdf](https://www.transport.gov.scot/media/14173/cycling_by_design_2010_rev_1_june_2011_.pdf)

128 <https://www.gov.uk/government/publications/shared-use>

129 <https://www.gov.uk/government/publications/local-transport-note-ltn-1-11-shared-space>

130 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/918353/tactile-paving-surfaces.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918353/tactile-paving-surfaces.pdf)

131 [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/3695/inclusive-mobility.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/3695/inclusive-mobility.pdf)

1.2 Sub-principle: The identification of local disabled street users can be achieved through a combination of accessible media promotion and organisations that represent and / or support local street users. Further research is recommended into the development of a GDPR-compliant stakeholder list (including preferred communication methods) to improve stakeholder identification / engagement. The GDPR-compliant mailing list could be passed to the designer (under conditions of use) at the start of a project. Organisations that represent and / or support local disabled street users include Local Access officers, Disabled People's Organisations and Pan Disability organisations. Local stakeholder / community facilities include Health Centres, GPs and Post Offices. LR1, LR2, FGE2, FGE3, FGE4, DIP10

1.3 Sub-principle: Input from any one stakeholder group should be proportionate and seeking views from only one interest group should be avoided. It is recommended that more training be given to designers and promoters in respect of the broad range and complexity of different disabilities. This will support a greater appreciation of how disabled street users' perspectives may differ and encourage a wider range of views to be sought. LR1, LR2, LR12, FGE2, FGE3, FGE4, FGE14, FGE15, DIP21

1.4 Sub-principle: The use of internal accessibility officers or equivalents within local authorities to "proof check" designs instead of undertaking engagement should be avoided. LR1, LR2, FGE3, DIP21

1.5 Sub-principle: Engagement should include proportionate representation from a broad range of local street disabled users, including older adult disabled street users, disabled pedestrians and disabled cyclists to ensure that all voices are heard equally. Further research is recommended into engagement with older adults with age-related disabilities in order to support the inclusive design for lifelong conditions and the needs of an aging population of disabled street users. LR1, LR2, FGE2, FGE3, FGE4, FGE22

2 Utilising established local groups (where there are no Access Panels) who represent the views of locals disabled street users will benefit the planning and delivery of inclusive engagement. Further research is recommended to examine different approaches to the efficient and effective establishment of such local groups where Access Panels are not in place or inactive. The good practice examples illustrate the collaborative working benefits of the formation of an inclusive design working group (in the absence of an active Access Panel). In areas of regular and / or significant street design development it is important to value, maintain and support local user / stakeholder contribution in the design process, as the re-recruitment and identification of disabled street user representatives can be challenging. The formation of a working group of local disabled street users that supports and values these contributions throughout the project life cycle will improve engagement and will allow for expectations to be set (for both the users and the designers) with regards to the scale and nature of engagement on a project. LR1, LR2, DIP1, DIP5, DIP7, GP1, GP2

3 Engagement should be undertaken from the start of the design process, ideally at scheme conception. LR1, LR2, FGE1, DIP4

3.1 Sub-principle: Local disabled street users should have the opportunity from early on in the design process to provide input to the design process, to outline how they use the space, and to describe their existing level of amenity. "Existing Level of Amenity" relates to how street users currently use the street space. This principle emphasises the need to understand this 'amenity' and how the scheme may impact upon the ability of disabled street users to use the space in future. LR1, LR2, FGE1, DIP4

3.2 Sub-principle: Engagement should be regarded as a multi-stage process and invite ongoing contributions from those affected by proposed changes. This principle emphasises the need to understand the 'amenity' and how the scheme may impact upon the ability of disabled street users to use the space in future. LR1, LR2, FGE16

3.3 Sub-principle: Working with local stakeholder and the community can help ensure that the correct scale of engagement forms for a project are undertaken and at the most suitable times within the project cycle. Further research could be considered regarding the minimum and recommended scale (number of, timescales) and nature (forms) of engagement that should be undertaken, in relation to the type of project being considered. This research could inform the procurement process and support a proportionate approach to the project type and scale. LR1, LR2, FGE8, DIP4

4 The scale and nature of the engagement should inform the project commissioning with budget and timescales established to meet these requirements. LR1, LR2, FGE8, DIP9, DIP13

4.1 Sub-principle: The approach to inclusive engagement should be proportionate to the size and type of project. The good practice referenced under Principle 2.0 reflects an approach wherein the expectations, timescales and requirements can be established collaboratively with a working group of disabled street user representatives. FGE8, DIP9

4.2 Sub-principle: Sufficient budget should be set aside to allow for the full inclusive engagement process (from concept stage onwards). Further research is recommended into the costs for inclusive engagement on completed projects in order to benchmark reasonable and realistic budgets for engagement on different types of projects. Understanding the full range of communication preferences prior to the procurement of a designer will support budget setting prior to procurement. Alternatively, planning for street design schemes could include a pre-engagement stage in which to scope out the engagement requirements. LR2, FGE8, FGE9, DIP9

4.3 Sub-principle: The project programme should allow for the identification of stakeholders, time for stakeholders to mobilise and attend engagement events, and time for responses to consultation throughout the engagement. Timescales should be realistic to allow stakeholders to respond to the consultation process to support stakeholder identification, forward planning (mobilisation) for accessible venue booking, support services including personal assistants, accessible venues and interpreters. The research team found during the recruitment process that participants with different needs have different requirements in terms of timescales and communication, which influenced the timescale for mobilisation from a range between 2 to 6 weeks, with a small number responding over 8 weeks after the initial contact. LR2, FGE8, FGE9

5 Media promotion should be multi-sensory and should recognise the limitations of certain media format to those with sensory impairments. Further research is recommended into:

i) Determining the response / value of accessible media promotion through local TV, radio, audio newspapers versus DPO spoken media (RNIB Radio) for different project types.

ii) Determining the response / value of making a press release to DPOs to promote engagement / stakeholder identification standard practice.

Use could be made of participant records from future engagement as to how they became aware of the engagement event and feedback on efficacy of approaches adopted. LR1, LR2, FGE5

6 The use of different communication methods can improve access and understanding during the inclusive engagement process. The format of engagement and an appreciation of communication preferences will support a wider range of disabled people to make an independent assessment of street design proposals instead of being reliant on a third party (i.e. personal assistant) for interpretation. LR1, LR2, FGE9, FGE10, FGE11

6.1 Sub-principle: Inclusive engagement is supported through the provision of different ways of physically interacting with the proposals, such as walk-throughs and material

samples. Potential engagement formats include walk-throughs through the site (including multiple walk-throughs at different times of day / varying lighting conditions), the provision of early access and / or separate consultation events, the provision of street design (e.g. paving patterns) material samples, tactile plans and 3D plans of key locations or features. LR1, LR2, FGE10, FGE12, FGE13

6.2 Sub-principle: Inclusive engagement is supported by facilitating different forms of engagement (e.g. joint events and one-to-one interviews). Different engagement approaches may be needed to support different types of local disabled street users. Some may prefer one-to-one interviews, while others may prefer single fully inclusive events covering the needs of wider range of street users (i.e. seeking the sharing of knowledge). Multiple approaches should be supported to ensure all views are recorded. The use of skilled and suitably experienced facilitators (with supporting staff) is important as different approaches cannot necessarily be fully anticipated and may require adaptation 'on the day'. LR1, LR2, FGE6, FGE9, DIP3

6.3 Sub-principle: Inclusive engagement is supported by a clear definition of the different communication preferences of the disabled street users to be engaged with, and provision for these approaches to be adopted. Communication preferences could relate to print media (including braille, large print, simplified plans including coloured and grey scale highlighting key features, word documents, etc. Consideration should be given to access to print media in advance of the engagement event, and to support for communication support tools including, but not exclusive to, BSL, E-note takers, etc. including provision for relief for supporting staff. Other hard to reach groups of disabled street users may require foreign language support. Local authorities (in order to meet their PSED obligations) should have existing facilities and services to provide support to certain of these elements. LR1, LR2, FGE9, FGE10, FGE11

7.0 The sourcing of accessible venues that can accommodate participants with a range of impairments (in the group of disabled street users being engaged with) supports inclusive engagement. Physically accessible venues should ideally be located close to public transport and be accessible by private vehicle (taxi, car) with adequate disabled parking provision. Welfare facilities (with fully accessible toilets, washing and changing facilities) and personal assistant support are viewed as essential, with accessible directions to the venue (i.e. map and text description) and support for personal assistants to meet users at a local rail station or similar. LR1, LR2, FGE17, FGE20

8 Maintaining a record of engagement supports inclusive design and the designer's Public Sector Equality Duty compliance under the Equality Act. It is recommended that guidance be updated to ensure designers maintain records which include the design response to inputs from the engagement, including design changes and reasonable adjustments made, or where no action has been taken, in order to inform the EqIA / Access Audit. The EQIA / Access Audit (or similar) should form the central document for demonstrating compliance with the relevant legislation and regulations associated with inclusive design and engagement. The recording of engagement is a cornerstone of inclusive engagement and design. The level of existing amenity needs to be understood and recorded, along with stakeholder input on the impact of proposals on existing and future amenity, as well as suggestions for enhancing design proposals. Record keeping should include the design response to stakeholder input with regard to the level of amenity and any mitigation proposed. LR1, LR2, FGE7, DIP6, GP5

8.1 Sub-principle: The recorded input from the engagement process should be assessed and responded to (i.e., 'you said, we did'). This will demonstrate to stakeholders how previous engagement has helped shape the project to date and help increase confidence in the process and maintain interest, particularly on longer projects and projects with time gaps between stages. LR1, LR2, DIP2, DIP6, GP5

8.2 Sub-principle: Engagement input and feedback should be facilitated in the most accessible format for the participant, with associated record keeping. The formats should be reasonable, appropriate and accessible to both the receiver and the sender, examples of which are MP3 audio recordings and email utilising text to speech software.

In circumstance where a participant cannot submit written input, the designer should record their input into written form (with the participant's permission) and that any response be similarly recorded. The response should be provided in a format agreed with the participant involved (for example using text-to-speech software, support from a participant's personal assistant or an audio recording). LR1, LR2, DIP6, GP5

9 A collaborative approach that encourages local disabled street users or representatives to consider the needs of other users supports inclusive engagement. The good practice examples illustrate the positive contribution of collaboration working, and the benefits are highlighted in the literature reviewed.

A collaborative approach to the engagement process, enabling different types of participants to engage with each other and provide design input, would enable identification of potential points of conflict and collective resolution. This would minimise potential negative views and mistrust between participants. Transparent and open recording during the design process records the detail of collaborative engagement and its impact upon the design. LR1, LR2, FGE14, DIP16

# Appendix J

Principles and recommendations for inclusive engagement



### 37. Appendix J – Principles and recommendations on inclusive engagement

This Appendix to the main research report entitled ‘Inclusive Design in Town Centres and Busy Street Areas’ summarises the principles and recommendations on inclusive engagement.

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
1	<p><b>The individuals and groups representing the views of local disabled street users who will be affected by the proposed changes to the street design should be identified during the planning of the inclusive engagement process.</b></p>			LR1, LR2, FGE2
1.1	<p>Sub-principle: Local disabled street users who make use of the street space, and whose existing level of amenity may be impacted by the proposed changes to the street design, should be included in the engagement.</p>		<p>“Existing Level of Amenity” refers to the current use of the street space by disabled street users. The engagement process should identify the impact of the proposed street design changes upon this level of amenity and identify proposed mitigation / reasonable adjustments to be incorporated.</p>	LR1, LR2, FGE2, FGE3, FGE4



NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
1.2	Sub-principle: The identification of local disabled street users can be achieved through a combination of accessible media promotion and organisations that represent and / or support local street users.	Further research is recommended into the development of a GDPR-compliant stakeholder list (including preferred communication methods) to improve stakeholder identification / engagement. The GDPR-compliant mailing list could be passed to the designer (under conditions of use) at the start of a project.	Organisations that represent and / or support local disabled street users include Local Access officers, Disabled People’s Organisations and Pan Disability organisations. Local stakeholder / community facilities include Health Centres, GPs and Post Offices.	LR1, LR2, FGE2, FGE3, FGE4, DIP10
1.3	Sub-principle: Input from any one stakeholder group should be proportionate and seeking views from only one interest group should be avoided.	It is recommended that more training be given to designers and promoters in respect of the broad range and complexity of different disabilities. This will support a greater appreciation of how disabled street users’ perspectives may differ and encourage a wider range of views to be sought.		LR1, LR2, LR12, FGE2, FGE3, FGE4, FGE14, FGE15, DIP21
1.4	Sub-principle: The use of internal accessibility officers or equivalents within local authorities to ‘proof check’ designs instead of undertaking engagement should be avoided.			LR1, LR2, FGE3, DIP21

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
1.5	<p>Sub-principle: Engagement should include proportionate representation from a broad range of local street disabled users, including older adult disabled street users, disabled pedestrians and disabled cyclists to ensure that all voices are heard equally.</p>	<p>Further research is recommended into engagement with older adults with age-related disabilities in order to support the inclusive design for lifelong conditions and the needs of an aging population of disabled street users.</p>		<p>LR1, LR2, FGE2, FGE3, FGE4, FGE22</p>

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
2	<p><b>Utilising established local groups (where there are no Access Panels) who represent the views of locals disabled street users will benefit the planning and delivery of inclusive engagement.</b></p>	<p>Further research is recommended to examine different approaches to the efficient and effective establishment of such local groups where Access Panels are not in place or inactive.</p>	<p>The good practice examples illustrate the collaborative working benefits of the formation of an inclusive design working group (in the absence of an active Access Panel). In areas of regular and / or significant street design development it is important to value, maintain and support local user / stakeholder contribution in the design process, as the re-recruitment and identification of disabled street user representatives can be challenging. The formation of a working group of local disabled street users that supports and values these contributions throughout the project life cycle will improve engagement and will allow for expectations to be set (for both the users and the designers) with regards to the scale and nature of engagement on a project.</p>	<p>LR1, LR2, DIP1, DIP5, DIP7, GP1, GP2</p>
3	<p><b>Engagement should be undertaken from the start of the design process, ideally at scheme conception.</b></p>			<p>LR1, LR2, FGE1, DIP4</p>

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
3.1	Sub-principle: Local disabled street users should have the opportunity from early on in the design process to provide input to the design process, to outline how they use the space, and to describe their existing level of amenity.		“Existing Level of Amenity” relates to how street use currently use the street space. This principle emphasises the need to understand this “amenity” and how the scheme may impact upon the ability of disabled street users to use the space in future.	LR1, LR2, FGE1, DIP4
3.2	Sub-principle: Engagement should be regarded as a multi-stage process and invite ongoing contributions from those affected by proposed changes.		This principle emphasises the need to understand the “amenity” and how the scheme may impact upon the ability of disabled street users to use the space in future.	LR1, LR2, FGE16
3.3	Sub-principle: Working with local stakeholder and the community can help ensure that the correct scale of engagement forms for a project are undertaken and at the most suitable times within the project cycle.		Further research could be considered regarding the minimum and recommended scale (number of, timescales) and nature (forms) of engagement that should be undertaken, in relation to the type of project being considered. This research could inform the procurement process and support a proportionate approach to the project type and scale.	LR1, LR2, FGE8, DIP4
4	<b>The scale and nature of the engagement should inform the project commissioning with budget and timescales established to meet these requirements.</b>			LR1, LR2, FGE8, DIP9, DIP13

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
4.1	Sub-principle: The approach to inclusive engagement should be proportionate to the size and type of project.		The good practice referenced under Principle 2.0 reflects an approach wherein the expectations, timescales and requirements can be established collaboratively with a working group of disabled street user representatives.	FGE8, DIP9
4.2	Sub-principle: Sufficient budget should be set aside to allow for the full inclusive engagement process (from concept stage onwards).	Further research is recommended into the costs for inclusive engagement on completed projects in order to benchmark reasonable and realistic budgets for engagement on different types of projects.	Understanding the full range of communication preferences prior to the procurement of a designer will support budget setting prior to procurement. Alternatively, planning for street design schemes could include a pre-engagement stage in which to scope out the engagement requirements.	LR2, FGE8, FGE9, DIP9

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
4.3	<p>Sub-principle: The project programme should allow for the identification of stakeholders, time for stakeholders to mobilise and attend engagement events, and time for responses to consultation throughout the engagement.</p>		<p>Timescales should be realistic to allow stakeholders to respond to the consultation process to support stakeholder identification, forward planning (mobilisation) for accessible venue booking, support services including personal assistants, accessible venues and interpreters. The research team found during the recruitment process that participants with different needs have different requirements in terms of timescales and communication, which influenced the timescale for mobilisation from a range between two to six weeks, with a small number responding over 8 eight weeks after the initial contact.</p>	<p>LR2, FGE8, FGE9</p>

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
5	<p><b>Media promotion should be multi-sensory and should recognise the limitations of certain media format to those with sensory impairments.</b></p>	<p>Further research is recommended into:</p> <ul style="list-style-type: none"> <li>i) Determining the response / value of accessible media promotion through local TV, radio, audio newspapers versus DPO spoken media (RNIB Radio) for different project types.</li> <li>ii) Determining the response / value of making a press release to DPOs to promote engagement / stakeholder identification standard practice.</li> </ul> <p>Use could be made of participant records from future engagement as to how they became aware of the engagement event and feedback on efficacy of approaches adopted.</p>		<p>LR1, LR2, FGE5</p>
6	<p><b>The use of different communication methods can improve access and understanding during the inclusive engagement process.</b></p>		<p>The format of engagement and an appreciation of communication preferences will support a wider range of disabled people to make an independent assessment of street design proposals instead of being reliant on a third party (i.e. personal assistant) for interpretation.</p>	<p>LR1, LR2, FGE9, FGE10, FGE11</p>

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
6.1	<p>Sub-principle: Inclusive engagement is supported through the provision of different ways of physically interacting with the proposals, such as walk-throughs and material samples.</p>		<p>Potential engagement formats include walk-throughs through the site (including multiple walk-throughs at different times of day / varying lighting conditions), the provision of early access and / or separate consultation events, the provision of street design (e.g. paving patterns) material samples, tactile plans and 3D plans of key locations or features.</p>	<p>LR1, LR2, FGE10, FGE12, FGE13</p>
6.2	<p>Sub-principle: Inclusive engagement is supported by facilitating different forms of engagement (e.g. joint events and one-to-one interviews).</p>		<p>Different engagement approaches may be needed to support different types of local disabled street users. Some may prefer one-to-one interviews, while others may prefer single fully inclusive events covering the needs of wider range of street users (i.e. seeking the sharing of knowledge). Multiple approaches should be supported to ensure all views are recorded. The use of skilled and suitably experienced facilitators (with supporting staff) is important as different approaches cannot necessarily be fully anticipated and may require adaptation 'on the day'.</p>	<p>LR1, LR2, FGE6, FGE9, DIP3</p>



NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
6.3	<p>Sub-principle: Inclusive engagement is supported by a clear definition of the different communication preferences of the disabled street users to be engaged with, and provision for these approaches to be adopted.</p>		<p>Communication preferences could relate to print media (including braille, large print, simplified plans including coloured and grey scale highlighting key features, word documents, etc. Consideration should be given to access to print media in advance of the engagement event, and to support for communication support tools including, but not exclusive to, BSL, E-note takers, etc. including provision for relief for supporting staff. Other hard to reach groups of disabled street users may require foreign language support. Local authorities (in order to meet their PSED obligations) should have existing facilities and services to provide support to certain of these elements.</p>	<p>LR1, LR2, FGE9, FGE10, FGE11</p>

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
7.0	<p><b>The sourcing of accessible venues that can accommodate participants with a range of impairments (in the group of disabled street users being engaged with) supports inclusive engagement.</b></p>		<p>Physically accessible venues should ideally be located close to public transport and be accessible by private vehicle (taxi, car) with adequate disabled parking provision. Welfare facilities (with fully accessible toilets, washing and changing facilities) and personal assistant support are viewed as essential, with accessible directions to the venue (i.e. map and text description) and support for personal assistants to meet users at a local rail station or similar.</p>	<p>LR1, LR2, FGE17, FGE20</p>
8	<p><b>Maintaining a record of engagement supports inclusive design and the designer's Public Sector Equality Duty compliance under the Equality Act.</b></p>	<p>It is recommended that guidance be updated to ensure designers maintain records which include the design response to inputs from the engagement, including design changes and reasonable adjustments made, or where no action has been taken, in order to inform the EqIA / Access Audit. The EQIA / Access Audit (or similar) should form the central document for demonstrating compliance with the relevant legislation and regulations associated with inclusive design and engagement.</p>	<p>The recording of engagement is a cornerstone of inclusive engagement and design. The level of existing amenity needs to be understood and recorded, along with stakeholder input on the impact of proposals on existing and future amenity, as well as suggestions for enhancing design proposals. Record keeping should include the design response to stakeholder input with regard to the level of amenity and any mitigation proposed.</p>	<p>LR1, LR2, FGE7, DIP6, GP5</p>

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
8.1	Sub-principle: The recorded input from the engagement process should be assessed and responded to (i.e., 'you said, we did').		This will demonstrate to stakeholders how previous engagement has helped shape the project to date and help increase confidence in the process and maintain interest, particularly on longer projects and projects with time gaps between stages.	LR1, LR2, DIP2, DIP6, GP5
8.2	Sub-principle: Engagement input and feedback should be facilitated in the most accessible format for the participant, with associated record keeping.		The formats should be reasonable, appropriate and accessible to both the receiver and the sender, examples of which are MP3 audio recordings and email utilising text to speech software. In circumstances where a participant cannot submit written input, the designer should record their input into written form (with the participant's permission) and that any response be similarly recorded. The response should be provided in a format agreed with the participant involved (for example using text-to-speech software, support from a participant's personal assistant or an audio recording).	LR1, LR2, DIP6, GP5

NR	Principle / Sub-principle	Recommendation	Good practice / notes / comments	Evidence
9	<p><b>A collaborative approach that encourages local disabled street users or representatives to consider the needs of other users supports inclusive engagement.</b></p>		<p>The good practice examples illustrate the positive contribution of collaboration working, and the benefits are highlighted in the literature reviewed. A collaborative approach to the engagement process, enabling different types of participants to engage with each other and provide design input, would enable identification of potential points of conflict and collective resolution. This would minimise potential negative views and mistrust between participants. Transparent and open recording during the design process records the detail of collaborative engagement and its impact upon the design.</p>	<p>LR1, LR2, FGE14, DIP16</p>

# Appendix K

**Principles and recommendations for inclusive physical design measures**



## **38. Appendix K – Principles and recommendations on physical design measures**

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This Appendix to the main research report entitled 'Inclusive Design in Town Centres and Busy Street Areas' summarises the principles and recommendations on inclusive physical design measures.

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
	<b>General principles</b>			
10	<b>Consistency in the approach to, and design of, street features in town centres and busy street areas supports access for all street users, increases the confidence of disabled street users and minimises feelings of discomfort and/or feeling unsafe.</b>	It is recommended that guidance embeds the importance of consistency (including engagement to inform the design) in the approach to and the design of street features and the need to consider the impact of any proposals on the existing level of amenity of disabled street users, as well as seeking opportunities to enhance the level of amenity.	Opportunity: there may be benefit in further research into the value of a single pedestrian design guide to draw together existing guidance and include the principles and recommendations from this research.	LR 3 to 9 FGE 1,2, FGD 1 to 25, DIP 16,17,21
10.1	Sub-Principle: Undertaking an EQIA where changes to physical design features are proposed will support the identification of changes to the existing level of amenity for disabled street users. It will allow action to be taken to best support access for disabled street users.	Further research is recommended in respect of the training of designers (and those who contribute to design) to better equip designers undertaking EQIAs to appreciate the perspectives and needs of street users with different abilities.  It is recommended that guidance, which may include Manual for Streets, Designing Streets and Inclusive Mobility, should encourage the completion of EQIAs.	The Traffic Signs Manual (TSM) Chpt 6 does outline the PSED under the Equality Act but guidance (which could include Manual for Streets and Inclusive Mobility) could be enhanced to include the importance of EQIAs when considering the potential impact on the existing level of amenity for street users.	Principle: LR1 to LR9, FGE1,7, FGD18, H3 DIP14,16, 17,21 GP5  Recommendation: LR1 to LR7, LR12, FGE 1, FGD1 to FGD25, DIP14, 6,17 ,20,21, GP4
10.2	Sub-Principle: Consistent monitoring and evaluation will inform better design and support access for disabled street users by incorporating lessons learned and good practice.	Further research is recommended into the standardisation of the monitoring and evaluation of street design schemes. This should include consideration of requirements for baseline surveys (including street user perception and health and wellbeing) and categorisation of street design into standard categories in order to allow comparisons between different locations and project scales.		LR 10, 11, FGE1, FGD18, DIP18, H3

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
	<b>Crossings</b>			
11	<p><b>The type of and frequency of pedestrian crossings (controlled and uncontrolled) can improve access, safety and enhance the confidence of disabled street users in town centres and on busy streets.</b></p>	<p>It recommended that as part of the Site Assessment outlined in Traffic Signs Manual Chapter 6 that the level of amenity of existing disabled street users is observed and that this should inform the considerations of crossing location, type and regularity (taking into consideration demand and reasonable walking distances to existing and preferred crossing facilities).</p> <p>The street design should be developed with consideration of the outcomes of the Site Assessment and the principles presented from this research.</p> <p>It is recommended that guidance should be expanded to incorporate this principle.</p>		<p>LR1 to LR7, FGE 1 FGD1 to FGD9, FGD19, DIP14, H4, 5</p>



NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
11.1	<p>Sub-principle: Street features included at all crossings which are conspicuous, legible, comprehensible and credible from the perspective of the disabled street user, whilst maintaining access, especially for disabled street users with reduced mobility, will support access for disabled street users.</p>	<p>Further research is recommended into:</p> <ul style="list-style-type: none"> <li>i) Further research into the design of continuous footways.</li> <li>ii) Pedestrian refuge island design detail for facilities of less than 2m wide (between kerbs) where no tactile separation is currently required. Additional research is recommended to establish if changes to current guidance are required, incorporating some form of non-tactile demarcation to differentiate between the two stages of crossing the street (i.e. crossing both lanes).</li> </ul>	<p>The Traffic Signs Manual update has updated guidance on the inter-relationship between kerb height, camber / slope to the drop kerb and the level footway clearance at the top of camber/slope.</p> <p>Research on continuous footways is required to determine how well users, particularly disabled streets users, can understand and navigate continuous footways. It is also needed to understand the behaviour of drivers and cyclists at continuous footways in different conditions (e.g. day/ night, varying traffic conditions and pedestrian demand). The research should also consider the extent to which design components impact on understanding and behaviour e.g. use of contrasting surfacing materials, defined kerblines, tactile paving, ramps etc. Aligned with the research could be an investigation into the respective use and behaviour at raised entry treatments to understand how the types of measures compare in their level of amenity for disabled street users.</p>	<p>LR3 to LR7, FGD1 to 6, 8, 9, 19, DIP1, 19</p>

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
11.2	<p>Sub-Principle: Signal controlled crossings are the preferred crossing type by all disabled street users and provide the highest degree of confidence to disabled street users.</p>	<p>It is recommended that guidance should be expanded to incorporate this principle, and include the following considerations as part of the design following the Site Assessment under Traffic Signs Manual Chapter 6:</p> <ul style="list-style-type: none"> <li>i) A signalised crossing should by default be considered in new installations or the upgrading of existing facilities subject to Traffic Signs Manual Chapter 6 guidance regarding demand, minimum distance between junctions, etc.</li> <li>ii) Further signalised crossings can be considered subject to Traffic Signs Manual Chapter 6 guidance regarding demand, minimum distance between crossings, etc.</li> <li>iii) Signalised crossings provide the least discomfort to visually impaired street users.</li> <li>iv) Zebra crossings can complement signalised crossings in town centres / busy streets to provide an improved level of crossing amenity.</li> <li>v) Zebra crossings are preferred over courtesy crossings by non-visually impaired disabled street users. Visually impaired street users experience a high level of discomfort and avoid zebra crossings.</li> <li>vi) Courtesy crossings are considered the option which gives the least access to disability groups, with visually impaired participants expressing a high level of discomfort with and avoidance of such facilities.</li> </ul>	<p>The provision of a signalised crossing (standalone or part of a signalised junction) could be considered if there is not currently one available within reasonable walking distance and / or if it presents an opportunity to improve access and / or the level of amenity for existing disabled street users. Design consideration: The provision of a non-signalised pedestrian crossing should not be inhibited if there is an existing or proposed signalised crossing (standalone or part of a signalised junction) that supports existing disabled street users identified as part of the Site Assessment.</p>	<p>LR1 to 7, FGE1, FGD1 to 9, 18, 19, DIP14, H4, 5</p>

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
12	<p><b>Regular rest locations with clear wayfinding and directions improve access for disabled street users to crossings.</b></p>		<p>Rest locations improve access for pedestrians with mobility needs and support all street users to access crossing opportunities. Rest locations should be at regular intervals, aligned with ‘walking distances’ as outlined in Inclusive Mobility section 2.4. Rest Location street features should not impact on other principles such as demarcated pedestrian clear corridors.</p>	<p>FGD20, H4, H5</p>
<b>Segregation</b>				
13	<p><b>Disabled street user access is conditional on physical street design features that are conspicuous, legible, comprehensive and credible.</b></p>	<p>It is recommended that guidance outlines the importance of the physical street features in supporting the confidence of disabled street users in accessing an area.</p>	<p>For example, a clear demarcated pedestrian corridor will be conspicuous, legible, comprehensive and credible to the disabled street user supporting their confidence in accessing the street with respect to their level of adaption / personal support. For a visually impaired street user this could be achieved in the provision of detectable edges (i.e. kerbs, tactile paving) and tonal colour contrast between street features (in all weather conditions).</p>	<p>LR3 to 7, FGD10 to 19, DIP15</p>

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
13.1	Sub-principle: All disabled street users value some form of kerb demarcation to define the pedestrian place and demarcate it from the vehicle place (including cyclists).	Further quantitative research is recommended to define the kerb height provision with and without tactile demarcation taking into consideration all types of disabled street users. The research approach should consider the level and type of disability, the level of personal adaptation and degree of personal assistance as well as street conditions. The research should seek to identify the kerb height that supports access for the majority of users (i.e. 85%ile of street users).	<p>This research considered the available research and concluded that a firm recommendation on a kerb height cannot be made without further research on kerb height in 'real world' conditions with a broader range of disabled street users.</p> <p>Based upon PAMELA and reviewing the street design guidance (e.g. TfL and CEC) a kerb height of 50mm should be used to segregate between pedestrians and cyclists, and in case of pedestrian and motorised vehicles car, this should be at least 60 mm (TFL) or 100 mm (CEC). Please refer to 7.4 of the report.</p> <p>Recommended research could be supplemented with consideration of a monitoring and evaluation study of known sites where a kerb has been implemented, categorised by street type, street features, dimensions, pedestrian/cyclist/vehicular demand and vehicle speeds.</p>	LR3 to 7, FGD4,10,11,12,13,15,17, DIP15

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
13.2	<p>Sub-principle: The provision of a demarcated pedestrian clear corridor of a minimum width of 2 metres clear of obstructions provides a 'safe area' for pedestrians and supports access for disabled street users in busy streets / town centres.</p>	<p>It is recommended that guidance should include a requirement in town centres and busy streets for a horizontally segregated pedestrian clear corridor or zone which is demarcated from cyclists and vehicles.</p> <p>Further research is recommended into the maximum width of demarcated clear pedestrian corridors.</p>	<p>Based on focus group inputs to this research the suggested maximum width of the demarcated clear pedestrian corridors is 4 metres.</p>	<p>LR3 to 7, FGD4,16,20,21,23,24, DIP16</p>
13.3	<p>Sub-principle: The provision of Level Surface streets with tactile demarcation can be considered in exceptional circumstances with low flow (vehicles and wheeled modes) / low speed conditions after consultation with local disabled street users, in particular the visually impaired.</p>	<p>Further research is recommended to define 'low flow / low speed' conditions in town centres and busy street areas.</p> <p>The provision of Level Surface streets with tactile demarcation may be retained in exceptional circumstances. This could be accompanied by additional support to improve the accessibility of these areas such as one-way traffic flow or restricting vehicle access. This is likely to be mainly on historical streets and should be restricted to 'low flow / low speed' locations. In the absence of detailed quantitative research it is suggested that the definition of 'low flow / low speed' locations in Manual for Streets of 100 vph / under 10 mph is adopted. Where these flows / speeds are exceeded, kerb demarcation is required.</p>	<p>The research team has included this sub-principle to ensure that the application of level surface streets can be retained in exceptional circumstance. This is to support access to historical and / or narrow streets.</p> <p>As with other principles these should not be viewed in isolation. In considering level surface streets Principle 15 is a key consideration along with consideration around the restriction / banning of cycles and scooters in these locations during peak periods of pedestrian demand.</p>	<p>LR3 to 7, FGD4,14, DIP15, 17, H2</p>

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
14	<p><b>The segregation of pedestrians and cyclists in town centres and busy street areas supports access for disabled street users.</b></p>		<p>Relatively recent guidance (LTN 1/20) supports the physical separation pedestrians and cyclists. This research supports that pedestrian density / demand and duration should be the principle upon which segregation between pedestrians and cyclists is determined (for example in level surface environments). There is a point of pedestrian demand beyond which sharing the space is not advisable and an alternative route which allows cyclists to bypass these areas during high pedestrian demand periods should be provided.</p>	<p>LR3 to 7, FGD 10,11, DIP16, H1</p>
14.1	<p>Sub-principle: Kerbed demarcation to cycle tracks supports access for disabled street users. The provision of some form of kerb demarcation reduces anxiety, promotes confidence and increases the level of access.</p>		<p>Kerbed demarcation to cycle tracks increases the level of access for visually impaired and mobility impaired groups in particular.</p> <p>The principle of segregation is supported in new guidance - LTN 1/20 sets out: "On urban streets, cyclists must be physically separated from pedestrians and should not share space with pedestrians."</p>	<p>LR3 to 7, FGD4,10,11,12,13,15,17, DIP16, H1</p>

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
	<b>Use of materials</b>			
15.0	Colour and tonal contrast of street features and pavement in all weather conditions supports access for all street users.	It is recommended that guidance reflects the requirement for colour and tonal contrast in town centre and busy street areas, with examples and suggested approaches for assessing tonal and colour contrast.	Paving patterns should be given careful consideration as these can cause confusion.	FGD2,8,9,10,16,17, DIP16
15.1	Sub-principle: Material textures can be used to differentiate between the footway and the carriageway but should not present an obstacle or trip hazard or present differently in wet weather or lower light.			FGD14, 16, DIP16
15.2	Sub-principle: The maintenance of surfaces and build quality/ standards supports access for all street users.		This is good practice which is highlighted in current guidance including Designing Streets.	FGD19, DIP16

NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
	<b>Obstructions / street clutter</b>			
16.0	<b>Within town centres and busy street areas all street features should be outside/away from the demarcated pedestrian clear corridor.</b>	It is recommended that guidance embeds the importance of demarcation of clear pedestrian corridors in enabling inclusive access for disabled street users.	<p>There could be consideration regarding the value of common guidelines to ensure consistency of approach and adherence with best practice in all areas of the country, not just large urban areas, but also smaller and more rural/remote communities. Development of standard arrangements must be evidence-based and informed by the experiences of disabled street users.</p> <p>For example, consideration should be given to locating cycle racks and waste bins in the carriageway, although this should not be at the expense of disabled parking.</p>	LR3,4,5,6,7, FGD20, 24, DIP16
16.1	Sub-principle: Street features that support pick up and drop off (PUDO) by support vehicles improve access for disabled street users in town centres and busy street areas.	It is recommended that guidance conveys the importance of considering the needs of disabled users with regard to pick up and drop off (PUDO) facilities. This relates to providing clear kerbside access and to other considerations such as the provision of wayfinding to these PUDO areas and ensuring their close proximity to destinations.		FGD22



NR	Principle / sub-principle	Recommendation	Good practice / notes / comments	Evidence
16.2	Sub-principle: Regulation of moveable temporary street features could support access for disabled street users.	Further research is recommended into the regulation of the use and location of moveable temporary street features (e.g. domestic waste wheelie bins) on footways and in respect of efficacy in supporting access for disabled street users.	The regulation of A-frame signage in the cities of Edinburgh and Perth was welcomed and well received by disabled street users. Similar approaches to the regulation of A-frames and other temporary moveable street furniture are required if a clear pedestrian corridor through town centre/ busy street environments is to be delivered in practice.	FGD24



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