Designing the Future

Shared Space: Qualitative Research

Report for Department for Transport

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Executive Summary

Introduction

Qualitative research was undertaken in areas with shared space designs as part of a larger study which aims to provide evidence to support design guidance on the development of shared space schemes. To ensure that the design guidance is comprehensive and robust, it needs to be evidence led and supported by knowledge from existing schemes.

The qualitative research consisted of accompanied journeys and interviews with a number of different user types: drivers; non-disabled pedestrians; visually impaired pedestrians; mobility impaired pedestrians; pedestrians with learning difficulties; and pedestrians who are deaf or hard of hearing.

The key aims of this research were to better understand:

- How drivers and pedestrians behave in streets;

- How disabled people orientate and navigate in shared space;

- How disabled people have to vs. want to use streets;

- The value of different design features;

- The extent to which people enjoy and feel comfortable in shared space; and

- The trade offs people are willing to make, for example between comfort and visual amenity.

In meeting these aims, this research provides independent evidence and an improved understanding of how different user types behave in shared space, and how this differs from behaviour in conventionally designed streets, which will support more precise design guidance.

It should be noted that this is a qualitative research report and as such it aims to present all the different themes that arise from the research rather than to make statistically significant statements about any particular user type. This report is not meant to be representative of all drivers, pedestrians and disabled people, but instead to detail the situations and emotions experienced by our research participants and discuss how this could be similar or different to other users' experiences.

Methodology

Accompanied journeys and interviews were undertaken with a total of 104 research participants. This qualitative research took place in two stages: Between Monday 7th December 2009 and Wednesday 3rd February 2010 research with drivers and non-disabled pedestrians took place; and between Tuesday 6th July and Thursday 5th August 2010 research with disabled pedestrians took place. Research with disabled users was further split into two sub-components: Disabled People in Shared Space; and, Legibility in Shared Space.

Site Selection

Before the research could be undertaken sites had to be chosen and participants recruited. Selected sites were chosen, where possible, as offering controlled comparisons of level surfaces with non-level surface environments, a range of high versus low traffic flows, and a range of design features including corduroy and other tactile paving, tonal contrast, bollards and chicanes, etc. Four sites were selected for the driver and pedestrian research:

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- Elwick Square, Ashford;

- Milsom Street, Bath;

- Chertsey Road, Woking; and,

- Seven Dials, London.

Seven sites were selected for the research with disabled users:

- Walworth Road, London;

- St John's Road, Clapham;

- New Road, Brighton;

- Market Avenue, Plymouth;

- Market Place, Newbury;

- Cookridge Street, Leeds; and

- High Street, Slough.

Recruitment

Quotas were set and recruitment questionnaires designed to ensure different types of user were represented within the research. Recruitment for the driver and pedestrian research took place on-street within specified areas made up of the shared space scheme and surrounding area. Quotas were set to ensure participants with a range of journey purposes, ages and gender took part. Sixty participants took part in this stage of the research, 30 drivers and 30 pedestrians.

Due to the hard to reach nature of disabled people, a variety of recruitment approaches were used for these components. Recruitment methods included a mixture of targeted 'free find', networking methods and snowballing (eg through day centres, schools for blind people, centres for disabled people, sheltered accommodation etc) and on-street interception.

We expected a good proportion of independently mobile people recruited to be willing and able to meet the interviewer by appointment at a designated meeting place. However, for any who did not feel comfortable making their own way, including any who would normally avoid the site, they were encouraged to participate through our offering options of:

- Interviewer meets participant at/near to home, if close by;

- Agreeing to participants bringing someone else with them if it makes them feel more at ease (but any accompaniers would not be allowed to participate in the accompanied journey and interview); or

- Taxi pick-up and drop-off from home.

In addition, all participants were told they would be given a cash 'thank you' in recognition of their time and trouble and deaf participants were offered the use of a BSL translator.

In total, 44 participants were recruited to take part in the research with disabled users. To ensure we got the most data out of the research, disabled participants recruited for the 'Disabled People in Shared Space' study also took part in the 'Legibility in Shared Space' study.

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For the visually impaired participants, we also sought a mix of people using different aids; guide dogs, long canes and some who used no aids at all, however this was not a formal quota.

Accompanied Journeys and Interviews

For the accompanied journey with drivers, participants were asked to go for a short drive in a taxi with an interviewer and a taxi-driver. Participants sat in the front passenger seat and had to imagine they were driving whilst giving a 'running commentary' on what they would be thinking and reacting to if they were driving. The interviewer sat in the back and video recorded the route being driven and the participant's 'running commentary'. Following completion of the route, the interviewer conducted an interview with the participant using playback on the video to prompt discussion.

For the accompanied journey with pedestrians, participants were asked to walk for approximately five to ten minutes along a set route, while an interviewer followed them and video recorded their behaviour. Following completion of the walk the interviewer conducted an informal interview with the participant, using playback on the video to prompt discussion.

For the accompanied journey with disabled users, all participants were asked to move along a set route with an interviewer and to provide a 'running commentary' on what they were aware of and how they were feeling etc. Routes included both shared and conventional street designs. At various points along the route the interviewer would ask the participant to stop and answer some more detailed questions about something that may have happened or something the participant had just encountered or had to negotiate. If corduroy tactile paving was present along the route, participants were also asked to undertake a detection/awareness test. The journey was video recorded by a second interviewer, who was also present for safety reasons. At the end of the route participants took part in an interviewer administered questionnaire.

Points to Note

It is important to note that even within individual user types, opinions and experiences varied and were subjective, with individual participants contradicting themselves at times.

It is also important to keep in mind the differences in the control streets and shared spaces across the sites: some sites had particularly busy control streets with high traffic flows and higher speed limits while others had particularly quiet control streets with low traffic flows and lower speed limits; and, some sites incorporated shared space junctions while others used shared space link roads and squares.

One final matter to bear in mind was that participants in Ashford were generally more aware of the term 'shared space' than participants at any other sites. The Ashford shared space scheme has been subject to criticism in the media and hence many participants in Ashford came into the research with a seemingly negative bias.

Summary of Findings

Driver and Non-Disabled Pedestrian Research

The driver and non-disabled pedestrian research was designed to focus on how different users behave in streets. The key topics of interest were:

- What different users think about the streets they are using;
- How different users behave;

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- How user behaviour is influenced by other users;

- How user behaviour is influenced by the street design or particular features like kerbs and pedestrian crossings; and

- Do users communicate with other users, and if so how.

The majority of all driver and pedestrian participants were familiar with most, if not all, of the streets on the routes. However, nearly half of the participants said they would often try to avoid a particular street(s). Drivers were more likely than pedestrians to say they would avoid a street and were most likely to say they would avoid a shared space street, often due to the volume of pedestrians in the street. There was less consistency in the type of streets pedestrians avoided with some stating control streets and others stating shared space streets, however all three pedestrians in Ashford who said they would avoid a street said they would avoid the shared space.

Generally, all participants assumed priority in the control streets was to drivers. However, there was less certainty as to who had priority in the shared space areas. Drivers expected pedestrians to cross control streets at designated crossings and said they would hope they would do so in the shared space streets as well, although they were aware that this was less likely. Approximately half of the drivers assumed they had priority in the shared space streets. Pedestrian participants were most likely to assume drivers had priority in the shared space, often due to their previous experience of how vehicles behaved (e.g. driving too fast), however even when they thought priority should be shared or to the pedestrian it was common for them to say they would not assume this was the case and instead would always wait to check what vehicles were doing before proceeding.

Pedestrians tended to prefer one-way streets with wide pavements, low traffic flow and low vehicle speeds. Aesthetics were also important but tended to be outweighed by practicality and safety factors. Overall a higher number of pedestrians named a shared space street as their favourite street on the route than named a control street (n=15 compared with n=9). Drivers, on the other hand, were more likely to name a control street than a shared space street as their favourite on the route (n=19 compared with n=3). This was generally to do with perceived hazards in the shared space rather than them identifying positive aspects of the control streets. For example it was common for drivers to say they preferred the control streets because the shared space streets lacked clearly defined areas for pedestrians and vehicles, there were higher volumes of pedestrians in the shared space and user behaviour was less predictable in the shared space.

Hazards were identified by drivers and pedestrian participants in both the control streets and the shared space streets. However, when participants identified hazards, it did not necessarily mean they felt unsafe. Drivers were more likely to identify hazards in the shared space streets than in the control streets and it was most common for them to say the unpredictability of other users was a hazard. Pedestrians in Bath and Woking were more likely to identify hazards in the control streets and considered these more dangerous than any hazards they identified in the shared space streets (e.g. two-way streets with high traffic flows), whereas pedestrians in Ashford and Seven Dials were more likely to identify hazards in the shared space and considered these to be more dangerous than any they identified in the control streets (eg a lack of designated crossing points or poorly marked crossing points).

Drivers tended to be aware of other users in the street at all times, whereas pedestrians tended to only pay attention to other users when crossing the street. Communication between users was generally therefore limited to instances where pedestrians crossed the street, and even then very little communication was observed. However, both user types considered pedestrians waiting at the side of the carriageway looking towards the traffic to be a signal to vehicles that the pedestrian was waiting to cross, and both user types considered vehicles slowing down and/or stopping to be a signal to pedestrians that

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the vehicles were giving way. Other potential forms of communication identified were eye-contact, hand gestures, drivers flashing their headlights and drivers using their indicator lights. However, no clear observations of direct eye-contact were observed during the accompanied journeys and very few instances of these other behaviours were observed.

Disabled People in Shared Space

'Disabled People in Shared Space' was designed to focus on people's overall experience of shared space, including: How they want to versus have to use streets; how comfortable they feel in different street types; to what extent they enjoy street space and whether they would like to spend time in the space in the future; and what trade offs they would be willing to make, for example between comfort and visual amenity.

Users versus Avoiders

Some participants from each user type (visually impaired, mobility impaired, learning difficulties and deaf/hard of hearing pedestrians) said they avoided certain streets. One reason for avoiding streets, which was identified across all user types, was if the street was particularly busy (both with other pedestrians and with vehicles). Visually impaired participants and mobility impaired participants also both said they might avoid a street if it had a lot of street furniture; visually impaired participants and those who were deaf/hard of hearing both said they might avoid a street if it was particularly wide; and those with learning difficulties and those who were deaf/hard of hearing said they would avoid a street if they thought it had a bad reputation.

Participant Awareness of Surrounding Area

All participants were asked what they were aware of while they walked along the streets on the route, for example, depending on their disability, they were asked what they could see, hear and/or feel. Participants across all user types said they were aware of other people, the traffic in the carriageway and the paving surfaces. None of the participants liked cracked or uneven paving, and some of the mobility impaired participants considered the tactile paving to be uncomfortable underfoot. In addition, visually impaired participants were likely to say they were aware of the building line as they often used this to aid their navigation.

Participant Awareness of own Positioning

Most participants across all user types were able to correctly identify where they were on a street in relation to other users. Visually impaired participants found this harder in the shared space than in the control streets, and also appeared to find it harder than the other user types. It was most common for them to use the building line to help them determine their position, but they also used familiar landmarks, a sense of what other pedestrians around them were doing, the kerb, and the noise of traffic.

In the shared space some of the participants with learning difficulties identified their position as on the pavement; where there were no pavements, these participants were positioned to the side of the street. They were asked why they thought they were on the pavement and they either rationalised that they could see where the edge of the carriageway finished or, like the visually impaired participants, they based their assumption on what other users in the street were doing.

Participants across all user types either walked centrally along the footways or stayed closer to the building line. These were considered the safest places to be. For mobility impaired participants positioning

was more likely to vary than it was for other user types because they needed to position themselves on the flattest area.

How comfortable are participants in different street environments?

All participants were asked how comfortable they felt in both the control streets (which were of conventional design) and the shared spaces. The majority of participants in each group of user types said they felt fine in the control streets.

For visually impaired participants, a higher number rated the control streets comfortable than rated the shared spaces comfortable. This was also true for participants with learning difficulties. The opposite was true for each of the other two groups, where a higher number rated the shared spaces comfortable than rated the control streets comfortable.

Across all user types, familiarity with a street was key to helping participants feel safer and more comfortable and hence being able to enjoy it more. Again across all user types, wide pavements and quieter streets were important while uneven paving reduced comfort.

Participants' Ideal Streets

Participants across all user types were asked to think of their ideal street and answer a number of trade-off questions about what they would prefer:

- The majority of visually impaired participants said they would prefer less obstacles and no seating, than seating that could be an obstacle (the majority of all other user types preferred the opposite scenario);

- The majority of visually impaired, mobility impaired and learning difficulty participants said they would prefer to go out of their way to cross at a controlled crossing than be able to cross anywhere but without a controlled crossing (it was also slightly more likely for deaf/hard of hearing participants to prefer this option);

- The majority of visually impaired and mobility impaired participants said they would prefer a narrower pavement separated from cars, bikes and other vehicles, rather than having more space to travel but sharing that space with cars, bikes and other vehicles (it was also slightly more common for learning difficulty participants to prefer this option and equal numbers of deaf/hard of hearing participants preferred either option);

- The majority of visually impaired participants said they would prefer a raised kerb to define the road and pavement, than a flat even surface with no kerb (the majority of all other user types preferred the opposite scenario);

- The majority of visually impaired participants said they would prefer texture defined pavement and road, than tonal/colour defined pavement and road (it was slightly more common for mobility impaired participants to prefer colour definition; the majority of deaf/hard of hearing participants preferred colour definition; and, an equal number of learning difficulty participants preferred each option); and

- The majority of visually impaired, mobility impaired and deaf/hard of hearing participants said they would prefer no vehicles in a street and have to walk from the bus stops/blue badge parking to get there, than vehicles being allowed in the

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street (the majority of learning difficulty participants preferred the opposite scenario)

Legibility in Shared Space

'Legibility in Shared Space' was designed to focus on disabled people's specific experiences navigating shared space, including: How they orientate and navigate; what makes it easier or more difficult for them to navigate; and what value different design features have.

Overall ease of navigation

Participants across all user types were asked how easy or difficult they found it to navigate the control streets and the shared space areas. Overall results were very similar for each street type, with 25 participants saying the control streets were either very or fairly easy to navigate and 27 participants saying the shared space was either very or fairly easy to navigate. Results were also very close within each of the user types, however slightly fewer visually impaired participants said the shared space was easy to navigate than said the control streets were easy to navigate, while slightly more mobility impaired and deaf/hard of hearing participants said the shared space was easy to navigate than said the control streets were easy to navigate. An equal number of participants with learning difficulties said each street type was easy to navigate.

Across all user types, the number of participants who found the control streets easy to cross was again very similar to the number who found the shared space streets easy to cross (n=20 compared with n=19), and within user types results were again also very similar. However, a higher number of visually impaired participants and those with learning difficulties said they found the control streets easy to cross than said they found the shared space streets easy to cross, while a higher number of mobility impaired participants said they found the shared space easy to cross than said they found the control streets easy to cross. An equal number of deaf/hard of hearing participants said they found the control streets and the shared space easy to cross.

Navigation

Participants were asked what they relied on to aid their navigation. The following navigation aids were the six most commonly stated by both participants with mobility impairments and participants with learning difficulties:

- Sight;
- Kerb;
- Memory;
- Position of road/traffic;
- Sound of traffic; and
- Hearing.

It may seem strange that kerbs were stated as a navigation aid by mobility impaired participants. However, although they often caused these participants difficulty, they also meant they could clearly distinguish between the area for pedestrians and the area for vehicles, which they liked. Participants with learning difficulties also found kerbs useful for the same reason, and because they offered a sense of security/safety.

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Visually impaired participants and deaf/hard of hearing participants also relied on some of these navigation aids. However, the most commonly used navigation aid by visually impaired participants was the building line, followed by tactile paving, hearing, the kerb, and the sound of the traffic. Visually impaired participants who used the building line as a navigation aid were most likely to say it helped them position themselves in the footway and that they used it as a guide to follow. It also provided them with reassurance that they were in a safe place.

It was most common for deaf/hard of hearing participants to say they relied on their sight, the line of the road/traffic, the building line, their memory, tactile paving and colour contrast. Those who said they relied on the building line said this was because they used it as a guide to follow. Although not explicitly stated, this may be due to the balance problems that some deaf people can experience.

All user types used additional navigation aids to the ones mentioned here, but these were the ones stated by the most participants.

Street features which make navigation more difficult

Participants were asked what aspects made navigation difficult. Many street features were stated, including fixed and non-fixed obstacles, uneven surfaces and inadequate crossing points etc. However, the most frequently cited features were not necessarily the features that participants went on to say were the most difficult to navigate. For example, 14 visually impaired participants stated that 'non-fixed obstacles' (such as shop displays and parked cars) made navigation difficult, while seven said dropped kerbs made navigation difficult. Yet when asked which one aspect made navigation most difficult, six participants said a dropped kerb and only two said non-fixed obstacles.

The results for mobility impaired participants were more consistent, with uneven surfaces being stated most frequently as a feature that makes navigation difficult, and uneven surfaces also being the most common answer to the question 'What one feature makes navigation most difficult?' In contrast to the visually impaired participants, and as one might expect, mobility impaired participants were also likely to say that kerbs not being dropped enough and tactile paving can make navigation difficult.

Three of the nine participants with learning difficulties said that nothing made navigation difficult for them. However, of those who did experience problems navigating, it was most common for participants to say this was either due to streets being too crowded, or because of fixed or non-fixed obstacles. Two participants then went on to say that fixed obstacles made it the most difficult to navigate.

Of the five deaf/hard of hearing participants, two participants said that traffic travelling too fast made their navigation difficult. A number of other street features were also stated, but not by more than one participant each. Three participants responded to the question 'What one feature makes navigation most difficult?' to which one stated traffic travelling too fast, one said if it was too noisy and one specified the tactile paving.

Conclusions

In all street design, there are commonalities among different user types such as a preference for clearly defined areas for vehicles and pedestrians, and designated crossing points. The majority of pedestrian participants (both disabled and non-disabled) preferred wide pavements, narrow carriageways with one way traffic, and reduced vehicle flow and vehicle speeds, while drivers tended to prefer clear rules/guidance and for the behaviour of all users (both pedestrians and other vehicles) to be predictable.

Among disabled people, visually impaired participants appeared to be the most uncertain in their navigation of streets and tended to have needs and desires that were often different from those with other disabilities. For example, when answering trade-off questions they were more likely to say they would prefer texture defined pavement and road to colour defined pavement and road, whereas mobility impaired and deaf/hard of hearing participants were more likely to say they would prefer colour defined pavement and road,. An equal number of those with learning difficulties preferred either option.

The issue of whether shared space areas should be designed with a level surface is clearly key. It is already known, and apparent from these research findings, that visually impaired people feel more at ease when there is a kerb and mobility impaired pedestrians find it physically easier when there is none. However, the research suggests it should be possible to reach workable compromises in street design. Taking the example of a level surface versus kerb, the findings show that a higher number of visually impaired participants relied on the building line for navigation, than relied on the kerb. In addition, the visually impaired participants undertook a fairly rudimentary corduroy tactile paving detection test during their accompanied journeys. 11 out of 14 participants were able to detect the paving despite its width of 400mm. On one occasion a guide dog even stopped and sat down when it reached the corduroy tactile paving, as it would if it had reached a kerb. Not all visually impaired participants had been aware of corduroy tactile paving and its purpose before taking part in the research and it was also common for other disability types to have been unaware of the purpose of tactile paving prior to the research. In fact, many mobility impaired participants initially complained about tactile paving, saying it was uncomfortable to travel over, however once it was explained to them what it was for they generally did not mind it anymore as they could appreciate its purpose.

It seems that for any new street design, whether it is shared space or not, to ensure that users are content it is an advantage if they understand the purpose of street features. People want to and need to understand why design features are implemented and how they should be used so that they can behave accordingly and predict other users' behaviour. Whether this understanding comes via training, a media campaign, a leaflet drop or some other form of communication is beyond the scope of this research, but with better understanding comes better acceptance, as shown in the example above regarding tactile paving and mobility impaired participants.

People tend to like clearly defined rules because they make the behaviour of others more predictable. However, this research indicates that in the absence of such rules (e.g. no road markings, etc.) drivers tend to behave more cautiously.

Familiarity with ones surroundings was also key to all user types feeling more confident, comfortable and at ease in any given street. Mobility training is already available for some visually impaired participants; however it currently relies on kerbs (as well as other street features) to provide meaningful information for navigation. It seems that further mobility training, with a shift in focus away from kerbs, could be a vital step in helping visually impaired people become more proficient, and hence confident, in navigating shared space. In fact, the building line came out as being more important to visually impaired

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participants for navigation than the kerb and numerous other aids were also used. There is also potential for mobility training to be useful for other user groups such as those with severe learning difficulties.

In summary this research explored how people use and share streets, and provides details of the experiences of people from a number of different user types, in order to inform design guidance. The key points are:

- There is little overt communication between users:
  - Communication is usually subtle and spontaneous in nature;
  - Body language is the most frequently used mechanism for communication;
  - Pedestrians prefer not to have to concentrate on, and therefore interact with other users, during their journey;
  - Drivers tend to be more aware of pedestrians than pedestrians are of drivers, and assess risk based on pedestrian behaviour.

- Both drivers and pedestrians value predictability and therefore like to have clearly defined rules to define their behaviour in the space:
  - All user types like clearly defined and separate areas for vehicles and pedestrians, and designated crossing points;
  - Shared space appears to deliver pedestrian benefits but pedestrians need to feel comfortable and safe in the space if they are to enjoy it;
  - Participants often tried to fit existing rules to the new situations they encountered in shared space.

- A key benefit of a kerb is that it signifies a boundary:
  - Although the kerb is often used as a navigation aid by people who are visually impaired, it was more common for them to use the building line as a navigation aid;
  - All user types understood a kerb to signify a boundary (the edge of a pedestrian area) and it offered them a sense of security.

- Sharing of a street is generally limited to when pedestrians cross it:
  - Pedestrians are more likely to occupy the carriageway when traffic flow and speed is low;
  - The most common sign a pedestrian gives to show they wish to cross the carriageway is to wait at the edge and look towards the on-coming traffic;
  - Drivers are more likely to give way when user behaviour is less predictable and when pedestrian flow is high;
  - The most common sign a driver gives to show they are giving way is to slow down or stop; and

- Familiarity with and understanding of the surroundings improves perception of safety, comfort and hence enjoyment:
  - It is common for the purpose of tactile paving to be misunderstood by users and therefore not be appreciated.

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We can conclude that both design guidance and street design itself should be clear and simple for all to understand and, based on the above points, should include or address the following:

- ■ The apparent lack of desire for different user types to communicate with one another, through:

  - – Controlled crossings;

  - – Clear delineation of a 'comfort space' for pedestrians i.e. an area which pedestrians know they can use without encountering vehicles;

  - – Clear boundaries or 'rules' for vehicles to ensure predictable behaviour;

  - – The presence of kerbs or, where absent, other mitigating measures.

- ■ Pedestrians' desire to enjoy the space, rather than concentrate on other users, through:

  - – Reduced obstacles (and keeping the building line clear);

  - – Even surfaces;

  - – Reduced vehicle flows;

  - – Reduced vehicle speed.

- ■ The importance of user understanding by:

  - – Implementing tactile paving correctly;

  - – Acknowledging that there is a limit to the information that can be conveyed using tonal contrast;

  - – Ensuring users are provided with the information they need to understand and accept such features;

  - – Keeping the 'language' conveyed by these features clear and simple.

- ■ The importance of inclusive and accessible design by also considering:

  - – The importance of a strong building line (due to its function as a guide for people to follow);

  - – The benefits of narrow carriageways, for ease of crossing;

  - – How visual cues are important, and how non-visual cues are crucial for those who are severely sight impaired; and

  - – Designing for legibility at night, as well as during the day.

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1   Introduction

1.1   Introduction

1.1.1   Qualitative research was undertaken in areas with shared space designs as part of a larger study which aims to provide evidence to support design guidance on the development of shared space schemes. To ensure that the design guidance is comprehensive and robust, it needs to be evidence led and supported by knowledge from existing schemes.

1.1.2   The qualitative research consisted of accompanied journeys and interviews with a number of different user types: drivers; pedestrians; visually impaired pedestrians; mobility impaired pedestrians; pedestrians with learning difficulties; and pedestrians who are deaf or hard of hearing.

1.1.3   The key aims of this research were to better understand:

- How drivers and pedestrians behave in streets;

- How disabled people orientate and navigate in shared space;

- How disabled people have to versus want to use streets;

- The value of different design features;

- The extent to which people enjoy and feel comfortable in shared space; and

- The trade offs people are willing to make, for example between comfort and visual amenity.

1.1.4   In meeting these aims, this research provides independent evidence and an improved understanding of how different user types behave in shared space, and how this differs from behaviour in conventionally designed streets, which will support more precise design guidance.

1.1.5   It should be noted that this is a qualitative research report and as such it aims to present all the different themes that arise from the research rather than to make statistically significant statements about any particular user type. This report is not meant to be representative of all drivers, pedestrians and disabled people, but instead to detail the situations and emotions experienced by our research participants and discuss how this could be similar or different to other users' experiences.

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2　Methodology

2.1　Overview of Methodology

2.1.1　Accompanied journeys and interviews were undertaken with a total of 104 research participants. This qualitative research took place in two stages: Between Monday 7th December 2009 and Wednesday 3rd February 2010 research with drivers and non-disabled pedestrians took place; and between Tuesday 6th July and Thursday 5th August 2010 research with disabled pedestrians took place. Research with disabled users was further split into two sub-components: Disabled People in Shared Space; and, Legibility in Shared Space.

2.1.2　For the accompanied journey with drivers, participants were asked to go for a short drive in a taxi with an interviewer and a taxi-driver. Participants sat in the front passenger seat and had to imagine they were driving whilst giving a 'running commentary' on what they would be thinking and reacting to if they were driving. The interviewer sat in the back and video recorded the route being driven and the participant's 'running commentary'. Following completion of the route, the interviewer conducted an interview with the participant using playback on the video to prompt discussion.

2.1.3　For the accompanied journey with pedestrians, participants were asked to walk for approximately five to ten minutes along a set route, while an interviewer followed them at a distance and video recorded their behaviour. Following completion of the walk the interviewer conducted an interview with the participant, using playback on the video to prompt discussion.

2.1.4　For the accompanied journey with disabled pedestrians, all participants were asked to move along a set route with an interviewer and to provide a 'running commentary' on what they were aware of and how they were feeling etc. Routes included both shared and conventional street designs. At various points along the route the interviewer would ask the participant to stop and answer some more detailed questions about something that may have happened or something the participant had just encountered or had to negotiate. If corduroy tactile paving was present along the route, participants were also asked to undertake a detection/awareness test. The journey was video recorded by a second interviewer, who was also present for safety reasons. At the end of the route participants took part in an interviewer administered questionnaire.

2.1.5　For all three research components a number of stages had to be progressed:

- Site Selection;
- Recruitment;
- Accompanied Journeys and Interviews;
- Structured Questionnaire (disabled participants only); and
- Data Analysis.

2.1.6　Each of these phases is described in the proceeding sections and differences between each research component highlighted.

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2.2   Site selection

2.2.1   Selected sites were chosen, where possible, as offering controlled comparisons of level surfaces with non-level surface environments, a range of high versus low traffic flows, and a range of design features including corduroy and other tactile paving, tonal contrast, bollards and chicanes, etc.

Research with Drivers and Pedestrians

2.2.2   Four routes were used for this research component, each of which featured a section with a level surface. Table 2.1 provides a snap shot of each of the research locations; however specific routes were followed which included both a section of shared space and control street(s). A mixture of shared space link roads and junctions were used, all of which had a level surface and various design features for demarcation such as bollards.

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Table 2.1 Sites Selected for Research with Drivers and Pedestrians

Site	Function	Features	Picture
Chertsey Road, Woking	Link	Level surface with delineation by bollards, planters and surface differences	
Elwick Square, Ashford	Junction	Level surface with surface differences	
Milsom Street, Bath	Link[1]	Level surface with delineation by bollards and tonal contrast between the carriageway and footway	

[1] The Bath site was classified as a link due to the main flow of traffic; however, it is a junction in some respects as the main desire lines for the pedestrians intersect the main traffic flows.

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Site	Function	Features	Picture
Seven Dials, London	Junction	Level surface and surface differences	

Disabled People in Shared Space and Legibility in Shared Space

2.2.3   A total of seven sites were used for the 'Disabled people in shared space' and 'Legibility in shared space' research components. Table 2.2 provides snap shots from each of these research locations. As with the research with drivers and pedestrians, this research strand also required participants to follow specific routes which included both a section of shared space and control street(s). Routes featuring a mixture of shared space link roads and squares were used, and the chosen sites provided various different design features to test, for example Walworth Road has kerbs whereas the remaining sites all have a level surface; some streets have bollards while others do not; and some have implemented tonal contrast while others have not.

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Table 2.2 Sites Selected for Research with Disabled People

Site	Function	Features	Picture
Walworth Road, London	Link	Low kerb and tonal contrast between the carriageway and footway, textured surface differences between footway and adjacent loading bays	
St John's Road, Clapham	Link	Level surface with delineation by bollards, surface differences, corduroy tactile paving and tonal contrast between the carriageway and footway	
New Road, Brighton	Link	Level surface with tonal contrast and street furniture	
Market Avenue/New George Street, Plymouth	Link/Square	Level surface with texture defined surface differences on footway, tonal contrast, corduroy tactile paving, street furniture	

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Site	Function	Features	Picture
High Street, Slough	Link/Square	Level surface, tonal contrast between the footway and carriageway, corduroy tactile paving and street furniture	
Market Place, Newbury	Link/Square	Level surface with bollards and street furniture	
Cookridge Street, Leeds	Square	Level surface with tactile paving, surface differences and street furniture	

2.3   Recruitment

2.3.1   Quotas were set and recruitment questionnaires designed to ensure different types of user were represented within the research.

Research with Drivers and Pedestrians

2.3.2   Recruitment of drivers and pedestrians took place on-street within specified areas made up of the shared space scheme and surrounding area. Quotas were set to ensure participants with a range of journey purposes, ages and gender took part. Sixty participants took part in this stage of the research, 30 drivers and 30 pedestrians.

2.3.3   The recruitment questionnaire for this research component can be found in Appendix A. The quotas set and what was achieved is shown in Table 2.3 below. A slightly lower number of respondents aged 55+ took part in the research than hoped for. It was also difficult to recruit people who usually travel through the area for business as they were likely to be

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infrequent visitors. None of the participants who took part in this research component identified themselves as having a disability.

Table 2.3 Quotas and Achieved Numbers of Drivers and Pedestrians

Segment	Pedestrians (Q2)		Drivers (Q2)	
	Quota	Achieved	Quota	Achieved
Daily Commute (Q1)[2]	Min x 6	6+[3]	Min x 6	6+
Business Trip (Q1)	Min x 6	1+	Min x 6	1+
Leisure (Q1)	Min x 6	8+	Min x 6	5+
Other (Q1)	Min x 2	6+	Min x 2	5+
Total	30	30	30	30
16-34 years old (Q3)	Min x 6	12	Min x 6	10
35-54 years old (Q3)	Min x 6	13	Min x 6	17
55+ years old (Q3)	Min x 6	5	Min x 6	3
Total	30	30	30	30
Males	Min x 10	13	Min x 10	13
Females	Min x 10	17	Min x 10	17
Total	30	30	30	30

Disabled People in Shared Space and Legibility in Shared Space

2.3.4   Due to the hard to reach nature of disabled people, a variety of recruitment approaches were used. Recruitment methods included a mixture of targeted 'free find', networking methods and snowballing (e.g. through day centres, schools for blind people, centres for disabled people, sheltered accommodation, etc) and on-street interception. The recruitment questionnaire used for these two components can be found in Appendix A.

[2] Question numbers shown in brackets in Table 2.3 refer to the question in the recruitment questionnaire where this information was gained.

[3] Please note, some recruitment questionnaires were lost in the post, hence the numbers shown for each of the four journey purposes are minimum numbers and may have been more than that shown.

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2.3.5   We expected a good proportion of independently mobile people recruited to be willing and able to meet the interviewer by appointment at a designated meeting place. However, for any who did not feel comfortable making their own way, including any who would normally avoid the site, they were encouraged to participate through our offering options of:

- Interviewer meets participant at/near to home, if close by;

- Agreeing to participants bringing someone else with them if it makes them feel more at ease (but any accompaniers would not be allowed to participate in the accompanied journey and interview); or

- Taxi pick-up and drop-off from home.

2.3.6   In addition, all participants were told they would be given a cash 'thank you' in recognition of their time and trouble and deaf participants were offered the use of a BSL translator.

2.3.7   In total, 44 participants were recruited to take part in the research with disabled users. To ensure we got the most data out of the research, disabled participants recruited for 'Disabled People in Shared Space' and those recruited for 'Legibility in Shared Space' took part in both research components. The recruitment quotas that were set and the numbers achieved are shown in Table 2.4 below. We had slightly fewer 16-25 year olds than we had hoped for, however all other quotas were met or exceeded.

2.3.8   For the visually impaired participants, we also sought people using guide dogs, long cane users and some participants who used no aids. However, this was not a formal quota.

2.3.9   In total we had six guide dog users, 11 cane users (a mixture of roller, long and symbol canes), and three visually impaired participants who used no aids.

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Table 2.4 Quotas and Achieved Numbers of Disabled People

Segment	Disabled People in Shared Space	Legibility in Shared Space	Overall	
	Quota	Quota	Quota	Achieved
Independently Mobile	Min x 22	Min x 22	Min x 44	44
Total	22	22	44	44
Non user[4]	Min x 4	Min x 4	8	12
Total	22	22	44	44
Sight impaired (partially sighted)	Min x 3	Min x 7	Min x 10	10
Severely sight impaired (blind)	Min x 3	Min x 7	Min x 10	10
Mobility impaired (ambulant/wheelchair)	Min x 6	Min x 4	Min x 10	10
Learning difficulties (mild/moderate)	Min x 5	Min x 4	Min x 9	9
Deaf/Hard of hearing	Min x 5	Min x 0	Min x 5	5
Total	22	22	44	44
Male	Min x 7	Min x 7	Min x 14	19
Female	Min x 7	Min x 7	Min x 14	25
Total	22	22	44	44
16-25	Min x 3	Min x 3	Min x 6	3
26-45	Min x 3	Min x 3	Min x 6	11
46-65	Min x 3	Min x 3	Min x 6	20
Over 65	Min x 3	Min x 3	Min x 6	10
Total	22	22	44	44

[4] The segment 'Non user' refers to participants who had not travelled through the shared space area prior to the research.

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2.4   Accompanied Journeys and Interviews

2.4.1   All three research components required detailed planning to ensure the research could be undertaken safely and effectively. Much forethought went in to the logistics of undertaking accompanied journeys to ensure they were safe, yet as real to life as possible. Topic guides were designed to ensure relevant data was gained through semi-structured discussions with participants.

Research with Drivers and Pedestrians

2.4.2   For the accompanied journey with drivers, participants were asked to go for a short drive in a taxi with an interviewer and a taxi-driver. Participants sat in the front passenger seat and had to imagine they were driving whilst giving a 'running commentary' on what they were thinking and reacting to. The interviewer sat in the back and video recorded the route being driven and the participant's 'running commentary'. Following completion of the route, the interviewer conducted an interview with the participant using playback on the video to prompt discussion.

2.4.3   It was decided to use this approach, rather than asking participants to drive themselves due to a number of safety considerations identified at the planning stage:

- Reduced driver concentration due to providing a live running commentary;

- Safety risks for interviewers getting into strangers' cars; and

- Risk of theft of equipment if using a mounted video camera instead of an interviewer being present in the vehicle.

2.4.4   For the accompanied journey with pedestrians, participants were asked to walk for approximately five to ten minutes along a set route, while an interviewer followed them at a distance and video recorded their behaviour. Following completion of the walk the interviewer conducted an interview with the participant, using playback on the video to prompt discussion.

2.4.5   It was decided to use a 'followed' walk approach rather than having an interviewer walk with the participant and recording a running commentary because it was thought that the latter approach was more likely to affect the way in which the participant behaved.

2.4.6   Both the driver and pedestrian discussion guides used by interviewers can be found in Appendix B.

2.4.7   The accompanied journeys and informal interviews took between 45 minutes and an hour and participants received £30 as a thank you for their time.

Disabled People in Shared Space and Legibility in Shared Space

2.4.8   For the accompanied journey with disabled users, all participants were asked to move along a set route with an interviewer and to provide a 'running commentary' on what they were aware of and how they were feeling etc. Where safe to do so, interviews kept a short distance behind in order to minimise any effect on participant behaviour. At various points along the route the interviewer would ask the participant to stop and answer some more detailed questions about something that may have happened or something the participant had just encountered or had to negotiate. If corduroy tactile paving was present along the

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route, participants were also asked to undertake a detection/awareness test. The journey was video recorded by a second interviewer, who was also present for safety reasons. At the end of the route participants took part in an interviewer administered questionnaire.

2.4.9   Due to safety concerns with undertaking the research with disabled people, it was deemed necessary for two interviewers to be present at all times and for one of the interviewers to walk a short distance behind but close enough to the participant to step in if a safety risk was observed. It was therefore deemed appropriate in this situation to gain a running commentary during the walk and take the time to stop at various points to discuss any issues or encounters that occurred.

2.4.10   The same discussion guides were used for both research components and therefore contained both the overall questions about disabled people's experiences in shared space and the more specific questions about legibility in shared space. Five discussion guides were produced, one each for: visually impaired guide dog users; visually impaired non-guide dog users; mobility impaired participants; people with learning difficulties; and people who were deaf or hard of hearing. These discussion guides can be found in Appendix B.

2.4.11   For both the 'Disabled People in Shared Space' and 'Legibility in Shared Space' components, participants were also asked to complete an interviewer administered questionnaire after their journey. This is described in section 2.5.

2.4.12   The accompanied journey, interview and questionnaire took between an hour and an hour and a half to complete and participants received £40 as a thank you for their time.

2.5   Structured Questionnaire

2.5.1   For both the 'Disabled People in Shared Space' and 'Legibility in Shared Space' components, participants completed an interviewer administered questionnaire. The purpose of this questionnaire was to gain further, quantifiable data to inform design guidance. Questions such as, 'To what extent did you feel safe while crossing the control street?' were asked and participants had to give an answer on a five-point likert scale. A copy of the questionnaire can be found in Appendix C.

2.5.2   The research with drivers and pedestrians did not include the administration of a structured questionnaire.

2.6   Data Analysis

2.6.1   Data from all three research components were analysed using a grounded theory approach.

2.6.2   Grounded theory is the development of themes arising from the data collected, rather than trying to fit the data into existing themes. In order to ensure the findings are accurate and reflect the views of all participants it is important to use a systematic approach, as shown in Figure 2.1.

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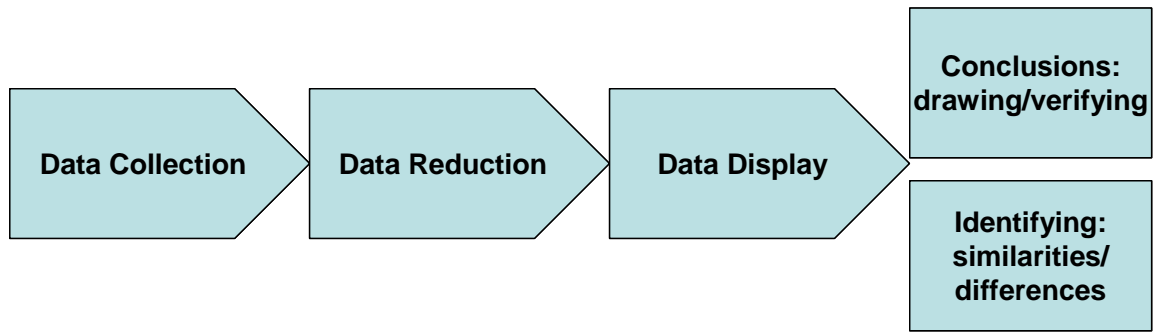
Figure 2.1 Qualitative data analysis

3 Findings: Drivers and Pedestrians

3.1 Introduction

3.1.1 The driver and pedestrian research was designed to focus on how different users behave in streets. The key topics of interest were:

- What different users think about the streets they are using;

- How different users behave;

- How user behaviour is influenced by other users;

- How user behaviour is influenced by the street design or particular features like kerbs and pedestrian crossings; and

- Do users communicate with other users, and if so how.

3.1.2 Findings are split by user type – section 3.3 details the findings from the research with drivers and section 3.4 details the findings from research with pedestrians - followed by a summary of the similarities and differences across user types (section 3.5).

3.2 Journey Routes

3.2.1 For ease of reference, a breakdown of the control streets and shared space streets on the route for each site are shown below in Table 3.1. For the pedestrian journeys, the direction in which participants were asked to travel the route was alternated to eliminate any ordering affect. This was not possible for the driver journeys due to one-way restrictions.

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Table 3.1 Control streets and shared space areas, by site

	Control Streets		Shared Space	
	Drivers	Pedestrians	Drivers	Pedestrians
Ashford	Station Road	Tufton Street	Elwick Road	Elwick Road
	Tufton Street	Church Street	Bank Street	Bank Street
	Vicarage Lane	Norwood Street	-	-
	-	Queen Street	-	-
Bath	George Street	Upper Borough Walls	Milsom Street	Milsom Street
	Broad Street	Queen Street	New Bond Street	New Bond Street
	Gay Street	Quiet Street	-	-
	-	Northgate Street	-	-
Woking	Duke Street	Duke Street	Chertsey Road	Chertsey Road
	Maybury Road	Locke Way	-	-
	Stanley Road	The Broadway	-	-
	Walton Road	-	-	-
	Grove Road	-	-	-
	The Broadway	-	-	-
Seven Dials	Whitcomb Street	Whitcomb Street	Lisle Street	Lisle Street
	Little Newport Street	Little Newport Street	Upper Saint Martin's Lane (North part, near Mercer Street)	Upper Saint Martin's Lane (North part, near Mercer Street)
	Great Newport Street	Great Newport Street	Seven Dials	Seven Dials
	Charing Cross Road	Charing Cross Road	-	-

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	Control Streets		Shared Space	
	Drivers	Pedestrians	Drivers	Pedestrians
	Upper Saint Martin's Lane (South part, near Great Newport Street)	Upper Saint Martin's Lane (South part, near Great Newport Street)	-	-
	Mercer Street	Mercer Street	-	-

3.2.2   In Ashford 12 drivers and 12 pedestrians took part in the research; in Bath 13 drivers and nine pedestrians took part; in Woking four drivers and four pedestrians took part; and in Seven Dials one driver and five pedestrians took part.

3.3   Drivers

Streets

Users versus Avoiders

3.3.1   Across all four research sites, 30 drivers took part in an accompanied journey. Over two thirds of these participants were familiar with the streets on the routes and regularly used one or more of them. However, approximately half of the participants also said they would actively avoid a particular street(s).

3.3.2   In Ashford, three participants said they would actively avoid a street, all of which stated Bank Street, a shared space street. Both Bank Street and Elwick Road (a second shared space street) were said to cause uncertainty in drivers due to the lack of priorities and road markings and the higher volume of pedestrians, whom they felt had a low awareness of vehicles and therefore behaved in a less predictable fashion.

3.3.3   Bank Street in Ashford also tended to be the one street that all other participants at this site were least likely to drive down; however, this tended to be because they had no reason to and not because of the street design. Most participants commented that they would avoid 'town' at peak times anyway due to the level of congestion that was likely, making it a very slow route.

3.3.4   In Bath, 10 participants said they would avoid Milsom Street (the shared space street) where possible. The most common reason for avoiding Milsom Street was because it gets very congested, making it slow and frustrating for drivers. Other reasons for avoiding it included not being able to get a parking space, the volume of pedestrians and other activity in the street making drivers feel uneasy, generally finding it confusing, the one-way system being inconvenient and also often having no need to drive down this street.

3.3.5   The one driver participant in Seven Dials and three of the participants in Woking said they would not avoid any of the streets on the route. However, one participant in Woking said she

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does tend to avoid Chertsey Road (the shared space street) because it seems less car friendly than the alternative available (the Broadway, a control street).

Who has priority?

3.3.6   Drivers were aware of many different user types in all of the streets on the routes, from cars and buses, to delivery vehicles, to cyclists and pedestrians. However, most commented that they needed to be more aware of pedestrians in the shared space streets and/or when in the town centre and close to shops.

3.3.7   In general, participants expected pedestrians to cross the street at designated crossing points on control streets and would like them to do so in the shared space as well but were aware that this was often not the case and that pedestrians were much more likely to walk into the road at any point in the shared space areas.

3.3.8   There were mixed views as to who actually has priority in the shared space streets, with approximately half of participants overall thinking that drivers had priority. However, participants in Ashford, Woking and Seven Dials were more likely to say priority was to the driver, than were participants in Bath.

3.3.9   In Ashford, approximately half of participants stated that drivers had priority, the remaining participants either thought that pedestrians had priority or that it was equal priority. However in general, no matter whom participants considered to have priority, they also noted it did not always work like this. For example, those who said drivers had priority were also likely to say that pedestrians were still likely to walk in/across the carriageway meaning they had to drive slower; those who said pedestrians had priority were also likely to say that not all drivers recognised this; and those who said there was equal priority were also likely to say the street was more set up for pedestrians than it was for vehicles and it could cause problems for drivers. With regard to control streets it was generally a given that drivers had priority here as these streets were considered to have a 'traditional' layout.

3.3.10   In Bath, slightly more drivers felt that pedestrians had priority in the shared space streets than felt drivers had priority. This tended to be because of the layout of the street being viewed as 'semi-pedestrianised'. Other reasons for assuming pedestrians had priority included pedestrians apparently assuming they did and therefore being less likely to cross at designated crossings and the general volume of pedestrians found in the area. Even the participants who thought that drivers had priority were likely to say that the layout was not conducive to this and instead lent itself more to pedestrian use, which in turn was felt to cause pedestrians to think they have priority when they do not. With regard to the control streets, most participants thought drivers had priority because of the traditional layout and their understanding of the Highway Code.

3.3.11   In both Ashford and Bath, one participant at each site commented that they thought pedestrians should have priority in all streets because they are the more vulnerable road user.

3.3.12   All driver participants in Woking and Seven dials felt that priority was to the driver in all streets.

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Appropriate Speeds

3.3.13   Across the sites the speed limits in the shared space streets were either 20 or 30 miles per hour (mph). Speed limits in the control streets varied from 20 mph to 40 mph.

3.3.14   In general, participants across all sites thought that 20 mph was an appropriate speed for shared space schemes and were also content with the respective speed limits in the control streets. However, it was noted that while the participants stated that they stuck to the speed limits or drove slower than them, they believed that other drivers sometimes exceeded them. Participants in Ashford were more likely than those in Bath to assume other people exceeded the speed limits.

3.3.15   In Ashford, two participants noted that at night some drivers dangerously exceeded the speed limit in the shared space streets and one participant felt that bus and taxi drivers often drove too fast, apparently believing they had overall priority and that other users should and would stop for them.

3.3.16   Some participants in Ashford said they would drive slower than the speed limit during peak times as there were more users around, particularly pedestrians including more vulnerable pedestrians such as school children. One participant felt that 25mph was an appropriate speed limit in the shared space.

3.3.17   On Station Road, a control street in Ashford, two participants noted that one could not drive faster than the speed limit due to the volume of traffic.

3.3.18   In Bath, the majority of participants said that people drive slower than the speed limits because of congestion in both the shared space streets and control streets. On-street parking was also thought to cause traffic to drive slower in both types of street and specifically in the shared space areas the volume of pedestrians and raised humps were also considered to be a factor.

3.3.19   Two participants in Bath thought that some drivers may exceed the speed limits on the control streets if possible. One felt that two-lane traffic encourages this behaviour and one noted that there were less pedestrians in the control streets which could potentially offer drivers a greater sense of security.

3.3.20   The participant in Seven Dials did not comment on the speed of the traffic while participants in Woking thought that about 15 mph was more appropriate due to the chicanes, narrowness of the street and unpredictability of pedestrians in the area.

Hazards and Safety

3.3.21   On both the shared space areas and the control streets, participants commented on a large number of potential hazards. However, overall a higher number of hazards were identified in the shared space areas, most commonly the unpredictability of other users (both pedestrians and drivers) which caused many participants to feel uneasy and less safe.

3.3.22   In Ashford, the most commonly identified hazards in the shared space areas were: poorly marked zebra crossings which were difficult to see; lack of road markings; lack of signs; pedestrians being more likely to use the road; other drivers apparently not knowing where to go; buses; slippery road surfaces; speed bumps; and bollards.

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3.3.23   In Ashford, participants tended to view the shared space areas as less safe than the control streets, due to the hazards already listed, though this did not necessarily mean they felt unsafe. Some respondents noted that Bank Street was actually quite safe due to it being a one-way street and because people generally drove slower here. However, participants generally felt that traditional roads with demarcation between the carriageway and footway, and designated crossing points were safer for all user types. It was also considered that the shared space areas would be safer if pedestrians crossed at designated crossings.

3.3.24   In Bath, the most commonly identified hazards in the shared space areas were the unpredictability of pedestrians crossing the street; on-street parking and the potential for cars to pull out; the narrowness of the carriageway; bollards; buses; and vehicles loading and unloading. Although some participants did state that they felt unsafe in the shared space areas and felt that clearly defined carriageways and footways are safer, other participants said that the potential hazards meant they were more likely to drive slowly and cautiously which allowed them to feel safer.

3.3.25   In Woking the shared space street was considered safe by some participants because of the slower speed at which vehicles were moving, though others felt it was less safe because of the unpredictability of pedestrians. Drivers also tended to feel safer in quieter streets and streets they were more familiar with.

3.3.26   The one participant in Seven Dials felt that generally lower speeds improved safety.

Preferred Streets

3.3.27   Across the research sites participants were asked which of the streets on the routes their favourite were. Not all participants gave an answer while others listed more than one street. Overall, driver participants were far more likely to name a control street as their favourite street than name a shared space area (n=19 compared with n=3). This was true across all sites, with the exception of Seven Dials where the one driver participant did not answer the question.

3.3.28   Reflecting this finding, most participants were likely to say they felt more at ease, more confident, and found it easier to navigate in control streets. However, if participants were as familiar with the shared space areas as they were with the control streets then they often said they felt the same in all streets.

3.3.29   In Ashford, one participant noted that they felt less at ease on Elwick Road because of the lack of signs and road markings and another said this made navigation more difficult for her; one noted they felt less confident in the shared space because there has never been any explanation of how one should behave in such an area; one participant noted that the shared space area would be easier to navigate if the crossings were more obvious; and, three participants commented that the uncertainty over who has priority made navigation more difficult.

3.3.30   In Bath, the main reasons why participants found control streets easier to navigate and why they felt more at ease and confident on them included the clear demarcation between carriageway and footway; there being less pedestrians in these streets; having wider carriageways; and pedestrians being more likely to cross at designated crossings hence being more predictable. However, one participant commented they felt more at ease on

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Milsom Street, the shared space street, because traffic travelled more slowly and it was mostly a straight road.

3.3.31   In Woking, three of the four participants felt more at ease on the control streets stating that on Chertsey Road, the shared space, there was more pedestrian and vehicle activity, and pedestrian behaviour was less predictable. Participants also felt that the chicanes on the shared space and the fact that it was narrow made it more difficult to drive along. However, one participant said they felt less at ease on the Broadway, a control street, because of the volume of buses pulling in and out of the bus stops.

3.3.32   In Seven Dials the one driver participant commented that she felt more at ease driving on wider roads with fewer people, for example the control street Charing Cross Road.

3.3.33   Despite a clear driver preference for control streets, some conceded that the shared space areas were better for pedestrians.

Junctions

3.3.34   Only the Ashford and Seven Dials routes incorporated a shared space junction and only one driver took part in the research in Seven Dials hence the 'junctions' findings relate predominantly to Ashford.

3.3.35   In Ashford, participants were less certain about who had priority at shared space junctions than they were at traditional junctions and noted that this made them feel less confident and less at ease. At Elwick Square participants thought that all user types assumed priority but that who was actually supposed to have priority was unclear. The pedestrian activity at Elwick Square made participants feel less safe; participants noted that pedestrians walked across the carriageway wherever they liked which made the junction less safe for all concerned.

3.3.36   Participants were more likely to assume that drivers had priority at the Bolt Roundabout, however other vehicles were considered to be more of an issue here than pedestrians; participants noted that other drivers often appeared to not know where they were going.

3.3.37   In Ashford, the majority of participants felt safer at the traditional junctions than at the shared space junctions. Reasons for this were mainly due to the negative aspects of the shared space junctions rather than any positives about the traditional ones, for example it was most common for participants to say driver behaviour was poor at the Bolt Roundabout (eg not indicating); participants were uncertain who had right of way (particularly at Elwick Square); and the lack of road markings and signs at both shared space junctions made navigation difficult.

3.3.38   None of the participants in Ashford reported feeling safer at the shared space junctions compared to the traditional junctions; however a few said they felt equally safe at all junctions. These participants felt safe in the control streets because they understood how to behave in these situations, whereas they felt safe at the shared space junctions either because they happened to be quiet at the time of the accompanied journey or because they tended to adopt a slower speed at these junctions.

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3.3.39   The participant in Seven Dials found one of the traditional junctions more challenging than the shared space junction, however this was due to the high volume of pedestrians in the area; a situation typical of shared space areas.

Encounters

Driver and Pedestrian Encounters

3.3.40   Across all research sites it was most likely in the shared space areas to see driver and pedestrian encounters where the driver said they would give priority to the pedestrian. Participants tended to say they were aware that pedestrians were more likely to cross without the use of a designated crossing point in the shared space and hence this may be why they were more likely to say they would give way. Slower driving speeds appeared to increase the likelihood of drivers' willingness to give way in both the shared space areas and the control streets.

3.3.41   In Ashford, driver participants met pedestrians at various points along the route. Drivers generally assumed they had priority, particularly in the control streets, though sometimes said they would give way to pedestrians anyway. They expected pedestrians to use designated crossing points, preferably at all times, though they were aware that pedestrians were more likely to cross the streets without a designated crossing when in the shared space areas.

3.3.42   Drivers in Ashford were also more aware of pedestrians the closer to the town centre and to the shops they were. When participants expected to see pedestrians they were more prepared for it and hence it did not make them feel unsafe. For example, when approaching designated crossing points participants knew priority was to the pedestrian and said they would behave accordingly.

3.3.43   In both the shared space areas and control areas drivers in Ashford said they would tend to stop or slow down for pedestrians if they walked out into the carriageway. However, some participants felt they are forced to stop for them while others said they choose to or said they drive slowly enough for pedestrians to cross in front of them without causing a problem. While some participants felt unsafe or uncertain in these situations, some were not bothered by it.

3.3.44   In one situation in Ashford, the car had to stop for a pedestrian in the shared space which caused the participant to feel unsafe. The participant said that the pedestrian was not looking and did not make her actions clear to the driver. He blamed this incident on the lack of priorities and lack of pavement, which he felt caused pedestrians to not think before they crossed the street.

3.3.45   In Ashford, the reasons stated for giving way to pedestrians included the fact that the pedestrian was already in the process of crossing (relevant to both the shared space and control streets); participants expected pedestrians to be in the carriageway (relevant to the shared space only); and because pedestrians were considered to be the more vulnerable user. One participant stated that he would have taken priority over a pedestrian in a control street because it was his right of way.

3.3.46   In Bath, none of the drivers were reported as saying they would take priority over pedestrians in the shared space or the control streets. Participants said they would give way

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to pedestrians in both types of street, though more instances of this were noted in the shared space.

3.3.47   Participants in Bath gave the following reasons for why they would give way to pedestrians in the shared space:

- Because the pedestrian crossed on a raised platform/speed table which gives the impression of being a pedestrian area;

- Because it is predominantly a pedestrian area;

- Because the pedestrian had already started to cross the street;

- Out of courtesy;

- Because there were no other cars around; and

- Because the driver believed the pedestrians had communicated their intention to cross (through the action of looking up the street for traffic).

3.3.48   Participants in Bath gave the following reasons for why they would give way to pedestrians in the control streets:

- Because they were already travelling slowly or stopped in traffic;

- Because they would normally slow down for pedestrians;

- Because there was little other traffic around;

- To minimise the risk to the pedestrian; and

- Because they were unable to continue due to on-coming traffic.

3.3.49   In Woking, driver and pedestrian encounters were seen more often in the shared space street than in the control streets. Three participants discussed encounters with pedestrians in the shared space, where the pedestrian had crossed the street in front of the vehicle, and in all situations the vehicle had been travelling slowly enough to enable the pedestrians to do this. One pedestrian encounter was discussed in the control streets where two pedestrians had crossed the street in front of the vehicle. Again in this situation the vehicle was driving slowly, partly because it had just turned into the street and partly because the street had speed humps.

3.3.50   In Seven Dials, at the shared space junction, the participant encountered a pedestrian crossing the centre of the shared space area. The participant felt that if the pedestrian had not been so far into his crossing then he should have waited for the vehicle to pass before crossing.

Driver and Vehicle Encounters

3.3.51   As well as experiencing encounters with pedestrians, drivers across all sites also encountered other vehicles. It was more common in Ashford for participants to have vehicle encounters within the shared space junctions, where driver behaviour was reported as being unpredictable due to lack of road markings and signs. In the other three research sites more vehicles encounters were observed in the control streets, probably, at least for Bath and Woking, due to the shared space areas being one-way. Participants across all sites were more likely to give way to the other vehicles than not, even when they believed the priority to be theirs.

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3.3.52   In Ashford, vehicle encounters were considered a particular problem on the Bolt Roundabout where it was reported as being common for vehicles to pull out onto the roundabout in front of other vehicles. Several vehicle encounters also occurred on Elwick Road, for example in two separate journeys a car was turning into Bank Street from the opposite side of Elwick Road, the participants taking part in these instances felt unsure who had priority and one said she would always give way to other vehicles here because of the uncertainty.

3.3.53   Other reasons for participants saying they would let other vehicles take priority in the shared space areas in Ashford were because they assumed the other vehicle had the right of way and/or the other vehicle was indicating (or signalling in some other way) what they wanted to do. One participant also noted that they would take priority over another vehicle if there was a clear indication from the other driver that they were giving way.

3.3.54   In Bath, there was only one reported instance of a driver taking priority over another vehicle and this was in a control street. The other vehicle was reported to have given way to the participant's car by slowing down and making a slight hand movement. Participants gave way to other vehicles in both the control streets and the shared space streets, however this was more common in the control streets probably because the shared space was one-way traffic and so less encounters were likely. Reasons why participants would give way to other vehicles in the control streets were:

- Because there was limited room to manoeuvre in any other way (eg obstructed/oncoming traffic); and

- Because the other vehicle 'pushed' its way out.

3.3.55   In Woking, vehicle encounters were more common in the control streets than in the shared space. Three vehicle encounters were discussed on the control streets and in all three the participants' car gave way to the other vehicle. In one example the participant was travelling along a two-way street but with lots of parked cars on the opposite side of the road; a learner driver was coming the other way and the participant said because it was a learner driver they would let them go first even though it was not their right of way. In another situation a van was pulling into the road and the participant said that because it was already moving and because of the stereotype associated with 'white van drivers' he would let them take priority. Another participant said they would give priority to a vehicle waiting to turn out of the road she wanted to turn into, even though it was her right of way, because there was limited room available for her to make the manoeuvre. One participant discussed a vehicle encounter in the shared space in which a van was partially blocking the street. The participant noted he would pause to check whether the other vehicle was likely to move before proceeding past it.

3.3.56   In one of the control streets in Seven Dials the participant came across a van reversing into the street from a service entrance. A man was stopping the traffic in the street to allow the van to undertake the manoeuvre. The participant explained that she was able to clearly see the intentions of the van and the man and so she was happy to give way in this situation.

Communication

3.3.57   Across all sites there was limited communication between participants and other users. Any communication was generally very subtle in nature, for example body language was often considered to be a form of communication. In addition, drivers were more likely to give way

to both pedestrians and other vehicles if they were driving slowly at the time and some noted that their act of slowing down or driving slowly was an indication to other users that they were giving way.

3.3.58   In Ashford, the more communication there was between users the safer participants felt during encounters. If pedestrians were observed to be waiting to cross the street and obviously looking for traffic then this seemed to be considered by drivers as a form of communication. Eye-contact was also mentioned; however the clearest form of communication was a wave or other hand gesture. With regards to vehicle encounters, participants considered there to be communication when vehicles indicated.

3.3.59   In Bath, the majority of participants said there was no communication between them and the pedestrians or vehicles they encountered. However, a few participants thought there had been, either through pedestrian body posture (eg standing at the edge of the road and/or looking towards the traffic), eye-contact or one participant noted they would normally flash their car lights to indicate to a pedestrian that they could cross.

3.3.60   In Woking there was very little in the way of communication between drivers and other users. The limited communication there was, was generally visual in nature. It was most common for drivers to say they would slow down as a signal to other users that they were giving way; however no other signals or gestures were made. There was a general view that other users would know what was happening based on the presumption that 'everyone knows vehicles have priority'.

3.3.61   The participant in Seven Dials did not make any specific comments about communication with other users.

3.4   Pedestrians

Streets

Users versus Avoiders

3.4.1   Across all four research sites, 30 pedestrians took part in an accompanied journey. All but one of these participants were familiar with the majority of streets on the routes (including the shared space streets) and regularly used one or more of them. However, approximately one third of the participants also said they would actively avoid a particular street(s).

3.4.2   In Ashford all participants had previously used the majority of the streets on the route, though two stated that they had not used some of the control streets before. When asked which street(s) they had used the most, the majority said they had used Bank Street (one of the shared Space streets) the most. Only three participants said they would avoid a particular street, all of which named a shared space street.

3.4.3   In Bath, all but one participant had walked along all of the streets on the route before. The majority of participants (n=6) used Milsom Street, the shared space, most regularly either for shopping, going out in the evening, going to the bank or getting to the train station. None of the participants said they actively avoided any of the streets on the route. However, some participants did say that they used some less frequently, all of which were control streets.

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3.4.4   In Woking all four participants had previously walked along the streets on the route. However, one participant said they would usually try to avoid one of the control streets due to it having what he perceived to be the worst crossing point and one participant said she would usually try to avoid Chertsey Road (the shared space), however this was due to smokers outside a pub rather than because of any of the shared space features.

3.4.5   In Seven Dials, five pedestrians took part in the research, all of which had previously used the majority of the streets on the route. Two participants said they did not avoid any of the streets on the route, two said they tended to avoid the Charing Cross Road area (a control area) due to it being a particularly busy area, and one said she would avoid Lisle Street (a shared space street), however this was due to roadworks rather than because of any specific shared space features.

The intended use of the streets

3.4.6   Across the research sites, it was most common for participants to view control streets as 'cut-throughs' or main thoroughfares into and out of town. However, there was less consistency across sites in terms of what participants considered the purpose of the shared space areas to be.

3.4.7   In Ashford the shared space streets were considered to be main routes in and out of town, both for buses and other vehicles. In addition it was noted that buses and taxis pick up and drop off in the shared space. The majority of participants said the control streets on the route were not streets you would visit, but merely pass through to get to other places. Participants expected to see all types of user in both the shared space areas and in the control streets.

3.4.8   In Bath participants tended to view the control streets as 'cut-throughs' that one can use to get to other places in town, particularly Queen Street (a control street) for pedestrians because at one end there are bollards to prevent vehicles from getting through. It was also noted that one might visit hotels, pubs and shops on the control streets.

3.4.9   The types of user participants expected to see on the control streets varied. On Quiet Street participants thought you would see pedestrians, both shoppers and business people, and commercial and delivery vehicles. Queen Street was thought to be a particularly quiet street both in terms of pedestrians and vehicles mainly because it is a small one way street and slightly out of the way, although it was thought that pedestrians were more predominant than cars here, for example diners and tourists. It was thought that you might also see delivery vehicles in Queen Street. Upper Borough Walls is also a narrow one-way street which was considered to be quite quiet, although several participants commented that you may expect to see Lorries and trading/delivery vehicles, recycling trucks and dust carts here as well as pedestrians and some cars. Hospital traffic, both emergency vehicles and cars dropping people off, was also mentioned. It was noted that there were no buses or bus stops in the control streets, with the exception of Northgate Street.

3.4.10   The shared space in Bath, Milsom Street, was considered to be a shopping street. The vast majority of participants said that you would find both pedestrians and vehicles in Milsom Street, and most of these said there were more pedestrians than vehicles, particularly at the weekend. As well as cars, participants said you would find buses in Milsom Street (the park and ride service was mentioned by several respondents), vans, Lorries and taxis.

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"Pretty much covers every range of road user." (Male, 35-54).

3.4.11   The Broadway in Woking, one of the control streets, was generally considered to be a thoroughfare for people accessing bus stops and the train station. One of the more minor control streets was said by one participant to be a 'cut-through'. All types of users were expected to be seen in these streets from pedestrians and cyclists to cars and buses. Chertsey Road, the shared space, was thought to be a route in and out of town, though it was also noted that there were fast food places and pubs here which people would be visiting and delivery vehicles would be delivering to. All participants said they would expect to see pedestrians in this street, and cars and cyclists were also expected to be seen here.

3.4.12   In Seven Dials, participants did not tend to comment on the purpose of the streets and the types of users they would expect to see. However, three of the five participants noted that the control streets were link roads providing access and through routes and it was also noted that vehicles in general were expected in these streets.

Pedestrians' awareness of and communication with other users

3.4.13   Across all the sites pedestrian awareness of other users was low while walking along the street, particularly on the control streets, and there was no communication between participants and other users. However, when making a crossing, in both the shared space and control streets, participants were looking out for traffic and some forms of communication were observed.

3.4.14   In Ashford several participants said they were unaware of other users while walking along the control streets and others said they were somewhat aware but were not paying a great deal of attention. It was also more common for participants to say they were aware of pedestrians than vehicles in the control streets. However, in the shared space areas it was more common for participants to say they were aware of both pedestrians and vehicles. When crossing both the shared space and the control streets the majority of participants reported that they were actively looking at the road and all around for vehicles.

3.4.15   In Bath, both in the control streets and shared space, participants' awareness of other users whilst walking along footways tended to be minimal. Participants reported looking in shop windows and being unaware of other users.

"When I walk I'm in my own world." (Female, 16-34).

3.4.16   Although explicit awareness of other users in the carriageway was minimal, several participants thought that they would be alerted to them by sound if something was coming and so didn't need to look or be constantly aware.

"If I'm alerted by some kind of loud engine or if I know that there's a fast vehicle coming along. But usually when I'm on the pavement, as long as I know I'm safe from most cars going past as long as there's not a crash, then I usually don't pay that much attention." (Male, 16-34).

3.4.17   One participant commented that the growing use of electric cars is somewhat worrying due to the reliance people currently place on hearing.

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3.4.18   Participants were asked whether they were more or less aware of other user activity in the carriageway when on a kerbed footway (as in Queen Street and Quiet Street) or when there is a level surface (as in the shared space). Responses to this varied with some participants feeling that the wider footways and/or bollards in the shared space helped make them feel safer and hence less need to be aware of activity in the carriageway. Another participant felt that the a level surface meant you needed to be more aware of activity in the carriageway because there was no distinct line between the area for pedestrians and area for vehicles.

"I'm more aware of cars on pavements that are like flat because it's harder to know where the road starts." (Female, 16-34).

3.4.19   The primary reason for lack of awareness in the control streets in Bath was because participants felt that the streets were generally very quiet so there was no need to be alert.

3.4.20   In Woking pedestrians reported not being consciously aware of road users whilst walking along both the shared space street and the control streets. Only when crossing or stepping into the carriageway did pedestrians take an active interest in what road users were doing. Interestingly, it was noted that participants were more likely to step into the carriageway in the shared space to avoid other pedestrians than they were in the control streets.

3.4.21   In Seven Dials participants were generally unaware of other users while walking along the control streets; however one participant had to walk in the carriageway for a short while due to the volume of pedestrians in the area and was then aware of the potential for on-coming vehicles. Participants were more likely to be aware of other users when walking through the shared space areas and at any point on the route where they needed to cross the street.

Positioning in the street and assumed priority

3.4.22   Across all four sites all participants felt that vehicles had priority in the control streets and the majority of them walked on pavements, keeping a fairly central path or walking towards the outer edge if there were lots of pedestrians. In the shared space areas there were mixed views as to who had priority, though overall most thought that vehicles did. Participants tended to walk along footways marked by bollards in the shared space areas or, where no bollards were present, to the side of the carriageway where one would traditionally find a pavement. However there were variations to this, for example more participants walked in the carriageway in the control streets in Bath than did so at any of the other sites. This was primarily due to the pavements in Bath being narrow and the streets being perceived as quiet with low traffic flow.

3.4.23   On the control streets in Ashford, almost all participants walked on the pavements at all times. This was because they assumed vehicles had priority in the carriageway and therefore it was safer to be separated from them.

3.4.24   Although pavements were not available in the shared space areas in Ashford, the majority of participants tended to walk to one side of the carriageway in a position where one might normally expect to find a pavement; in Bank Street this was more obvious as participants tended to walk behind the bollards situated along the edge of the carriageway. In Elwick Square one participant walked around the perimeter to avoid vehicles that could potentially be making U-Turns or undertaking other unpredictable maneuvers and two participants said they would always walk parallel to the line of the traffic.

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3.4.25   Approximately half of the participants in Ashford assumed that vehicles had priority in the shared space while the others thought it should either be shared or pedestrians should have priority however they would not assume this and would wait to see what the vehicles were doing before attempting to cross the streets.

3.4.26   In Bath, it was more likely for participants to walk in the carriageway in the control streets than it was in the shared space. This was because the majority of the control streets were quieter (in terms of the level and speed of traffic) and footways were narrow, making it easier to walk in the carriageway or meaning participants had to step into the highway to avoid other pedestrians. However, when asked who had priority in the control streets, participants tended to feel that vehicles did.

"[Vehicles have priority] because there's no like zebra crossing or anything like that, but I find that people stop on that highway when I cross it, they slow down." (Female, 16-34).

3.4.27   Despite assuming priority was to vehicles, participants in Bath tended to feel safe walking in the carriageway in the control streets because they knew from experience they were fairly quiet streets. Participants showed little caution when walking in the carriageway seemingly due to a belief that they would hear if there was a vehicle coming.

3.4.28   Along the shared space in Bath the majority of participants walked fairly centrally through the footway. This was generally because the footways are wide and so people felt there was enough space for them to do this. A few participants however, walked close to the bollards on the edge of the footway to avoid other pedestrians. Most participants mentioned that they always tried to keep out of other pedestrians' way. Participants did not walk along the carriageway in Milsom Street, other than when crossing it.

3.4.29   There were mixed feelings among the nine participants in Bath as to who has priority in the shared space. Most felt that vehicles had priority; primarily this was because of their experience of the area and their perception that cars tended to travel too fast here and did not tend to stop for pedestrians. However, one participant felt that priority was probably shared and two felt that pedestrians have priority.

3.4.30   Participants in Woking walked along the pavements in the control streets and walked on the footway in the shared space, behind the bollards marking the edge of the carriageway. They tended to walk centrally on the path but sometimes moved to the outer edge to avoid other users. Participants tended to consider the footway in the shared space street to be fairly narrow yet often busy and hence at times they stepped into the carriageway to pass other pedestrians. When asked if they would be as likely to do this in one of the control streets they said no. Despite participants being more likely to walk in the carriage way in the shared space than in the control streets, all participants considered priority to be to drivers in both street types.

3.4.31   In Seven Dials there were mixed views as to who had priority in the shared space areas. In some sections participants felt that vehicles had priority and in others participants were unsure or thought pedestrians had priority. Participants often had to step into the carriageway due to the footways being very busy with other pedestrians or due to other obstacles, however they tended to feel safe doing this due to the paving being cobbled and giving the area a 'pedestrian feel'. In Lisle street (a shared space street) two participants kept within the bollards away from the main carriageway.

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3.4.32   In the control streets around Seven Dials participants walked on the pavement, unless as in the shared space areas there was not enough room in which case they would step into the carriageway. Vehicles were assumed to have priority here.

Hazards and Safety

3.4.33   Hazards were identified across all the sites in both the control streets and the shared space areas. However, just because participants identified hazards did not necessarily mean they felt unsafe in these streets. Participants in Ashford were more likely than participants elsewhere to feel unsafe due to the hazards they identified.

3.4.34   In Elwick Square in Ashford (a shared space) many participants considered the entire shared surface to be hazardous mainly due to the lack of road markings and signs which they felt caused confusion for drivers and thus resulted in poor driving. Some participants also felt that drivers drove too quickly across this area and, combined with the poor lighting and poorly marked crossings, made the area dangerous for pedestrians. However, one participant noted he felt safe because road users had to be more aware whilst traveling through this area.

3.4.35   The key hazards identified in Bank Street, another shared space area in Ashford, were the volume of buses and parked cars in the street.

3.4.36   In the control streets in Ashford, participants were more likely to say there were no hazards and that they felt safe. However one participant did note that parked cars could be a problem.

3.4.37   In Bath participants identified a number of hazards in the control streets such as narrow footways, shop boards, two-way traffic and even themselves when they were walking in the carriageway. The majority of the streets on the route were actually one-way and therefore Quiet Street and Northgate Street, the only two-way streets on the route, stood out to participants as being marginally more hazardous for pedestrians.

3.4.38   In the shared space in Bath some participants felt that there were no hazards while others considered the following to be hazardous:

- Bollards;
- Shop boards and lampposts;
- A level surface between the footway and highway;
- The width of the footway;
- There being no official crossing place;
- The speed of traffic;
- Congestion; and
- Pedestrians thinking they have priority.

3.4.39   When asked specifically about their safety in the streets on the route, participants in Bath tended to feel fairly safe on all streets on the route. However, various factors could increase and decrease the extent to which they felt safe, for example the level and speed of traffic;

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quiet streets with slower moving traffic made participants feel safer than busy streets with fast flowing traffic; the more parked cars the less safe participants felt, either because participants could not see around them or because there was uncertainty about whether they might pull away or a door might open into the footway; the better lit a street was the safer participants tended to feel on it; familiarity with the streets and previous experiences on them were also a factor; some participants felt safer with bollards marking the edge of the footway as they felt as though they provided a safety barrier, while others thought they offered a false sense of security; and some participants felt safer on the narrower footways in the control streets because the raised kerbs provide a clear boundary between the highway and the footway while other participants felt safer in the shared space with no kerb because the footways were so much wider they felt as though they had a safer distance between themselves and the traffic.

3.4.40   Participants in Woking identified a number of hazards in both the control streets and the shared space; however participants felt the hazards in the shared space were less severe than those identified in the control streets. For example, in the shared space the flower bed chicanes, parked cars and A-boards were an annoyance when crossing the road or if the footway was busy with other pedestrians, whereas in the Broadway (one of the control streets) participants felt they needed to be particularly aware of buses pulling in and out of the bus stops. Parked cars obscuring participants' view, the taxi rank, and the fact that the Broadway was quite a busy street were also considered as hazards.

3.4.41   More hazards were pointed out in the shared space areas of Seven Dials than in the control streets. However, in both street types parked cars were the most frequently cited hazard. Within the shared space areas other hazards included the lack of distinction between the carriageway and footway, side streets, lampposts and a lack of designated crossing points.

Preferred Streets

3.4.42   Participants across all four sites were asked what their favourite street on the route was. Not all participants gave an answer while others listed more than one street. Across the sites a higher number of pedestrian participants preferred a shared space street to a control street (n=15 compared with n=9). When looking at each site individually we see this remains true across all sites except for Ashford where a higher number of participants named a control street as their preferred street than named a shared space street.

3.4.43   Feeling confident, at ease and finding a street easy to navigate all led to participants liking a particular street. Aesthetics were also important for some people, but practicality and safety tended to outweigh this.

3.4.44   In Ashford, participants generally disliked the shared space areas, stating in particular that they disliked the lack of defined areas for pedestrians and vehicles, the lack of road markings, the poorly marked crossing points and, specific to Bank Street, the parked cars. However two participants did comment that they liked the feeling of space that Elwick Square provided and one noted they liked the wide pavements in Bank Street.

3.4.45   As mentioned, participants in Ashford were more likely to say they preferred a control street than to say they preferred a shared space area. It was most common for participants to say they liked the control streets because they were quiet due to less traffic, they had good

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paving (two participants specifically commented on the block paving in one street), the pavements were wide and the streets were clean.

3.4.46   In Bath participants tended to feel fairly confident and at ease on all streets on the route and felt that all streets tended to be just as easy to navigate. In terms of the aesthetics of streets on the route, both the shared space and some of the control streets were thought to be aesthetically pleasing which was important for people here. For example, several participants liked the fact that Queen Street (one of the control streets) was cobbled and had a decorative arch to walk under, while one participant commented that they did not tend to walk along Upper Borough Walls because there was not much to look at. The aesthetics of Milsom Street (the shared space) were also given as reasons why participants liked this street, for example the way the highway and footway look like one, the open communal realm that has been created by the use of wide footways and benches, and the space available for entertainment.

"It's a road but it doesn't really look like a road…I think that's the best thing that's ever been done in Bath." (Male, 55+)

3.4.47   However, practicality was also a factor and although some participants in Bath had liked the aesthetics of Queen Street, it was also noted that the cobbles could be difficult to walk on, it was impractical for wheel chairs, and the style of the street meant it only had very narrow footways. Wider footways were preferred by all participants.

3.4.48   In Woking, three of the four participants preferred the shared space to the control streets. Participants preferred the shared space due to a number of reasons such as it having a more 'pedestrian feel', because of the aesthetics of the street, feeling more at ease here (either because the bollards offered a barrier from cars or because it was a one-way street), lower traffic flow and reduced speed of traffic. The participant who preferred a control street preferred Locke Way because it is a particularly quiet one-way street.

3.4.49   In Seven Dials three of the pedestrians preferred the shared space to the control streets, one preferred the control streets and one did not state.

Suggested Improvements

3.4.50   Participants across Ashford, Bath and Woking suggested ways they thought the streets on the routes could be improved. In Bath and Woking participants made suggestions for improvements in both the control streets and shared space areas, while in Ashford participants only put forward suggestions for the shared space. It was most common for participants to want clearly defined and separate areas for pedestrians and drivers, wider footways and either more or improved crossing points.

3.4.51   In Ashford, participants only made suggestions for improvements in the shared space areas, most commonly that there should be a clear distinction between areas for pedestrians and areas for vehicles. Other suggested improvements included improving the pedestrian crossings (either by making them clearer, putting in official crossings or putting signs up to warn drivers), having more road markings, and putting signs up to indicate who has right of way.

3.4.52   In Bath participants made some suggestions for improvements in both the control streets and the shared space. Improvements suggested for the control streets included making

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footways wider; better maintenance of footways; putting drop kerbs in; removing shop boards from the footways; and making Quiet Street one-way.

3.4.53   Improvements suggested for the shared space in Bath included slowing the traffic down; make the footways even wider; inserting an official crossing; and putting a sign up to alert drivers to pedestrians crossing.

3.4.54   Participants in Woking suggested a few improvements for both the control streets and the shared space. Two participants thought the Broadway needed another designated crossing point and one participant thought the pavement needed to be wider to allow more room for pedestrians to get past people waiting at the bus stops. Suggested improvements for the shared space were wider pavements, removing A-Boards and removing the chicanes.

3.4.55   Participants in Seven Dials did not offer any suggestions for improvements.

Crossing the street

Positioning in the street and assumed priority

3.4.56   Across the sites participants either crossed the streets at an angle perpendicular to the carriageway or diagonally in the direction of the route they were traveling. The most common reason for crossing at an angle perpendicular to the carriageway was to get across the street as quickly as possible, whereas the most common reason for crossing it diagonally was because it was more direct for where they wanted to get to. The volume and speed of traffic and the level of visibility seemed to be the factors most likely to determine how participants crossed, hence because of the differences across the sites participant behaviour was not consistent in each street type.

3.4.57   In Ashford, participants tended to cross the shared space areas in a straight line perpendicular to the carriageway. Participants explained that they chose to cross in such a way so as to cross the carriageway as quickly as possible. In the control streets some participants also crossed in the same way and for the same reason; however others crossed at a diagonal either stating that this was because the street had little traffic on it at the time, or because they felt a diagonal crossing was the quickest option.

3.4.58   In both the control streets and shared space, most participants in Ashford felt that vehicles had priority and even those who were less certain said they would never assume they had priority. All participants would therefore look up and down the street before crossing. Most stopped at the side of the road and waited for a gap in the traffic or for a vehicle to slow down or stop to let them cross.

3.4.59   In Bath most participants tended to walk at a diagonal across all the streets they crossed, if not completely then at least across the second half of the carriageway. The most common reason for this was it was the quickest route across and meant they got to their destination faster because they continued to walk in the direction they were traveling. In addition, some participants thought it was safer crossing at a diagonal as it gave them a better line of vision. Crossing at a diagonal was more common when there was less traffic around; some participants were observed crossing straight over, but this was usually because the level of traffic was higher and therefore they needed to cross as quickly as possible.

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"I always go in the direction just to make it quicker I always go in the direction I'm going in if you see what I mean." (Female, 35-54);

"So I could see every road, if I would have gone down further and crossed straight over I wouldn't have been able to look behind me to the left, I think at that angle I've probably got all the roads in my sight." (Male, 16-34).

"Cars come from Green Street opposite, down Milsom Street, and behind you so the safest way is to get across that highway quickly." (Male, 35-54).

3.4.60   Reasons for slowing down and stopping before crossing streets in Bath were the same for the control streets and the shared space. Participants slowed down and/or stopped before crossing so that they could look and check no vehicles were coming and make sure it was safe, particularly if there were multiple streets to consider, or because they heard a vehicle coming. Slowing down also helped participants to better judge the speed of oncoming vehicles. Participants who continued to walk at the same pace before and whilst crossing tended to say this was because they had good visibility and a turn of the head was enough to make sure there was nothing coming.

3.4.61   When participants crossed the control streets in Bath they generally felt that vehicles had priority, with the exception of crossing at the junction of Northgate Street and New Bond Street where participants felt that the lights at the pedestrian crossing indicate who has priority. Two participants who crossed at the pedestrian crossing at the end of New Bond Street stopped to wait for a green man but then crossed before the green man appeared. When asked why this was they responded that they had checked and nothing was coming and so they had crossed anyway.

3.4.62   Priority in Milsom Street (the shared space) was not as clear cut for all participants. Some participants would initially say either pedestrians or vehicles had priority and then later they would say the opposite. For example, two participants originally said that they thought pedestrians had priority, yet they stopped to wait for cars to pass before crossing the street.

"Well I take it as it comes, I mean no way would I step out in front of a car, I wouldn't risk it." (Male, 55+)

3.4.63   In Locke Way, a control street in Woking, the participants all crossed the street in slightly different ways, some choosing to cross at a drop kerb and others not, and some crossing perpendicular to the carriageway and others crossing at a diagonal in the direction of travel. However in the Broadway, another control street, they all crossed at the same traffic island edging out behind the parked cars, crossing in a straight line to the island, and then crossing at a diagonal across the second half of the carriageway in the direction of travel. It is likely that the parked cars in the Broadway and the fact that it is a busier street (both in terms of the volume and speed of traffic) heavily influenced the participants' behaviour here, whereas the fact that Locke Way was a much quieter, one-way street allowed participants to make a less restricted crossing, and none of the participants stopped before crossing Lock Way because they had clear visibility all around. In both these streets participants assumed drivers had priority.

3.4.64   In the shared space in Woking all participants crossed the street early on and at a diagonal. It was most common for participants to say they knew they needed to get across the street and it was therefore easier to do it early so that they could avoid a side street further up.

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The reasons given for crossing at a diagonal were that it was the most direct route and also in order to get around the chicanes. Participants looked to see if any cars were coming before crossing but in each accompanied journey there was no traffic and so participants crossed without stopping. It was noted that if there had been a vehicle then participants would have let it pass before crossing. Although they assumed priority was to vehicles, two participants did note it was less strict here due to the reduced volume and speed of traffic.

3.4.65   There is limited information from the participants in Seven Dials about their position while crossing streets and who they assumed had priority. In the control streets participants tended to cross at designated points, either where there was a traffic island or at traffic lights.

Pedestrians' awareness of and communication with other users

3.4.66   Across all sites there was limited communication between participants and other users and it was most common for participants to assume that standing on the edge of the carriageway looking at the traffic was communication enough for drivers to understand that they were waiting to cross the street. Ashford was the only site where any participants felt that drivers had tried to communicate with them.

3.4.67   Participants in Ashford did not generally feel that they communicated with drivers other than by showing an intention to cross the street by standing on the edge of the carriageway and looking towards the traffic, or in some cases putting a hand out as a thank you gesture when a car let them cross. They did not think that drivers particularly tried to communicate with them either, other than when a driver flashed their car head lights as a signal that they were giving way or, if a car was slowing down or stopping this was also assumed to mean they were giving way. One participant also noted some drivers make hand gestures to indicate they are giving way. No differences in the communication between participants and other users were noted between the control streets and shared space areas.

3.4.68   In Bath participants tended to look one or both ways before making and while making a crossing and so were aware of any vehicles that were near by. This was true in both the control streets and the shared space. Participants tended to turn their head slightly or look back to check for vehicles and to ensure nothing was obstructing their way and they were not going to obstruct anyone else's way. Participants also tended to rely on their hearing.

"I was checking to see if the car was letting me cross." (Female, 16-34).

3.4.69   None of the participants in Bath made any conscious communication with other users on the control streets or the shared space, although two thought that their body language when waiting to cross probably communicated to vehicles that this is what they were going to do and another participant said that eye-contact was important, but when asked if she'd made eye-contact with the driver of the car that was passing she said she had only had eye contact with the car.

"I think my body language showed that I was waiting to cross the road." (Male, 35-54).

"I think you use eye contact a lot...no just with the van!" (Female, 35-54).

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3.4.70 None of the participants in Bath thought other users had tried to communicate with them and generally participants did not think that vehicles were aware of them before and during their crossing.

3.4.71 Participants in Woking actively looked for vehicles before making crossings both in the control streets and the shared space. However, with the exception of stopping and waiting at the edge of the road and clearly looking in the direction of any approaching vehicles, they said they did not communicate with other users and did not observe any other users attempting to communicate with them.

3.4.72 There is limited information from the participants in Seven Dials about their awareness of and communication with other users. In the shared space one participant came to cross a side road and a taxi was indicating to turn and so she waited to see what the taxi would do before proceeding. In the control streets participants seemed to be more aware of other users than they had been in the shared space which is likely due to the control streets generally having higher volumes of traffic.

Preferred Crossing Points

3.4.73 Across the sites participants tended to prefer crossing one-way streets with low traffic flow and slower moving vehicles, therefore due to the differences across the sites participants at some sites preferred crossing the control streets (eg in Ashford) while participants at other sites preferred crossing the shared space (eg in Woking). In addition, across all sites, if participants had to cross a particularly busy street (ie ones with higher volumes of traffic) then they tended to prefer to cross at a controlled crossing.

3.4.74 In Ashford, participants tended to prefer crossing the control streets than the shared space areas, particularly Elwick Square where most participants felt less safe. When participants were required to cross the shared space areas they would usually try to find a marked crossing and several walked further than they needed to along Elwick Road to reach the signal controlled crossings. Participants did not cross through the centre of Elwick Square as it was considered too wide to be able to quickly get across and vehicles were considered to be too unpredictable to enable a safe crossing. The control streets were generally preferred because they were quieter with less traffic making them easier to cross and participants felt safe crossing them.

3.4.75 In Bath participants generally felt it was just as easy to cross any of the streets on the route. However, two participants did note that, although it wasn't difficult, it could be more tricky crossing a two-way street like Quiet Street (one of the controls streets) because you have to watch out for traffic in both directions.

3.4.76 Factors affecting how safe participants felt crossing the streets in Bath included previous experience, availability of an official pedestrian crossing, field of vision, and the level and direction of traffic. However, no participants had felt particularly unsafe on any of the streets they crossed, and there was little difference between experiences in the shared space and in the control streets; some felt slightly less safe crossing the control streets, some felt slightly less safe crossing the shared space and some felt no different.

"*I felt perfectly safe at all of the crossings.*" (Female, 35-54).

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3.4.77   Participants in Woking did not feel unsafe at any of the crossings they made during the accompanied journey. However, they tended to identify the Broadway as the least safe crossing due to it being a busier street with two-way traffic and faster moving vehicles and because of buses pulling in and out of the bus stops on one side of the street and parked cars obscuring vision on the opposite side. One way streets with less traffic and lower speed limits (like the shared space street, but also like Locke Way) were thought to be easier and safer to cross. It was noted that the chicanes in the shared space street slow the traffic down, however they also made it slightly less easy to navigate across the street.

3.4.78   There is limited information from the participants in Seven Dials about their preferred crossing points and where they felt safest crossing. However, participants generally did not feel unsafe anywhere.

Encounters

Pedestrians' awareness of and communication with other users

3.4.79   Across the sites the majority of encounters were either with vehicles when crossing the street or with other pedestrians while walking along the footway. In both these scenarios participants tended to be aware of the user they were encountering but were not aware of other types of user in the area. As previously mentioned there was limited communication between participants and other users across all four sites.

3.4.80   In Ashford, the only pedestrian and vehicle encounters were those which occurred while participants were waiting to cross the streets. Participants' awareness of vehicles in these situations and the communication they had with them are covered in sections 3.4.66 to 3.4.72.

3.4.81   However, participants in Ashford were particularly aware of other pedestrians in the shared space areas and often commented on where other pedestrians were choosing to cross Elwick Square. In one example, a participant met another pedestrian and gave way to her, letting her pass her by before proceeding, because the participant felt that the other pedestrian was in a more vulnerable position having just crossed the street and not yet making it to the far side.

3.4.82   In Bath participants were more likely to be aware of other pedestrians on the footways than other users in the highways. Participants relied on sight and hearing to alert them to other users and, as far as they could tell, at no point did any other users try to communicate with them. Despite the lack of communication, some participants still thought that the other users they met along the route were aware of them.

3.4.83   The only actions observed during the accompanied journeys in Bath that could possibly be considered as communication were a driver looking in the participants' direction; participants being clearly visible therefore difficult for other users to miss; and a vehicle starting its engine.

"Not consciously anyway." (Male 35-54);

"I'm quite out in the open they should be able to see me." (Male, 16-34); and

"I have to say I didn't look at the driver I was just looking at the car." (Female 35-54).

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3.4.84   The only vehicle encounters participants in Woking had were when crossing the Broadway, one of the control streets. Participants were actively looking out for vehicles when making their crossing and so were aware of any approaching vehicles. Where participants had to wait for a vehicle(s) to pass before crossing the street they said there was no communication other than them waiting at the edge of the carriageway which indicates a desire to cross.

3.4.85   During some of the participants' journeys vehicles did pass them by while they were walking along Chertsey Road but participants were not paying them any attention or communicating with them in any way.

3.4.86   In Seven Dials, in both the shared space areas and control streets, it was more common for participants to experience encounters with other pedestrians than with vehicles. They would often step into the carriageway to get around them and although they would be aware to watch out for vehicles coming towards them they did not tend to be too bothered or feel particularly unsafe. In one situation a participant commented that they had to stop in the footway for another participant because there was already a car passing by in the carriageway.

Who has priority?

3.4.87   As previously discussed, most participants across all the research sites assumed priority was to vehicles in the control streets and in the shared space areas. However, this tended to be less certain in the shared spaces.

3.4.88   In Ashford participants tended to think that vehicles had priority in both the control streets and the shared space areas.

3.4.89   In Bath participants tended to think that the vehicles they met on the route had priority over them. Even if a participant recognized the shared space as equal priority they still felt cars generally had priority in the end because that was how they behaved and so pedestrians had to react accordingly. Generally, all participants felt that all users they met along the route behaved in the way they would expect, even if this was not the way they would like them to behave.

"I have to defer to the weight and danger of the car but it should be [equal priority]." (Male 35-54)

"If traffic's traveling at that speed then they're not going to lose any time by letting a pedestrian cross the road." (Male 35-54)

3.4.90   Participants in Woking assumed that vehicles had priority at all times, although felt that this rule was slightly more relaxed in the shared space street due to its 'pedestrian feel'.

3.4.91   Due to the majority of encounters in Seven Dials being with other pedestrians there is limited information from the participants about who they assumed had priority. In one situation a participant commented that the other pedestrian had priority because they were on the building side of the footway.

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The certainty and safety of the encounter

3.4.92   Across the sites familiarity and predictability were important factors in creating a sense of certainty and feeling of safety for participants. This was particularly key in Ashford where participants felt that the untraditional crossing points in the shared space meant there were no clear rules of how one should behave and thus driver behaviour was unpredictable. The level, type and speed of traffic were also factors, particularly for participants in Bath.

3.4.93   In the shared space areas in Ashford, participants tended to be particularly uncertain about what drivers were likely to do; as previously mentioned, a number of participants said that they had in the past observed vehicles making unexpected maneuvers within Elwick Square such as U-Turns and using the lamppost as a roundabout. The perceived unpredictability of driver behaviour meant participants felt less safe here. In addition, because the marked crossings were not traditional black and white zebra crossings participants tended to be unsure whether drivers would recognise them as such and hence they tended to be particularly cautious when crossing at them.

3.4.94   In Bath the main factors that seemed to make people feel more or less sure about what to do during an encounter, or what other users were going to do, were the level, type and speed of traffic. Most of the control streets were fairly quite in terms of traffic flow so it was less of an issue here and at quieter times in the shared space participants felt sure of the situation because there was plenty of space allowing them more room for maneuver if there were any problems/obstacles to negotiate. However, other participants felt less sure of what to do in the shared space because of the speed of traffic at the time they undertook their journeys and the uncertainty over whether the traffic would slow down or stop for them.

3.4.95   In Bath participants' feelings of how safe they were in each street varied slightly depending on the traffic that was passing them; the speed of the traffic in the highway; whether they were in a one-way street or not; the width of the footway; and the type of barrier between them and the highway. There was little difference between feelings of safety in the control streets and the shared space; differences were more likely due to individual preference than features of the streets, with the exception of the narrow footways in the control streets. However, the speed of traffic did tend to be more of an issue in the shared space; participants generally felt traffic moved too quickly down Milsom Street.

"I felt fairly safe because of the bollards, I mean there is a distinctive line between road and pavement, I felt secure in where I stood…cars can't get to me there." (Male, 35-54); and

"I think I always feel safer in a one-way street…but I feel much more confident about crossing in a one-way street because you're really only concentrating in one direction aren't you?" (Female, 35-54)

3.4.96   Participants in Woking did not feel unsafe at any point on the route. However, they tended to feel particularly safe and more certain when in a familiar situation or on a street they used most often. In addition, one participant commented that they felt very certain when crossing at a pelican crossing because it was felt that all users know how to behave in such a situation and will follow the rules of the road.

3.4.97   Due to the majority of encounters in Seven Dials being with other pedestrians there is limited information from the participants about how certain and safe they had felt during the encounters.

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3.5   Similarities and differences across user types

3.5.1   The majority of all driver and pedestrian participants were familiar with most, if not all, of the streets on the routes. However, nearly half of the participants said they would often try to avoid a particular street(s). Drivers were more likely than pedestrians to say they would avoid a street and were most likely to say they would avoid a shared space street, often due to the volume of pedestrians in the street. There was less consistency in the type of streets pedestrians avoided with some stating control streets and others stating shared space streets, however all three pedestrians in Ashford who said they would avoid a street said they would avoid the shared space.

3.5.2   Generally, all participants assumed priority in the control streets was to drivers. However, there was less certainty as to who had priority in the shared space areas. Driver participants expected pedestrians to cross control streets at designated crossings and said they would hope they would do so in the shared space streets as well, although they were aware that this was less likely here. Approximately half of the drivers assumed they had priority in the shared space streets. Pedestrian participants were most likely to assume drivers had priority in the shared space, often due to their previous experience of how vehicles behaved here (e.g. driving too fast), however even when they thought priority should be shared or to the pedestrian it was common for them to say they would not assume this was the case and instead would always wait to check what vehicles were doing before proceeding.

3.5.3   Pedestrians tended to prefer one-way streets with wide pavements, low traffic flow and low vehicle speeds. Aesthetics were also important but tended to be outweighed by practicality and safety factors. Overall a higher number of pedestrians named a shared space street as their favourite street on the route than named a control street (n=15 compared with n=9). Drivers, on the other hand, were more likely to name a control street than a shared space street as their favourite on the route (n=19 compared with n=3). This was generally to do with perceived hazards in the shared space rather than them identifying positive aspects of the control streets. For example it was common for drivers to say they preferred the control streets because the shared space streets lacked clearly defined areas for pedestrians and vehicles, there were higher volumes of pedestrians in the shared space and user behaviour was less predictable in the shared space.

3.5.4   Hazards were identified by drivers and pedestrian participants in the control streets and the shared space streets. However, just because participants identified hazards did not necessarily mean they felt unsafe. Drivers were more likely to identify hazards in the shared space streets than in the control streets and it was most common for them to say the unpredictability of other users was a hazard. Pedestrians in Bath and Woking were more likely to identify hazards in the control streets and considered these more dangerous than any hazards they identified in the shared space streets (eg two-way streets with higher traffic flows), whereas pedestrians in Ashford and Seven Dials were more likely to identify hazards in the shared space and considered these to be more dangerous than any they identified in the control streets (eg a lack of designated crossing points or poorly marked crossing points).

3.5.5   Drivers tended to be aware of other users in the street at all times, whereas pedestrians tended to only pay attention to other users when crossing the street. Communication between users was generally therefore limited to instances where pedestrians crossed the street, and even then very little communication was observed. However, both user types

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considered pedestrians waiting at the side of the carriageway looking towards the traffic to be a signal to vehicles that the pedestrian was waiting to cross, and both user types considered vehicles slowing down and/or stopping to be a signal to pedestrians that the vehicles were giving way. Other forms of communication identified were eye-contact, hand gestures, drivers flashing their headlights and drivers using their indicator lights. However, no clear observations of direct eye-contact were observed during the accompanied journeys and very few instances of these other behaviours were observed.

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4 Findings: Disabled Users Overall

4.1 Introduction

4.1.1 This chapter provides profile information about the participants who took part in the 'Disabled People in Shared Space' and 'Legibility in Shared Space' research components, and information about the routes used for the accompanied journeys.

4.2 Profile of Participants

4.2.1 In order to ensure we got the most data out of the research, all 44 disabled participants that were recruited took part in both the 'Disabled People in Shared Space' and the 'Legibility in Shared Space' research components.

4.2.2 All participants were independently mobile; 25 were female and 19 were male; 20 were visually impaired, 10 were mobility impaired, nine had learning difficulties and five were either deaf or hard of hearing.
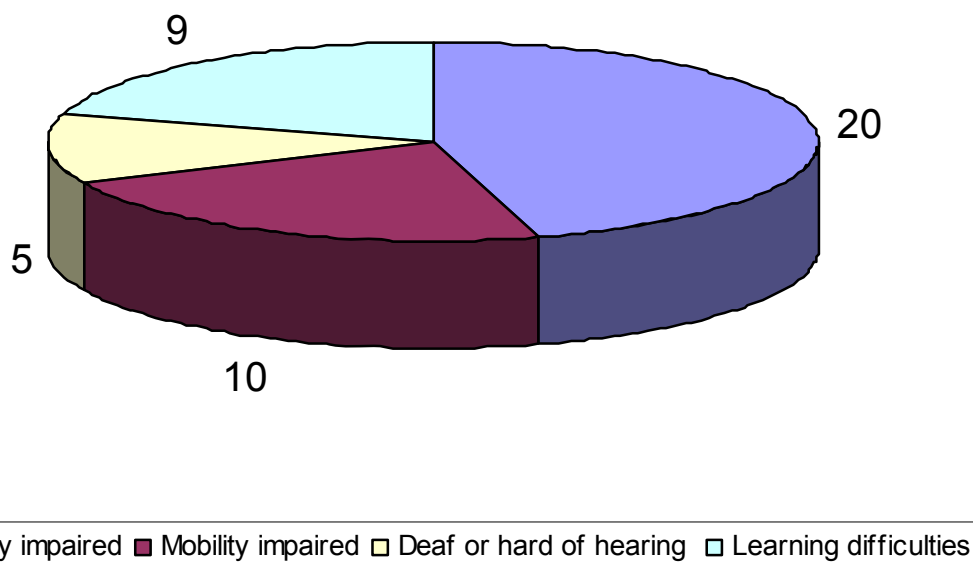

☐ Visually impaired ☐ Mobility impaired ☐ Deaf or hard of hearing ☐ Learning difficulties

Figure 4.1 Disability Types

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4.2.3   Of those who were visually impaired, 10 were partially sighted[5] (6 of which said they were registered blind) and 10 were blind[6] (9 of which said they were registered blind). Of those who were mobility impaired, four were ambulant[7] and six were wheelchair users. Of those with learning difficulties, four were classed as having mild learning difficulties and five were classed as having moderate learning difficulties[8].

4.2.4   At the recruitment stage, 11 participants said they were aware of the term 'shared space', eight of whom had a visual impairment and three of whom had a mobility impairment. All 11 participants said they were aware of campaigns relating to shared space; however only three of these people said they had been involved in these campaigns, one of whom had also taken part in research on shared space previously.

4.3   Journey Routes

4.3.1   For ease of reference, a breakdown of the control streets and shared space areas at each site are shown below in Table 4.1.

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[5] Recruiters were given the following criteria to adhere to when recruiting partially sighted participants for the research - Sight has to fall into one of the following categories, while wearing any glasses or contact lenses that you may need: visual acuity of 3/60 to 6/60 with a full field of vision; visual acuity of up to 6/24 with a moderate reduction of field of vision or with a central part of vision that is cloudy or blurry; visual acuity of up to 6/18 if a large part of your field of vision, for example a whole half of your vision, is missing or a lot of your peripheral vision is missing.

[6] Recruiters were given the following criteria to adhere to when recruiting blind participants for the research - Sight has to fall into one of the following categories, while wearing any glasses or contact lenses that you may need: visual acuity of less than 3/60 with a full visual field; visual acuity between 3/60 and 6/60 with a severe reduction of field of vision, such as tunnel vision; visual acuity of 6/60 or above but with a very reduced field of vision, especially if a lot of sight is missing in the lower part of the field.

[7] Recruiters were given the following criteria to adhere to when recruiting ambulant participants - Ambulant people are those who do not need a wheelchair but move with difficulty and may use a stick or walking frame.

[8] Recruiters were given the following criteria to adhere to when recruiting people with learning difficulties for the research - In IQ terms mild and moderate corresponds with 50-70 and 35-50 IQ, respectively. IQ scores are not sufficient in wholly defining the level of learning disability, as problems with social functions (communication, keeping safe, recognising risks, eating) tend to help define severe and profound LDs. However for this study an IQ range was deemed appropriate for defining mild and moderate LDs as 'in scope'.

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Table 4.1 Control streets and shared space areas, by site

	Control Streets	Shared Space
London	Walworth Road	Walworth Road
Clapham	St John's Hill	St John's Road
Brighton	Bond Street	New Road
	North Street	-
	Church Street	-
Plymouth	Cornwall Street	Cornwall Street
	-	Market Avenue
	-	New George Street
Newbury	Cheap Street	Market Place
Leeds	The Headrow	Cookridge Street
	Cookridge Street	-

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5 Findings: Disabled People in Shared Space

5.1 Introduction

5.1.1 'Disabled People in Shared Space' was designed to focus on people's overall experience of shared space, including: How they want to versus have to use streets; how comfortable they feel in different street types; to what extent they enjoy street space and whether they would like to spend time in the space in the future; and what trade offs they would be willing to make, for example between safety and visual amenity.

5.1.2 Findings are split by disability type:

- Section 5.2 presents the findings from research with visually impaired people;

- Section 5.3 presents the findings from research with mobility impaired people;

- Section 5.4 presents the findings from research with people with learning difficulties; and

- Section 5.5 presents the findings from research with those who were deaf/hard of hearing.

5.1.3 Within each of these sections, the reporting format typically provides the findings from the control streets followed by the findings from the shared space streets for each street feature in turn.

5.1.4 This chapter concludes with a summary of findings across all four user types.

5.2 Visually Impaired People

5.2.1 Twenty visually impaired participants took part across seven sites. Ten participants were partially sighted (6 of which said they were registered blind) and 10 were blind (9 of which said they were registered).

5.2.2 In total there were six guide dog users, 11 cane users (mixture of roller, long and symbol canes), and three visually impaired participants who used no aids.

Users versus Avoiders

5.2.3 At the recruitment stage, 16 of our visually impaired participants said they had previously passed through the area of town where the shared space street is located, and four participants said they had not. Of those who had passed through the area, nine said this was for leisure purposes; three said this was as a commuter; and two said it was for some other reason. Four said they pass through the area one to four times a week; three said less than once a week; and seven said less than once a month.

5.2.4 During the accompanied journey, some participants said they do try to avoid the shared space, or will only frequent the area for a specific reason e.g. to get to the hospital (in Leeds) or to go to the market (in Newbury).

"I don't use it more than I can help; the only time is on a Saturday for the market." (Visually Impaired, Guide Dog user, Newbury)

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5.2.5   However, reflecting the results of the recruitment questionnaire, more participants were likely to say they would visit the shared space again or at least pass through it, than who said they would avoid it. Reasons for this included some participants already being familiar with the area; some participants feeling more comfortable in the area as a result of the research; and to visit friends and family.

5.2.6   During the structured questionnaire, after the accompanied journey, six participants said they had used the streets on the accompanied journey regularly in the past, and a further 10 said they had used them before occasionally. Of these 16, six said they used the control streets the most; four said they used all the streets the same amount; two said they used the shared space streets the most; one said they did not use any at the present time; and three did not give an answer. Three of the four who said they used all the streets were undertaking the research in Clapham. Of the two who said they used the shared space street the most, one said this was for shopping and the other said they passed through it on the way to other places.

5.2.7   Participants were asked further questions about whether they avoid certain streets or not. Five participants said they would regularly avoid travelling on a particular street and a further nine said they would avoid certain streets on occasion. The most common reason for avoiding streets in general was if they were particularly crowded or busy (n=6). Other reasons given by more than one participant were tripping hazards, such as uneven paving (n=2) and cars parked on the pavement (n=2).

5.2.8   When asked specifically about the streets on the route, 10 participants said they would not usually avoid any of these streets; however seven said they would avoid a specific street[9]. Various reasons for avoiding a particular street on the route were provided:

- Streets are too busy (either with people or vehicles);

- Streets do not have kerbs (meaning there is no way for participant to know when they are in the road; or, meaning the guide dog cannot follow them);

- Streets are too wide making them difficult to cross;

- Streets are too noisy; and

- Streets have too much street furniture.

5.2.9   At the very end of the structured questionnaire, respondents were asked whether they would use the shared space again. Twelve participants said they would use it again and four participants said they would not. The remaining 4 participants did not provide an answer. The following reasons were given by at least two participants each for why they would use the shared space again:

- I liked it (n=4)

- Necessity (n=2)

5.2.10   The four participants who said they would not use it again all gave similar reasons for this:

- One felt it was dangerous;

- One does not feel safe enough;

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[9] Note: Three participants did not give an answer to this question.

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- One felt that it was too busy to use on own; and

- One felt vulnerable.

Participant Awareness of surrounding area

5.2.11   Whilst moving along the streets on the route, participants were asked various questions about what they were experiencing generally.

Control Streets

5.2.12   In the control streets, participants were often aware of similar features, for example several noted that they were aware of other people around them; the nearby traffic; the building line; and the paving (mainly if they had come across tactile paving but also if it was uneven, or one participant said they used the lines of the paving slabs as a guide to follow).

5.2.13   Other aspects of the streets that participants were aware of included:

- Surrounding noise (eg people and building ventilation fans);

- Obstacles and tripping hazards;

- Wide paving;

- Kerbs;

- Road markings;

- Yellow lines (eg one participant pointed out the yellow marking around a ramp);

- The general vicinity; and

- Aware of it not being an area they are familiar with.

"The pavements are good here aren't they, they're flat and I find them very easy to walk on." (Visually Impaired, Guide Dog user, Brighton)

"I can hear people over the road of course and the pavement seems quite clear as I'm walking at the moment. And obviously the building line to my right." (Visually Impaired, White Cane user, Brighton)

"[The pavements are] Wide and good, better than in Catford." (Visually Impaired, does not use an aid, Walworth Road)

5.2.14   Participants were probed further about what they could hear and feel etc and what information that gave them.

5.2.15   The most common noises people commented on were the sound of other people, cars and buses. One participant commented on the beeping at a controlled crossing and one lady commented on how she would bang her cane off the ground to determine from the noise how close she was to the building line or whether she was in a closed versus open area.

"Not too much, I can hear people coming past something squeaking like anything on the other side of the road and there was some extractors back there." (Visually Impaired, White Cane user, Brighton)

"The sound of people." (Visually Impaired, Symbol Cane user, Walworth Road)

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"Cars and people making noise." (Visually Impaired, White Cane user, Walworth Road)

5.2.16   These sounds generally helped people understand where they were in relation to other users.

"You've got to be alert and know where it's coming from, the direction … your own safety." (Visually Impaired, White Cane user, Clapham)

5.2.17   Other aspects of the street that participants said they were aware of/could feel include the texture of the paving and changes in textures. However, participants did not always know what different textures were supposed to indicate.

"They could be anything really." (Visually Impaired, White Cane user, Leeds)

"I wasn't too sure [what it meant] because I knew it wasn't the crossing, but if I hadn't known the area I'd have got confused." (Visually Impaired, Guide Dog user, Leeds)

Shared Space

5.2.18   Whilst travelling through the shared space streets, visually impaired participants were particularly aware of sounds, more so than they were in the control streets. Most commonly they were listening out for and aware of motor traffic and other people, but in addition the following sounds were each noted by one or two participants:

- Cyclists;
- Restaurant/Cafe noises;
- Sirens;
- A plane; and
- A signalised crossing.

"I can hear the bus and I can hear the traffic and I've got to hope I can hear the pavement widening out a bit. See so that's a door so I've not reached the end just yet, but I'm really not sure now I think I might turn right to cross here. And I have found the tactile by chance!"(Visually Impaired, White Cane user, Brighton)

"A plane, people talking and I can hear a vehicle moving." (Visually Impaired, White Cane user, Slough)

"I think it must be a restaurant 'cause I can hear cups and people talking and they're all sitting outside … [I feel] very safe because there are pillars here aren't there?" (Visually Impaired, Guide Dog user, Brighton)

5.2.19   One participant commented that she was particularly reliant on sound in the shared space due to her unfamiliarity with the area and the lack of kerbs to aid her navigation.

5.2.20   It was next most likely for participants to state that they were aware of the paving, either because it was uneven; tactile paving had been located; or because of cobbles.

"They're not even. My stick, very hard to identify what is safe and what isn't safe … yeah because it could be kerbs, it could be like I might think that might be someone dug a hole and they're repairing something." (Visually Impaired, White Cane user, Clapham)

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5.2.21   Several participants explained that the tactile paving indicates the edge of the pavement/road or a crossing. Another participant commented that he was aware of tactile paving but was not aware that the different paving types in the shared space (in Leeds) indicated the difference between a footway and main carriageway.

5.2.22   Other street features that participants were aware of included:

- Scaffolding (and the risk of walking into it);
- The wide pavements;
- A level surface;
- Yellow lines on the road;
- The building line;
- Pillars (between the footway and main carriageway in Brighton);
- The feeling of being in a covered area; and
- Obstacles in general.

"Buildings on the left hand side and pillars just in the middle of the pavement I think, because it's not the edge of the pavement is it?" (Visually Impaired, Guide Dog user, Brighton)

5.2.23   Just one participant commented at this point that they were aware of the shared space being quieter than the control streets, with less people and cars.

Street Purpose

5.2.24   Of those who were asked, the majority of participants knew what the purpose was of the street they were travelling through. In the control areas, streets were correctly identified as shopping streets and some participants commented on places that could be accessed via the streets e.g. the hospital (Leeds), train station (Clapham) and East Street Market (Walworth Road). The shared space areas were all correctly identified as shopping areas.

Participant Awareness of Own Positioning

Control Streets

5.2.25   The majority of respondents who answered this question were able to identify where they were in relation to everything else.

5.2.26   Those with no sight were able to identify their location through a variety of ways. Most mentioned the use of the building line to help them understand their location and familiar landmarks, some based their assumption on their awareness of what other users were doing around them (they could hear and sense other people and assumed these other people would be in a safe area), some used the kerb, and one participant commented on the line of the traffic. Several guide dog users commented that their guide dogs had been trained to use the middle of the pavement, and hence that must be where they were.

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"The dog is trained to walk in the middle of the path, but on a shared space or when you get to a broader area or in the precinct they stick to the line of the building." (Visually Impaired, Guide Dog user, Leeds)

5.2.27   Those with partial sight were also able to use some of the same techniques as those with no sight, although they were also able to identify their location through what they could see, which varied a great deal with our participants, from light and shadows, to peripheral or central vision only, to blurred vision due to retina damage.

5.2.28   Two participants were not able to fully place themselves within the street: One participant said he was aware of his position, but when asked if he was aware of the side road he replied that he had not been aware of it; another participant who was in a particularly quiet area stated that she did not know where she was.

"I don't know where the shops are." (Visually Impaired, Guide Dog user, Plymouth)

5.2.29   The majority walked either centrally along the pavement or closer to the building line. This position was preferred as it generally made people feel safer. One participant commented that walking in the middle of the pavement meant there was less chance of encountering an obstacle; however another participant said if a pavement is busy then they will walk closer to the building line to avoid being jostled.

"Here is better… Why walk there [by the road] when you can walk here [close to shops. It's] safer especially if you have something wrong with your eyes". (Visually Impaired, does not use an aid, Walworth Road)

"I find the building line, I'll follow it. It's better than following the kerb because sometimes the kerb drops off if it is a driveway or something." (Visually Impaired, White cane user, Leeds)

"The only time I get near the buildings is when it is really busy … [to avoid being] bumped around." (Visually Impaired, White Cane user, Slough)

"[Normally] I'd be where I am now [central], because of the rush coming towards me." (Visually Impaired, White cane user, Clapham)

Shared Space

5.2.30   Of those who discussed their positioning in the shared space, it was most common for participants to say, correctly, that they were walking close to the building line. They based these correct assumptions on a number of things: For those with some sight, they could see shops or make out the building line through shadows etc; others said they were aware of where the road was, could hear the traffic, or that they were familiar with the area and so had prior knowledge of where things were.

"I just heard a vehicle come around, so I'd imagine I'm coming up to the corner of where Mansion House Street comes into market place." (Visually Impaired, Guide Dog user, Newbury)

5.2.31   In addition one participant in Newbury commented on their use of the REACT system – a talking sign system activated by using a trigger fob. The fob is carried by the blind person

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and automatically sets off messages when the person approaches speaker units along their route[10].

5.2.32   It was next most likely for participants to say, again correctly, that they were walking in the middle of the path. Again, those with partial sight stated they could see the building line, bollards and road. For those without sight, they said they could sense where the building line and road was.

"There's a road running along on the right hand side but its further across." (Visually Impaired, Guide Dog user, Brighton)

5.2.33   Several participants said they assumed they were on the pavement, although could not be sure. Participants assumed this for different reasons, either because they had not found a kerb, because they felt the building line was close, or because they knew there were other pedestrians walking in the same area. Several other participants also stated they did not know where they were, again for different reasons: either because they were unfamiliar with the area, because a guide dog was leading them, or because they usually rely on tactile paving and had not felt any.

5.2.34   One participant in Brighton commented that in such a wide open space with no kerbs she is left feeling very vulnerable if she loses the building line.

"A bit apprehensive because I haven't actually got any idea where I am, I could be in the middle of the road, I could be half on the pavement; I have no idea where I am in relation to the building line because I've had to move away from it because of all the tables and chairs." (Visually Impaired, White Cane user, Brighton)

5.2.35   Two participants said their position was not a decision they had made, but that the guide dog was leading them. Guide dogs are usually trained to walk centrally on a path between the building line and kerb. However, if there is no kerb they should follow the building line.

5.2.36   Other participants who walked centrally along the path, without the use of a guide dog, said either that they just preferred this positioning, that it was easier to avoid obstacles, or that they preferred to walk where the rest of the pedestrians are.

"I feel more in line with everyone else, that's why I don't like going right to the wall." (Visually Impaired, White Cane user, Walworth Road)

5.2.37   However, one participant who walked centrally also commented that if the street had been very busy then he would have stayed closer to the building line to avoid being 'bumped' by other pedestrians. Other reasons for walking close to the building line were because they use the building line as a guide; for support; because it made the participant feel safer; or to avoid vehicles in a loading bay (in Walworth Road).

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[10] See the following website for more information on the REACT system:

http://www.rnib.org.uk/professionals/accessibleenvironments/signagewayfinding/rnibreact/Pages/rnib_react.aspx

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How comfortable are participants in different street environments?

Control Streets

5.2.38   Generally the visually impaired participants felt fairly comfortable on the control streets and enjoyed these streets to some extent, with most rating the control streets as either a '1 – very comfortable/enjoyable' or a '2 - fairly comfortable/enjoyable'. Some of the control streets had fairly wide pavements which participants liked. Familiarity also tended to make people feel more comfortable and more likely to enjoy the area.

"It's good, it's flat and it's wide." (Visually Impaired, Symbol Cane user, Walworth Road)

5.2.39   Aspects of the streets that participants tended to worry about and made them feel less comfortable included the prospect of uneven paving, obstacles or other trip hazards, and if the streets were particularly crowded with other pedestrians.

"Yes I do [enjoy this environment], as long as it's not too crowded." (Visually Impaired, Guide Dog user, Brighton)

5.2.40   Two of the guide dog users commented that they felt comfortable on these streets with their guide dogs, but if they had to travel along them without their guide dogs then they would not feel comfortable.

"I don't like all the crowds … I feel safe because I've got xxxx with me but if I hadn't I wouldn't feel very safe at all" (Visually Impaired, Guide Dog user, Brighton)

"With the dog I tend to think about other things as well, because then I'm confident." (Visually Impaired, Guide Dog user, Plymouth)

5.2.41   Just one participant commented that they felt particularly uncomfortable in a control street and stated that they would not want to visit the street again.

"It's busy…the roads seem quite narrow…it's noisy, there are lots of obstacles, no I wouldn't enjoy passing through it at all". (Visually Impaired, does not use an aid, Walworth Road)

5.2.42   Participants were also asked what other words they would use to describe how they felt on the control streets:

- OK/Alright (n=3);
- Confident (n=2);
- Busy/fast moving (People pushing/walk into you) (n=2);
- Likes the wide pavements (less crowded) (n=1);
- Nervous (of bicycles) (n=1); and
- Dislikes the kerb (considers it a tripping hazard) (n=1).

Shared Space

5.2.43   Participants' views on how comfortable they felt within the Shared Space and the extent to which they enjoyed it varied a great deal. Even within one participant's walk, she felt safe at

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one end of the shared space and then less comfortable at the opposite end of the Shared Space street:

"[I feel] very safe because there are pillars here aren't there … A bit disoriented, it's a much wider pavement isn't it and I can hear cups is it, cups and saucers over the other side or glasses or something over the other side … well I'm near a building that's to my left hand side here. Apart from that it's a very wide space I know that … A bit uncomfortable, I'm not quite so sure of myself." (Visually Impaired, Guide Dog user, Brighton)

5.2.44   Other participants also reported contradictory feelings, for example one lady said she was enjoying the atmosphere and the café smells etc, but she was conscious that she could end up in the middle of the road at any time. For those who did not enjoy the space, the uncertainty of their position was a key reason. However, other factors included uneven pavements, advertising boards or other obstacles and general tripping hazards.

"Very vulnerable, I could be walking along the middle of the road right now and I wouldn't know." (Visually Impaired, Guide Dog user, Newbury)

"A bit apprehensive because I haven't actually got any idea where I am, I could be in the middle of the road, I could be half on the pavement, I have no idea where I am in relation to the building line because I've had to move away from it because of all the tables and chairs … Now here I'm getting a bit concerned because I know we're getting near the end of the road, there's obstacles around me. I'm a bit concerned how I'm going to know I'm at the end of the road." (Visually Impaired, White Cane user, Brighton)

5.2.45   Familiarity did seem to help participants feel somewhat more comfortable and allow them to enjoy the space more, as did quieter and clearer streets; being accompanied; wide footways; and smooth/even paving.

"I did [enjoy it], once I'd spoken to you and realised where I was and what was happening." (Visually Impaired, Guide Dog user, Brighton)

"I'm always enjoying Clapham Junction … it's where I was brought up … I feel safe like." (Visually Impaired, White Cane user, Clapham)

"I know my territory and there are not too many people around at the moment." (Visually Impaired, White Cane user, Slough)

5.2.46   During the accompanied journey, some participants rated on a 5-point scale how comfortable they felt and the extent to which they enjoyed the Shared Space. For comfort, scores ranged from 1 'Very comfortable' to 5 'Very uncomfortable', however most were around the middle. One participant who scored comfort as a '3' said:

"It verges on comfortable but with a little bit of doubt." (Visually Impaired, Guide Dog user, Leeds)

5.2.47   All participants were also asked at the end of the journey to rate how comfortable they had felt, both on the shared space and in the control streets. Participants were less likely to say they felt very or fairly comfortable in the shared space than they were in the control streets (n=8 compared with n=14). However, a similar number for both the shared space and the control streets said they felt either very or fairly uncomfortable (n=5 and n=4, respectively).

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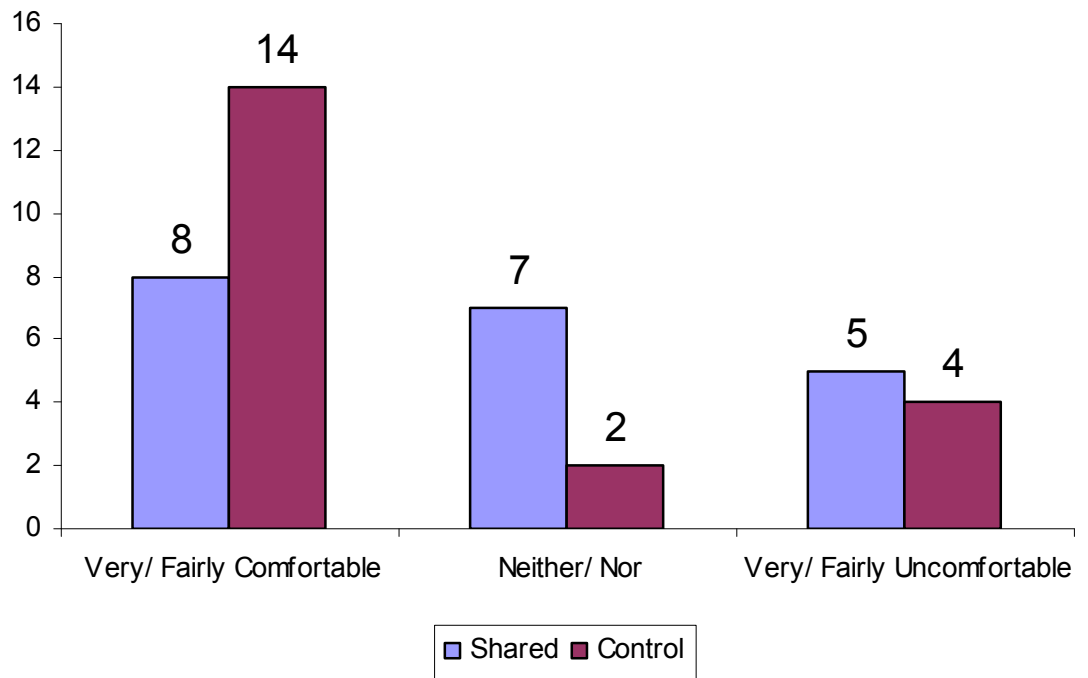
Figure 5.1 Visually impaired participants' level of comfort in the control and shared space streets

5.2.48   Participants were also asked after the journey to rate how enjoyable both the shared space and control streets had been. Scores ranged a great deal, however the number of people saying they found the shared space very or fairly enjoyable was the same as the number who said they found the control streets either fairly or very enjoyable (n=8 for both).

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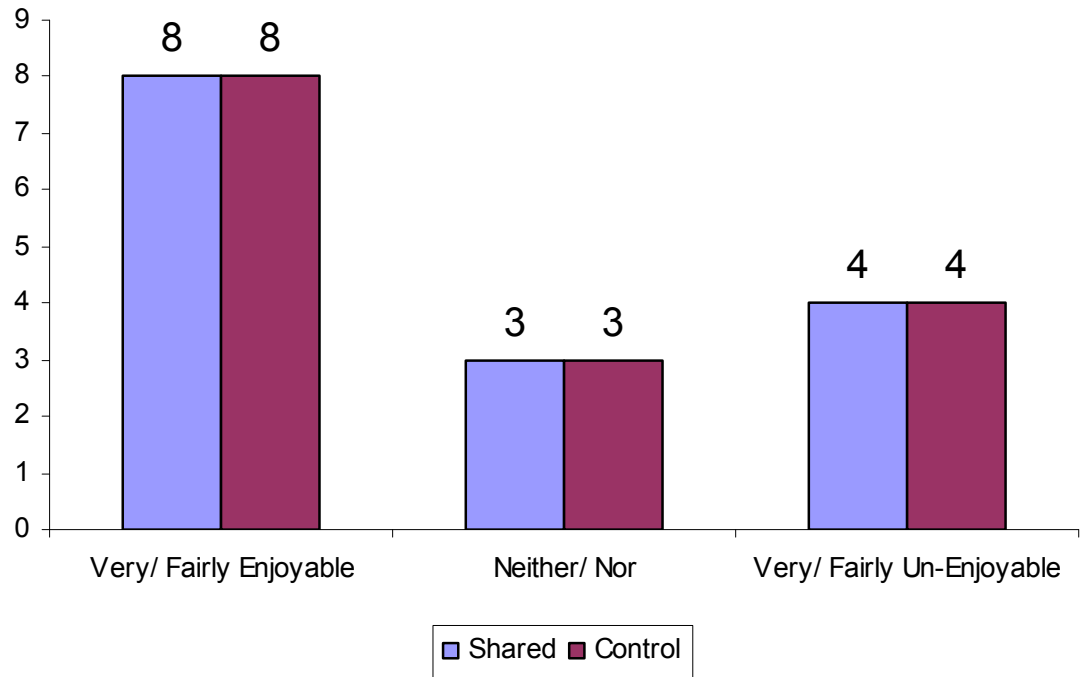
Figure 5.2 Visually impaired participants' level of enjoyment in the control and shared space streets

5.2.49   During the accompanied journey two respondents also commented that they felt unsafe in the shared space, and one said they felt very vulnerable. After the journey, all participants were asked to rate how safe they had felt in both the shared space and the control streets. A lower number of participants felt safe in the shared space areas than in the control streets (n=6 compared with n=9).
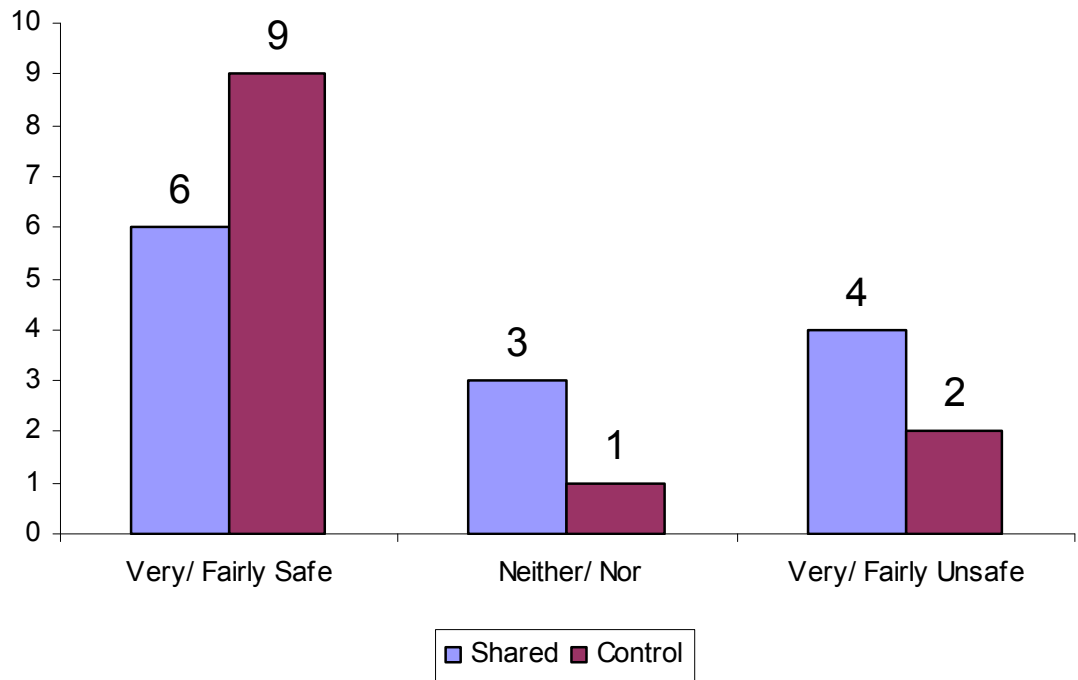
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Figure 5.3 Visually impaired participants' feelings of safety in the control and shared space streets

5.2.50   Participants were asked what other words they would use to describe how they felt on the shared space. Responses were as follows:

- Calm/confident (n=2);

- Liked the tactile paving between the road and pavement (n=2);

- Excited (often meets people here) (n=1);

- Liked the fact that there were no kerbs (n=1);

- Liked the surfaces (n=1);

- Apprehensive (n=1);

- Angry (when encounter obstacles) (n=1);

- Vulnerable (n=1);

- Likes the wide pavements (less crowded) (n=1); and

- Nervous (of bicycles) (n=1).

Participants' Ideal Streets

The trade-offs participants would make

5.2.51   Participants were asked to think of their ideal street and answer a number of trade-off questions about what they would prefer. The options they were offered and the numbers of participants choosing each are shown below[11]:

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[11] Note, numbers do not always add up to 20 because some respondents did not/were unable to answer.

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Less obstacles and no seating – n=13
Seating that could be an obstacle – n=7
To be able to cross anywhere but without a controlled crossing – n=1
To be able to cross at a controlled crossing but for it to be out of your way – n=17
A narrower pavement, but separated from cars, bikes and other vehicles – n=10
More space to travel, but share the space with car, bikes and other vehicles – n=2
A flat, even surface with no kerb – n=3
A raised kerb to define the road and pavement – n=12
Colour defined pavement and road – n=5
Texture defined pavement and road – n=10
No vehicles and have to walk from bus stops/blue badge parking – n=8
Vehicles allowed right in to the street – n=5

Participants' suggestions for Improvements

5.2.52   The following suggestions for improving the control streets in order to make them easier to navigate were provided by at least two participants each:

- Less obstacles (n=3)
- Traffic lights should have sound and a cone (n=2)
- Introduce a level surface with tactile paving for demarcation (n=2)

5.2.53   Just one suggestion for improving the control streets in order to make them more enjoyable was provided by at least two participants:

- Even flat paving with no slope (n=2)

5.2.54   The following suggestions for improving the shared space in order to make it easier to navigate were provided by at least two participants each:

- Tonal contrast needs different/brighter colours to improve definition (n=4);
- Less obstacles (eg A-boards and bins) (n=4);
- Add a kerb (even if only a low kerb) (n=3);
- Improve tactile paving (more defined and consistently applied) (n=3);
- Consistent method of demarcation between road and pavement (n=2);
- A white/yellow line on the pavement to use as a guide (n=2); and
- Pedestrianise the area (n=2).

5.2.55   The following suggestions for improving the shared space in order to make it more enjoyable were provided by at least two participants each:

- Clearer definition between pavement and road (n=3)
- Street entertainment (n=2)

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- Pedestrianise the area (n=2)

5.3   Mobility Impaired People

5.3.1   Ten mobility impaired participants took part in the 'Disabled People in Shared Space' research component; four were ambulant and six were wheelchair users.

Users versus Avoiders

5.3.2   Participants were asked a number of questions about general avoidance of streets, whether they usually used or avoided streets on the route, and whether they would use the shared space areas again in the future.

5.3.3   In general, six of the ten mobility impaired participants said they do avoid travelling on certain streets; one said they regularly avoid particular streets while the other five said they do so occasionally. Reasons for avoiding streets were:

- Uneven paving/tripping hazards (n=3);
- Kerbs (n=2);
- If busy (either with people or traffic) (n=2);
- Narrow streets (n=1); and
- If too much street furniture/obstacles (n-1).

5.3.4   At the recruitment stage, five of the mobility impaired participants said they had previously passed through the area of town where the shared space street is located, and the remaining five had not. Of those who had passed through the area three said this was for leisure purposes, one said it was for 'other' reasons and one did not state. The frequency of travel through the area was different for each participant; one said they passed through the area 5 or more times a week, one said 1-4 times a week, one said less than once a week, one said less than once a month, and one did not state.

5.3.5   Later during the research three participants said they regularly use the streets on the route; three said they used them occasionally; three said they never use them; and one did not state. Of the six people who had used the streets in the past, two said they used the control streets most often and one said they used the shared space most often. The other three did not state.

5.3.6   When asked if they would avoid any of the streets on the route, two said no but four said they would, either because the streets were too busy or one participant said it was uncomfortable on the cobbled street.

5.3.7   At the very end of the structured questionnaire, participants were asked if they would use the shared space again. Eight of the ten participants said they would use it again, not all gave a reason why, but those that did said the following:

- Because it's on my route (n=2);
- The area is calm and semi-pedestrianised (n=1);
- Because she likes the market (n=1); and

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■   Out of necessity (n=1).

5.3.8   The other two participants did not say whether they would use the area again or not.

Participant Awareness of Surrounding Area

5.3.9   While moving along the streets on the route, participants were asked various questions about what they were experiencing generally.

Control Streets

5.3.10   While walking along the control streets half of the participants (n=5) noted that they were aware of the surfaces, generally because they were looking out for uneven paving which could be a trip hazard. Other aspects of the street that participants were aware of were:

■   Traffic (the level and noise of traffic) (n=3)

■   Other people (n=3)

■   A level surface (one participant noted it made the road look like the pavement) (n=2)

■   The camber of the footway (n=1)

■   Manhole covers (n=1)

■   Obstacles (n=1)

■   Narrow pavements (n=1)

■   A pedestrian crossing (n=1)

"You've got to be careful of them [surfaces] all the time." (Mobility Impaired, Ambulant, Clapham)

"Well it's quite clear actually compared to what I thought it was going to be. I find that in big crowds it's hard … I find people are unaware of you a lot of the time. Where I'm more aware, I suppose it's like riding a bike or whatever, you're more aware of what's going on around you than the people that are just wandering and shopping. So I'm always looking for people." (Mobility Impaired, Wheelchair User, Clapham)

"Generally this bumpy pavement is not ideal for me … [I] can't lift my feet very high off the ground, so tend to drag my feet along … [The paving is] a trip hazard, so may lose my balance easily." (Mobility Impaired, Ambulant, Clapham)

"They've done pretty good as far as pavement goes, like I've said this is a flat pavement it's not always. They've gotten rid of many of these [manhole covers] by concreting them over because these are extremely slippery when it's wet … it's made a big difference, I don't fall over now." (Mobility Impaired, Ambulant, Plymouth)

Shared Space

5.3.11   In the shared space areas, participants were aware of similar things to those which they had been aware of in the control streets. It was again most common for participants to say they were aware of the paving surfaces, however this time it was usually because they were smooth rather than there being a trip hazard. However, one participant did state that they

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were particularly aware of the cobbled surfaces. Other aspects of the street participants were aware of were:

■   A level surface (one participant noted it made the road look like the pavement; one noted the change in texture) (n=2);

■   There was less traffic here than in the control streets (n=2);

■   Other people (either moving along the street or in cafes/restaurants) (n=2);

■   Sloping pavements or the camber of the footway (n=2);

■   General noise (n=1);

■   Obstacles (n=1); and

■   That the start of the street was busy and narrow (n=1).

"We're in the middle of the road and you're getting people coming both sides of you all the time. Usually when I'm by myself I stay right up beside the building line." (Mobility Impaired, Ambulant, Clapham)

"A bit 'slopey' outside here, going the wrong way … I think because it's outside a shop as well its quite an incline isn't it … yeah I'm fine it just makes you turn all the time that's all." (Mobility Impaired, Wheelchair User, Clapham)

"These are not too bad these flagstones that they have put in." (Mobility Impaired, Wheelchair user, Newbury)

Participant Awareness of Own Positioning

Control Streets

5.3.12   When travelling along the control streets participants tended to either position themselves centrally on the pavement or close to the building line. However, most participants noted that this was not always the case as they would generally assess the situation at the time and, for example, try to travel along the clearest part of the pavement to avoid people and/or uneven surfaces and other obstacles.

5.3.13   Those who moved along the pavement in a central position said they did so either because it was fairly flat or because people were less likely to walk into them.

"It depends because a lot of them [pavements] veer a lot don't they, to stop them getting flooded or whatever, and it makes you go that way so I generally stay up high or low. I'm in the middle because it's quite flat really." (Mobility Impaired, Wheelchair User, Clapham)

"The reason I do that is that I find that people will walk around me instead of into me. If for some reason I'm on one side of the path or the other somebody will always want to walk there." (Mobility Impaired, Ambulant, Plymouth)

5.3.14   Those participants who walked close to the building line either said this was to keep out of the way of other users; because it was safest there; because it was flatter at that point; or to avoid obstacles such as gullies and manhole covers.

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"To be considerate of other people as I usually am … I'm positioned at a safety zone."
(Mobility Impaired, Ambulant, London)

Shared Space

5.3.15   In the shared space areas participants' positioning varied for the same reasons as noted in the control streets: Participants either wanted to keep out of the way of other users; avoid obstacles and uneven surfaces; or stay on the flattest section of the street.

How comfortable are participants in different street environments?

Control Streets

5.3.16   When moving along the control streets participants tended to say they felt fine, or okay, or used another fairly inexpressive description. However, a few participants were either slightly more or slightly less positive about these streets: Two participants commented that they felt safe in the control streets; while several commented on aspects of the street that made it more difficult for them to travel through, for example steep gradients are a particular problem for wheelchair users as they are in danger of tipping out, uneven surfaces cause people problems, as do particularly busy streets.

"Not too bad. I'm quite confident on my own, yeah, I never used to be but it's only through years of … but I have to look out for 'bobbly' bits like this and try and find the best kerbs or whatever, 'cause sometimes you can get to a bit and its quite high and I wouldn't be able to do it on my own … it's just a bit of a bind really … it's a bit of a nuisance." *(Mobility impaired, Wheelchair User, Clapham)*

"If I have to move out of people's way I may lose my balance." *(Mobility Impaired, Ambulant, Clapham)*

5.3.17   Half of the participants (n=5) rated their level of comfort on a 5-point scale during the accompanied journey. Only one of these participants said they felt comfortable.

5.3.18   Again during the accompanied journey, five participants also rated the extent to which they enjoyed or did not enjoy the control streets. Participants were somewhat more likely to be positive about their enjoyment than they were about their level of comfort, with one person saying it was fairly enjoyable and nobody saying it was very un-enjoyable.

"I don't mind it." *(Mobility Impaired, Wheelchair User, Clapham)*

"This side is not too bad simply because it's a wide area…I don't tend to have people walking into me…it's not too bad either because the trees help to keep it shady." *(Mobility Impaired, Ambulant, Plymouth)*

"It's a bit ugly, but it's useable…it's fairly enjoyable, I like the trees and the pavement is flat, they could have more benches along here." *(Mobility Impaired, Ambulant, Plymouth)*

5.3.19   Participants were asked what other words they would use to describe how they felt in the control streets: One participant said they felt more aware; another participant said they felt calm.

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Shared Space

5.3.20   In the shared space areas the majority of participants said they felt 'fine'. One participant went a bit further to say she thought the street was 'quite nice'; another said she thought the street looked very nice but personally found in very difficult to travel through; and another participant was worried about tripping and being bumped due to the way in which the pavement narrowed by a bus stop (in Clapham).

"On the whole these are quite nice roads, and they're quite wide … yeah I just like a bit of space … but this is quite nice because there is a lot of walk way area to weave, you know you've got room to wander in and out." (Mobility Impaired, Wheelchair User, Clapham)

5.3.21   During the accompanied journey four participants rated how comfortable or uncomfortable they felt on a 5-point scale: two said they felt fairly comfortable, one said they felt neither comfortable nor uncomfortable, and one said they felt fairly uncomfortable. However, the participant who said she felt uncomfortable did note that it was slightly better than the control street as less people were walking on the pavement. Another participant commented that the shared space surfaces were more even than in the control streets.

5.3.22   After the accompanied journey all participants were asked to rate how comfortable or uncomfortable they had felt, both in the control streets and the shared space areas. A higher number of participants said they felt comfortable in the shared space than in the control streets (n=6 compared with n=5, respectively).
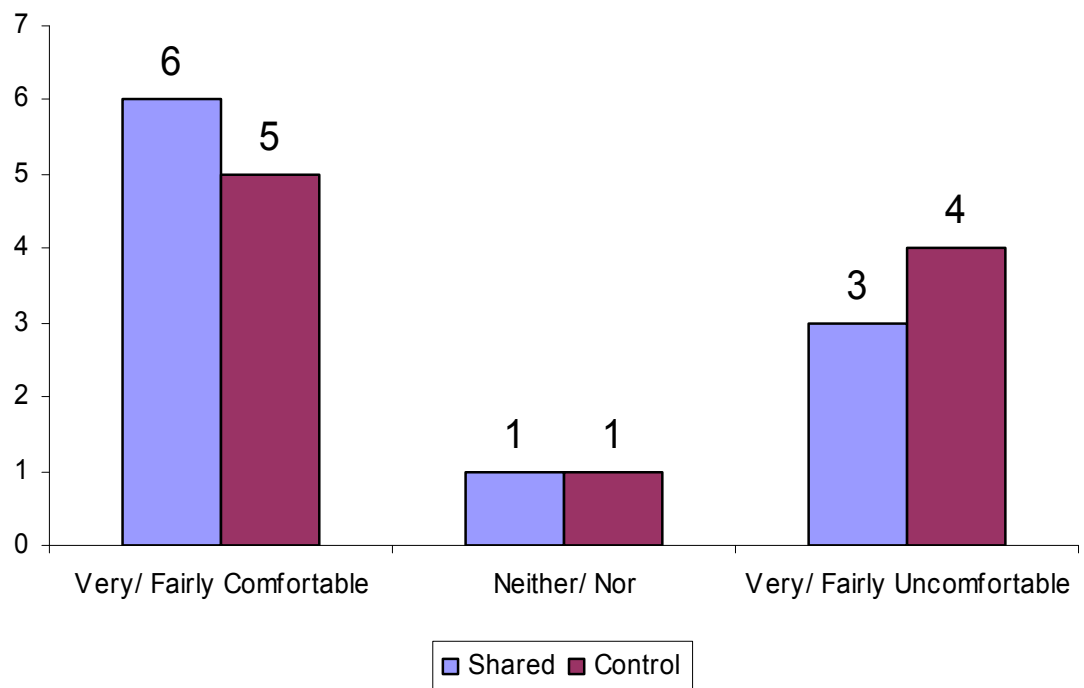

Figure 5.4 Mobility impaired participants' level of comfort in control and shared space streets

5.3.23   Participants were also asked how enjoyable they found it in both the shared space and the control streets. Various comments were made during the accompanied journey about the

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shared space, such as the area having nice paving and the area being aesthetically pleasing, but participants' levels of enjoyment seemed to vary a great deal.

"Not too bad." (Mobility Impaired, Ambulant, Clapham)

"Well I'm not a great shopper! I don't mind it, you know, it's not un-enjoyable but it's not somewhere I'd strive to come." (Mobility Impaired, Wheelchair User, Clapham)

"I used to come down here to spend time and wander around the shops, if it was a really nice afternoon and to get me out so I don't become isolated … since they've changed it I don't do that anymore [because of the cobbles]." (Mobility Impaired, Ambulant, Plymouth)

5.3.24   When asked at the end of the accompanied journey to rate their level of enjoyment for both street types, a higher number of participants said they thought the shared space was enjoyable than said they thought the control streets were enjoyable (n=5 compared with n=4, respectively). However, the same number (n=4) said that the shared space areas and the controls streets were un-enjoyable.
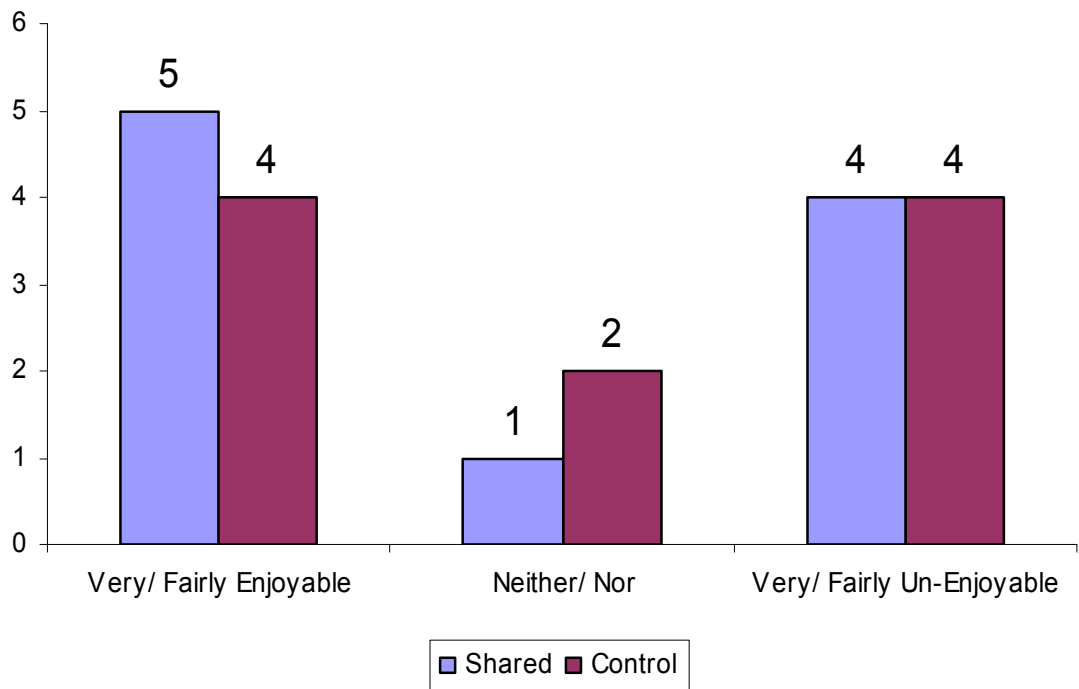
Figure 5.5 Mobility impaired participants' level of enjoyment in the control and shared space streets

5.3.25   After the accompanied journey participants were also asked to rate how safe or unsafe they had felt on both the shared space and the control streets. A higher number of participants said they felt safe in the shared space than said they felt safe in the control streets (n=6 compared with n=5, respectively).
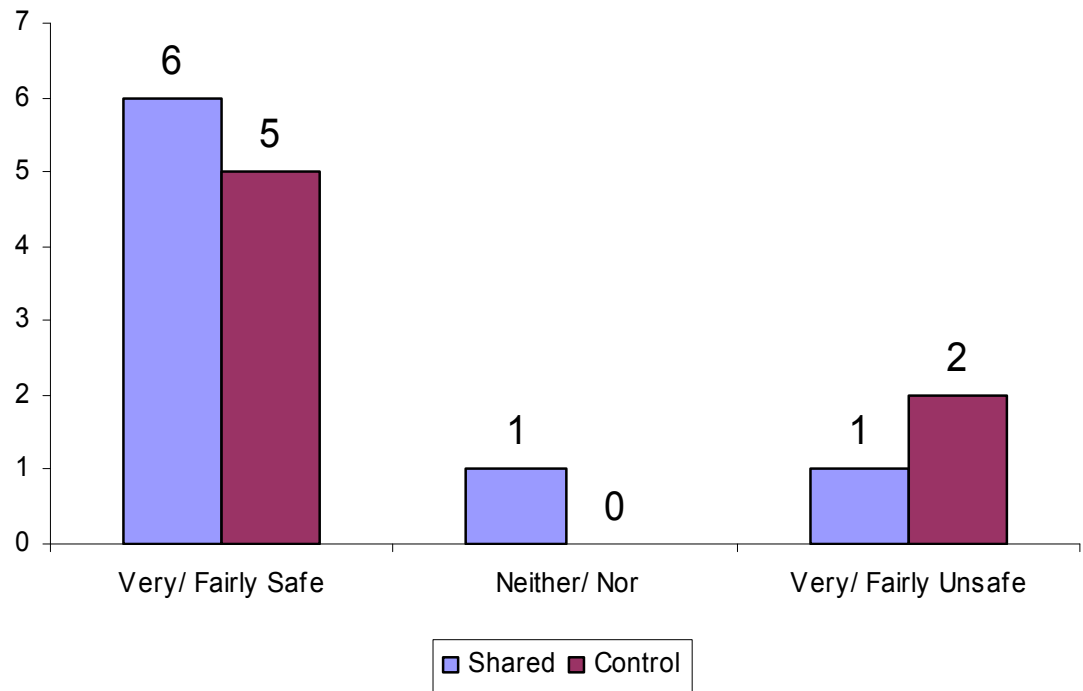
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Figure 5.6 Mobility impaired participants' feelings of safety in the control and shared space streets

5.3.26   Participants were asked what other words they would use to describe how they felt in the shared space. The following responses were given by one participant each:

- Calm;
- More aware;
- Apprehensive; and
- Stressed.

Participants' Ideal Streets

The trade offs participants would make

5.3.27   Participants were asked to think of their ideal street and answer a number of trade-off questions about what they would prefer. The options that were offered and the numbers of participants choosing each are shown below:

Less obstacles and no seating – n=2
Seating that could be an obstacle – n=8
To be able to cross anywhere but without a controlled crossing – n=3
To be able to cross at a controlled crossing but for it to be out of your way – n=6
A narrower pavement, but separated from cars, bikes and other vehicles – n=9
More space to travel, but share the space with car, bikes and other vehicles – n=0
A flat, even surface with no kerb – n=7

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| A raised kerb to define the road and pavement – n=2 |
| Colour defined pavement and road – n=4 |
| Texture defined pavement and road – n=3 |
| No vehicles and have to walk from bus stops/blue badge parking – n=5 |
| Vehicles allowed right in to the street – n=3 |

Participants' suggestions for Improvements

5.3.28   The following suggestions for improving the control streets in order to make them easier to navigate were provided by at least two participants each:

- Improve pavements (better maintenance and more even) (n=2); and
- Wider pavements (more space for pedestrians) (n=2).

5.3.29   A number of suggestions were also made to improve the control streets to make them more enjoyable; however none were suggested by more than one participant each.

5.3.30   Just one suggestion for improving the shared space areas to make them easier to navigate was provided by more than one participant:

- Level uneven surfaces (including removal of corduroy tactile paving and cobbles) (n=5)

5.3.31   The same suggestion was given by three respondents to make the shared space areas more enjoyable.

5.4   People with Learning Difficulties

5.4.1   Nine participants with learning difficulties took part in the 'Disabled People in Shared Space' research component; four were classed as having mild learning difficulties and five were classed as having moderate learning difficulties.

5.4.2   Before commencing the accompanied journey a number of questions were asked in order to gain an understanding of the participants' comprehension. Most but not all of the participants could read, or understand through pictures, what road signs said. Most participants were able to orientate themselves to '3 O'clock' when asked, however some had difficulty in understanding this concept. The interviewers undertaking the research noted that the level of understanding of some participants was particularly low and therefore it was not always possible to gather the desired amount of data from them.

Users versus Avoiders

5.4.3   Participants were asked a number of questions about general avoidance of streets, whether they usually used or avoided streets on the route, and whether they would use the shared space areas again in the future.

5.4.4   In general, four participants said they do avoid travelling on certain streets; one said they avoid particular streets regularly while the other three said they do so occasionally. Reasons for avoiding streets included:

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- If they were busy/crowded (n=3);

- If the lighting was poor/at night (n=2); and

- If they had a bad reputation (n=1).

5.4.5   At the recruitment stage of the research, seven of the nine participants with learning difficulties said they had passed through the area of town where the shared space is before. Two participants said they passed through the area as a commuter; one said it was for business; three said it was for leisure; and one said it was some 'other' reason. Two of these participants said they pass through the area at least 5 times a week; four said they pass through 1-4 times a week; and one said it was less than once a week.

5.4.6   Later, during the main fieldwork, participants were asked about their previous use of the streets on the route. Eight participants said they had used at least one of the streets previously; six said they had done so regularly, two said they had done occasionally and one said they had never used them before.

5.4.7   Of those who had used the streets on the route before, four said they had used all of them equally, two said they used the shared space most often, and two said they used a control street most often. When asked if they would avoid any of the streets on the route, none of the participants said they would.

5.4.8   At the very end of the questionnaire, participants were asked if they would use the shared space again. Five participants said they would use it again and one said they would not because they found it confusing and uncomfortable. The remaining three did not state either way. Reasons for using it again were as follows:

- On route to somewhere else;

- For shopping/to meet friends;

- Because they liked it;

- Because it's clear and they understand how it works; and

- Out of necessity.

Participant Awareness of Surrounding Area

5.4.9   While moving along the streets on the route, participants were asked various questions about what they were experiencing generally.

Control Streets

5.4.10   While walking along the control streets, participants were aware of a variety of street features and activity. Participants were most likely to point out other people walking past and cars and buses in the road. One participant was also particularly aware of objects in shop windows and outside in displays, and another pointed out an array of street features:

- Bags, shoes and a sale;

- Pavement, kerb, tactile paving, and pedestrian traffic lights;

- The road/side streets;

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- ■   Graffiti;

- ■   A car park;

- ■   Bus stop where she catches her bus home;

- ■   A drain hole; and

- ■   Café tables and chairs.

"There's a side street just there, painting on there, there's a car park behind as well." *(Learning Difficulties, Brighton)*

Shared Space

5.4.11   In the shared space, participants were aware of similar aspects of the environment to that which they had been aware of in the control streets. In addition, several participants pointed out a specific building and one participant pointed out a number of different building types:

- ■   The theatre, shops, a church and cafes;

- ■   Seating;

- ■   Bicycle racks;

- ■   The pavement and the road;

- ■   Different paving types; and

- ■   Other people (or lack of them).

"The pavement and the road and the shops and the people … where the pavement ends and the road begins … [I can see it] because of the different paving stones that were there, the one that I'm walking on now is smooth and the one near the road has a 'bobbly' effect to it." *(Learning Difficulties, Clapham)*

"It's very clear and the pavement has changed again." *(Learning Difficulties, London)*

Participant Awareness of Own Positioning

Control Streets

5.4.12   This topic was not covered in the control streets with participants with learning difficulties.

Shared Space

5.4.13   Five participants were asked about their position in the shared space streets and why they were choosing to walk where they were. All perceived their position to be on the pavement and commented either on where they thought the pavement ended and the road began, or they appeared to have determined their position based on other users' behaviour:

"Because you can't walk there … because you are not driving … [there are] other people walking here." *(Learning Difficulties, Clapham)*

"Because there are people walking around us and the cars are there." *(Learning Difficulties, Plymouth)*

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How comfortable are participants in different street environments?

Control Streets

5.4.14   Travelling through the control streets participants tended to say they felt 'fine', particularly if the streets were quiet or they were familiar with them already. One participant also commented that they liked the wider pavements and the planting.

"This street's not too bad … it's more of a quiet bit this bit along here." (Learning Difficulties, Brighton)

"Yeah it's nice, I've been in that shop once before." (Learning Difficulties, Brighton)

5.4.15   Some participants felt less comfortable when the streets were busy and crowded with people. One participant also commented that they would not like to use the street at night time or in the winter due to there being no shelter.

5.4.16   During the accompanied journey, four participants rated to what extent they were enjoying the control streets. All four said they found the streets either fairly or very enjoyable.

5.4.17   Participants were asked what other words they would use to describe how they felt in the control streets. One respondent said they felt safe and another said they felt calm.

Shared Space

5.4.18   In the shared space streets, most participants seemed fairly relaxed and said they liked it. Familiarity with the area seemed to increase the likelihood of participants being relaxed. However some negatives were pointed out as well, for example one participant commented on the cars and taxis that use the street, another said that if it was not for the plants the street would look a bit bare and one said she knew people who found the cobbles uncomfortable (although they were not a problem for her).

"This street's alright but likely to get cars coming up, taxis coming up this side … taxi drivers, they can do what they want." (Learning Difficulties, Brighton)

"It's ok, but I know some of my friends don't like it here [because of the cobbled pavement] … they say it's not good for their feet." (Learning Difficulties, Plymouth)

5.4.19   One participant was thought by the interview to be less relaxed in the shared space than the control streets. The interview noted that the participant appeared nervous, possibly because he was concentrating on where he was supposed to be going.

5.4.20   After the accompanied journey respondents were asked to rate how comfortable or uncomfortable they had felt both on the shared space and the control streets. A higher number of participants said they felt either fairly or very comfortable on the control streets than on the shared space (n=8 compared with n=7, respectively).

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Figure 5.7 The level of comfort experienced by those with learning difficulties in the control and shared space streets

5.4.21   Participants were then asked to what extent they had enjoyed or not enjoyed being in both the control streets and the shared space. Conversely, a higher number of participants said they found the shared space enjoyable than said they found the control streets enjoyable (n=7 compared with n=6, respectively).
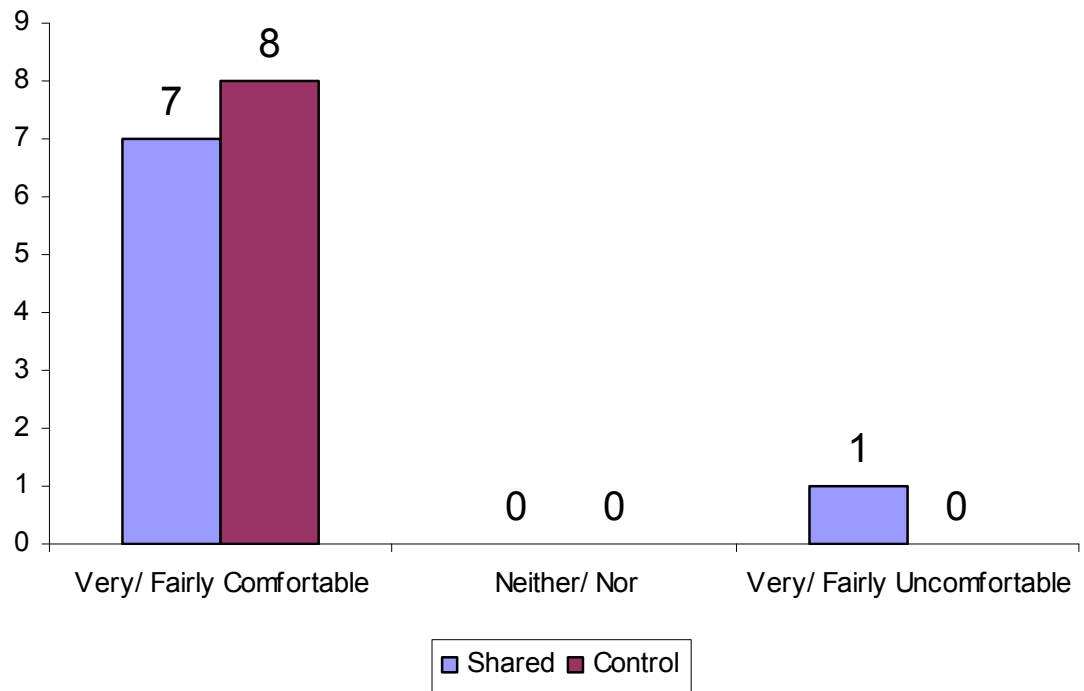
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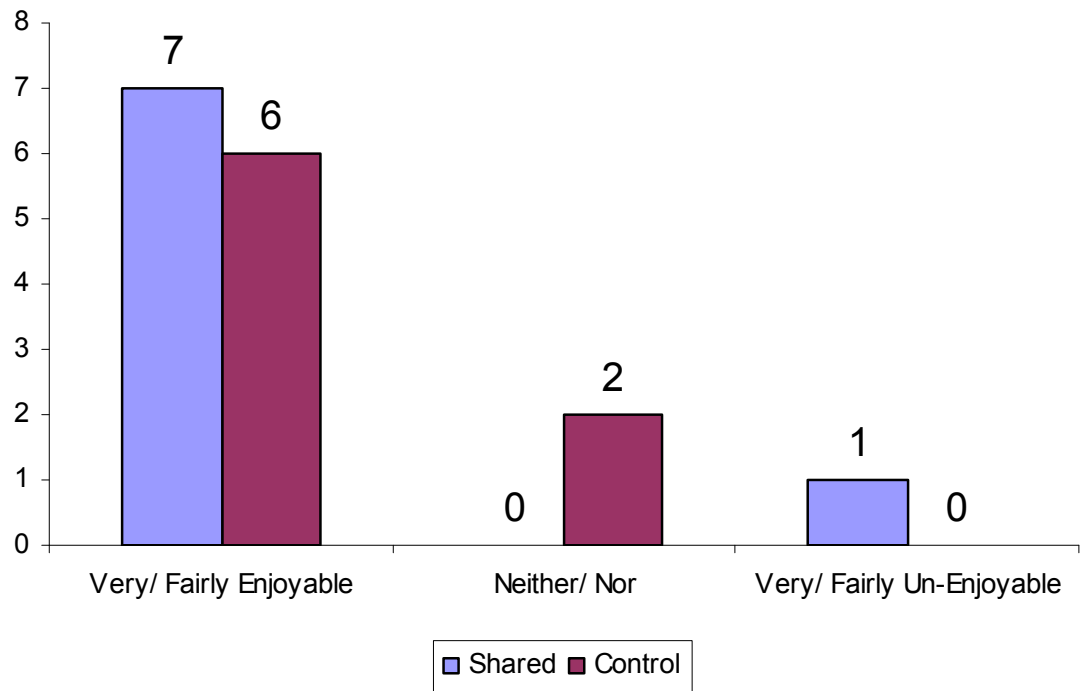
Figure 5.8 The level of enjoyment experienced by those with learning difficulties in the control and shared space streets

5.4.22   Participants were asked what other words they would use to describe how they felt on the shared space streets. One participant said they felt safe, one said they felt calm and one said they felt cautious.

5.4.23   All participants were asked at the end of the accompanied journey how safe they had felt on the control streets and in the shared space. An equal number of participants said they felt safe in both street types (n=4 for each), however one participant said they had felt either very or fairly unsafe in the shared space and none had said this about the control streets.
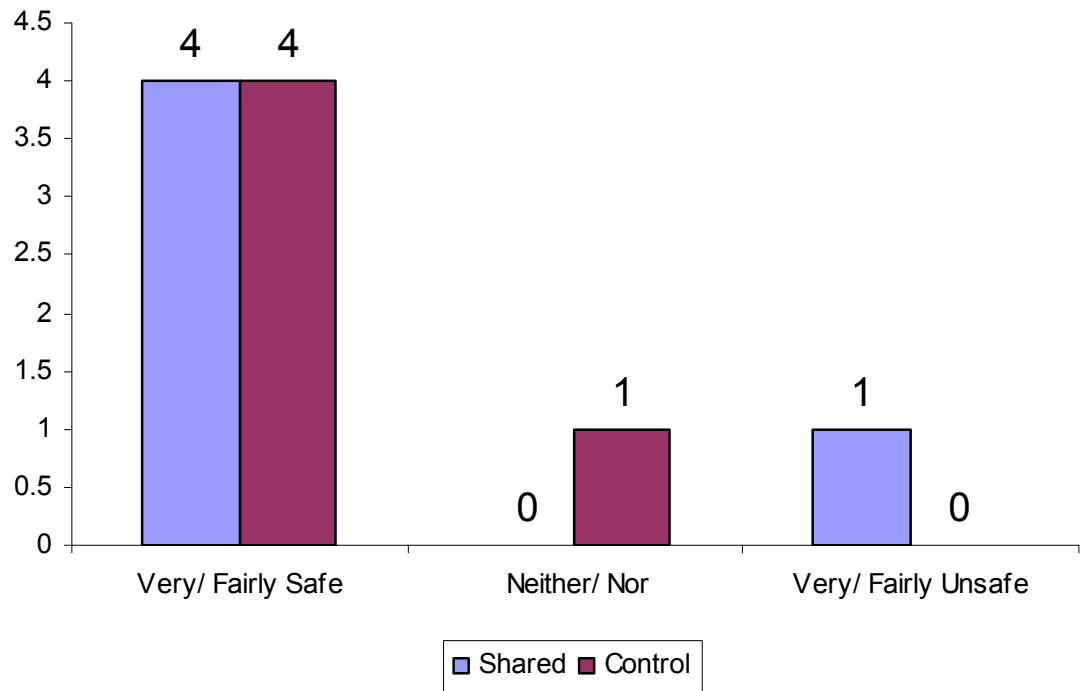
Figure 5.9 The extent to which those with learning difficulties felt safe in the control and shared space streets

Participants' Ideal Streets

The trade offs participants would make

5.4.24   Participants were asked to think about their ideal street and answer a number of trade-off questions about which they would prefer. The options they were offered and the numbers of participants choosing each are shown below:

Less obstacles and no seating – n=3
Seating that could be an obstacle – n=5
To be able to cross anywhere but without a controlled crossing – n=1
To be able to cross at a controlled crossing but for it to be out of your way – n=7
A narrower pavement, but separated from cars, bikes and other vehicles – n=4
More space to travel, but share the space with car, bikes and other vehicles – n=3
A flat, even surface with no kerb – n=4
A raised kerb to define the road and pavement – n=2
Colour defined pavement and road – n=3
Texture defined pavement and road – n=3
No vehicles and have to walk from bus stops/blue badge parking – n=1
Vehicles allowed right in to the street – n=4

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Participants' suggestions for Improvements

5.4.25   The following suggestions for improving control streets in order to make them easier to navigate were provided by at least two participants each:

- Raise kerb (n=2); and

- More sign posts (for shops and buses etc) with pictures (n=2).

5.4.26   Just one suggestion for improving the control streets in order to make them more enjoyable was provided by at last two participants:

- More greenery/flowers (n=2).

5.4.27   Just one suggestion for improving shared space in order to make it easier to navigate was provided by at least two participants:

- Add a kerb (n=2).

5.4.28   Finally, just one suggestion to make shared space more enjoyable was given by at least two participants:

- More greenery/plants (n=2).

5.5   People with Hearing Loss

5.5.1   Five deaf or hard of hearing participants took part in the 'Disabled People in Shared Space' research component; three were deaf from birth and had almost no spoken English, and two were hard of hearing, wore hearing aids and both spoke English as their first language.

5.5.2   Please note that quotations taken from the three deaf participants are quotations from the interpretation provided by the BSL translator, whereas all other quotations in this report are directly taken from participants.

Users versus Avoiders

5.5.3   Participants were asked a number of questions about general avoidance of streets, whether they usually used or avoided streets on the route, and whether they would use the shared space areas again in the future.

5.5.4   In general, two participants said they do avoid certain streets on occasion and three said they never avoid any. Of the two participants who did avoid some streets, one said this was only if they had a bad reputation and the other said they avoid particularly wide streets as she finds them hard to cross.

5.5.5   At the recruitment stage four of the five participants said they had previously passed through the area of town where the shared space is located; three said this was for leisure purposes and the fourth said it was for some 'other' reason. Three respondents said they passed through the area 5 or more times a week and one said 1-4 times a week.

5.5.6   Later, during the main fieldwork, participants were asked about their previous use of the streets on the route. All five participants had used at least one of the streets on the route in the past; four said they had done so regularly in the past and one said they had done so

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occasionally. Three participants used the shared space streets the most often, one said they used all the streets the same amount, and one said they used one of the control streets most frequently. When asked if they would usually avoid any of the streets on the route just one participant said yes; she said she would avoid the control street (in Clapham) because it was very crowded.

5.5.7   At the very end of the questionnaire, participants were asked if they would use the shared space again. Four of the five participants said they would and gave the following reasons why:

- Because there is a shop/restaurant they like to use;
- Because they liked it;
- Because they like the market;
- Because it was clean.

5.5.8   The participant who said they would not use the shared space again said this because they felt it was dangerous.

Participant Awareness of Surrounding Area

5.5.9   While moving along the streets on the route, participants were asked various questions about what they were experiencing generally.

Control Streets

5.5.10   Two of the participants were hard of hearing and wore hearing aids; they were able to hear other people and traffic in the street. The three participants who were deaf from birth were also able to hear very loud noises, such as sirens, if they wore a hearing aid but generally could not hear anything else.

5.5.11   Through using their sight, all but one participant said they were aware of the traffic. Other aspects of the streets that participants were aware of were:

- Other people (n=3);
- Shops (n=3);
- Traffic lights (n=2);
- Bus stops (n=1);
- A telephone box (n=1); and
- Uneven paving (n=1).

"Down at the bottom there's lights and that is where I would cross the road." (Hard of Hearing, Clapham)

"It's quite busy today. Nice and sunny though … I can hear the traffic beside me, I can see quite a lot of people walking up towards the station, the shops are over onto my right, Debenhams is over on the corner." (Hard of Hearing, Clapham)

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Shared Space

5.5.12   When in the shared space, three participants noted that it was quieter, with less people and less traffic, than it had been in the control streets. Two participants also pointed out uneven paving.

"[The pavement is] very up and down, not so busy along this road at all … the bus over there, there's people, as I say not as many people." (Hard of Hearing, Clapham)

5.5.13   One participant said he was aware of the traffic noise and also the background noise which made it difficult for him to concentrate. Another participant commented that she was aware of the road.

Participant Awareness of Own Positioning

Control Streets

5.5.14   Four of the five deaf/hard of hearing participants discussed their position in the street with the interviewer. Three walked centrally along the pavement and the other walked close to the building line. Different reasons were given by each participant for why they were walking where they were. Of those who walked centrally the following reasons were given:

- Because she feels safer here;
- Because of her balance problems (common with profoundly deaf people); and
- Because she has more space here.

"That's where I feel safe. I feel safe in the centre. I don't like being too near the walls, being blocked in, but I'm not too near the kerb." (Hard of Hearing, Clapham)

"I'm walking in the middle because people can walk either side of me. It gives me more room and it gives people more room." (Deaf, Plymouth)

5.5.15   The participant who walked close to the building line explained that it did not matter to him where he walked.

Shared Space

5.5.16   Respondents tended to continue to walk centrally along the 'footway' in the shared space, much like they had on the pavements in the control streets. Participants were less able to justify the reason for their position, with two participants commenting that it was not a conscious decision, just habit.

"Until you pointed it out to me I wouldn't have said I walked in the middle of the pavement to be honest with you but now you're saying it, this is where I normally walk when I'm walking." (Hard of Hearing, Clapham)

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How comfortable are participants in different street environments?

Control Streets

5.5.17   Generally participants were fairly positive about the control streets and one participant in Plymouth commented that he liked the wide pavements, the fact that the area was clean, and the shade from the trees.

5.5.18   However, two participants pointed out negative aspects of the streets: one said the area was nice but it was too crowded; and one felt that the area was somewhat run down.

"Yes, it's very good; I'm used to this area. I walk around, shop, have something to eat. But at the traffic lights, when a lot of people are walking across the road in the opposite direction towards me, then it is a problem." (Deaf, Clapham)

5.5.19   Participants were asked what other words they would use to describe how they felt in the control streets. The following were said by one participant each:

- Nervous; and
- More aware.

Shared Space

5.5.20   All five participants enjoyed the shared space and made positive comments about it. Two participants commented on the aesthetics of the areas, and one specifically commented that it looked much better than it used to. One participant noted his comfort in the area was largely due to the fact he was very familiar with the area, another noted that she liked the fact the shared space was quieter than the control streets.

"Fine, quite safe, quite, you know, quite happy … Oh yeah I quite enjoy it, I mean it's nice, nice shops, nice to look at, lovely café." (Hard of Hearing, Clapham)

"I like taking my time here; yeah I enjoy looking around, looking at people, looking at shops." (Deaf, Clapham)

5.5.21   However, one participant in Walworth Road did think further improvements could be made, pointing out some cracked paving and commenting that the area needed 'brightening' up.

5.5.22   During the structured questionnaire, all participants were asked to rate how comfortable or uncomfortable they felt on both the control streets and shared space. A higher number of participants said they felt either very or fairly comfortable on the shared space than said so about the control streets (n=4 compared with n=3).

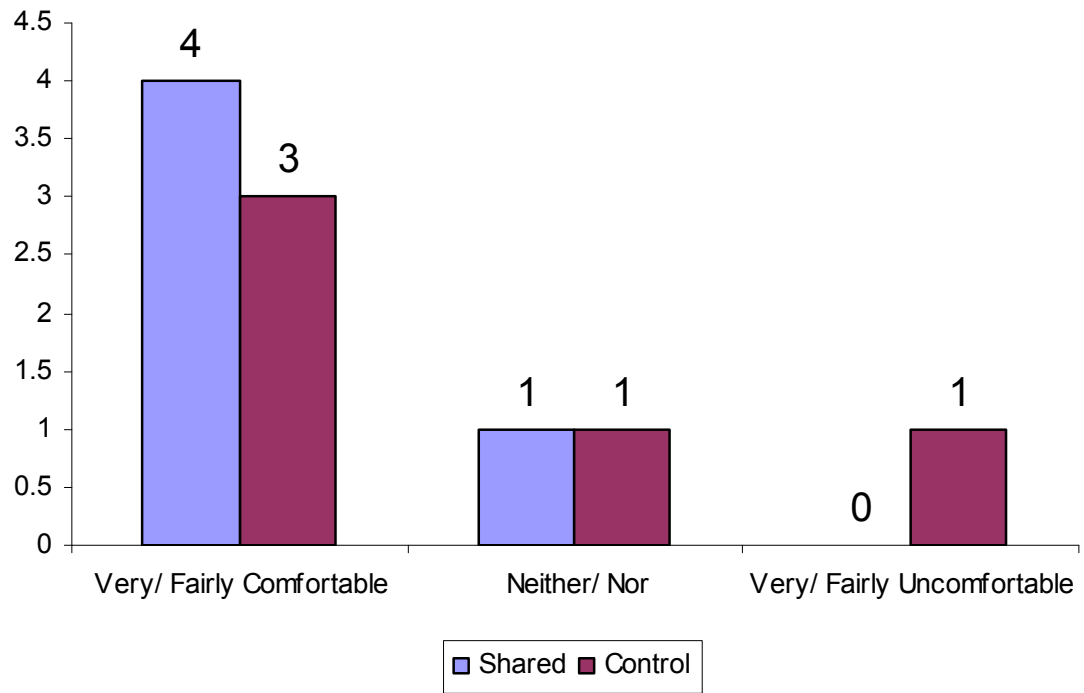**mva**consultancy

Figure 5.10 The level of comfort experienced by those with hearing loss in the control and shared space streets

5.5.23   Participants were also asked to rate the extent to which they enjoyed or did not enjoy the shared space. All five participants said they found the shared space enjoyable compared to four who said they found the control streets enjoyable.

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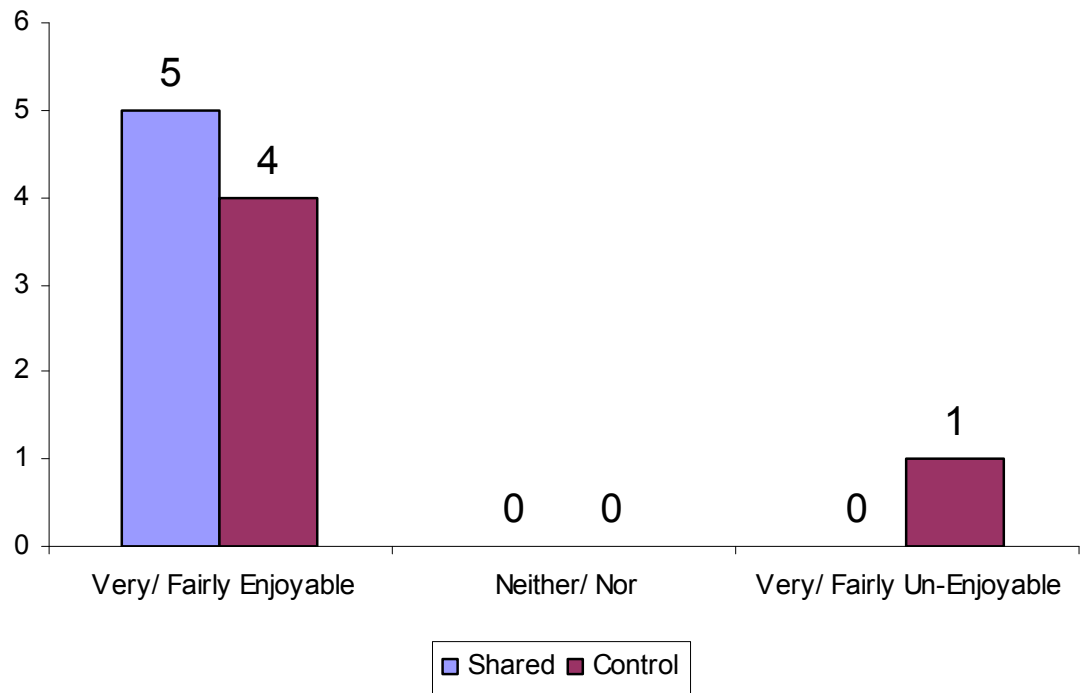
Figure 5.11 The level of enjoyment experienced by those with hearing loss in the control and shared space streets

5.5.24   Finally, participants were asked to rate how safe or unsafe they felt on both the shared space and control streets. All five participants said they felt safe on the shared space compared to four who said they felt safe on the control streets.
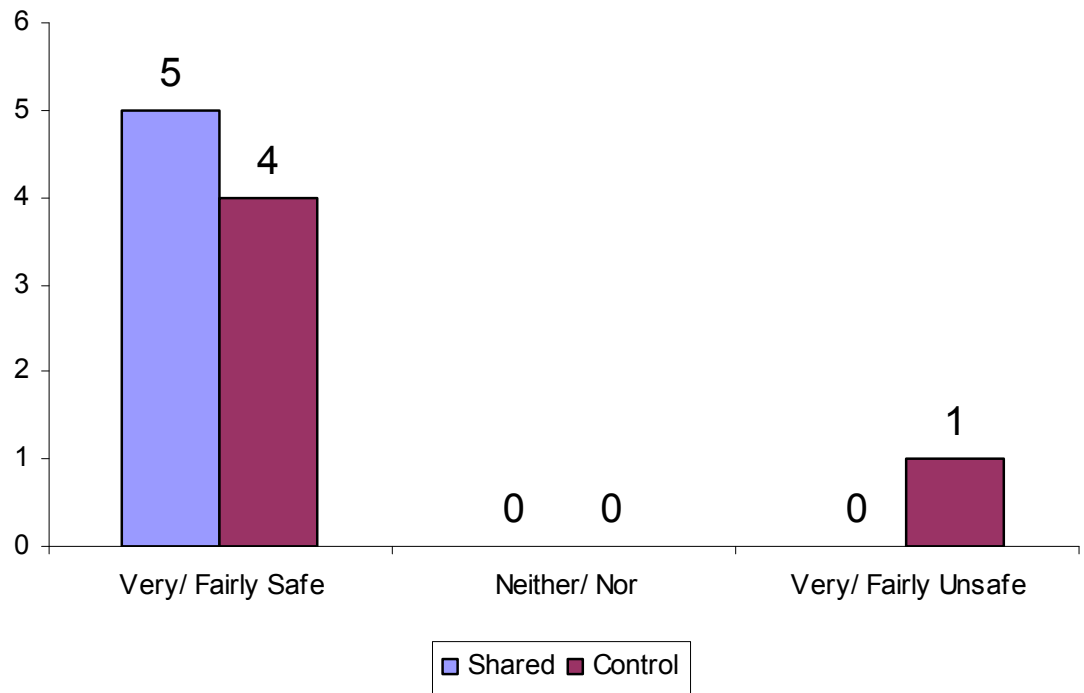
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Figure 5.12 The extent to which those with hearing loss felt safe in the control and shared space streets

5.5.25   Participants were asked what other words they would use to describe how they felt in the shared space. The following were said by one participant each:

- More aware; and
- Excited.

Participants' Ideal Streets

The trade offs participants would make

5.5.26   Participants were asked to think of their ideal street and answer a number of trade-off questions about what they would prefer. The options they were offered and the numbers of participants choosing each are shown below:

Less obstacles and no seating – n=1
Seating that could be an obstacle – n=3
To be able to cross anywhere but without a controlled crossing – n=2
To be able to cross at a controlled crossing but for it to be out of your way – n=3
A narrower pavement, but separated from cars, bikes and other vehicles – n=2
More space to travel, but share the space with car, bikes and other vehicles – n=2
A flat, even surface with no kerb – n=4
A raised kerb to define the road and pavement – n=1

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Colour defined pavement and road – n=4
Texture defined pavement and road – n=1
No vehicles and have to walk from bus stops/blue badge parking – n=4
Vehicles allowed right in to the street – n=1

Participants' suggestions for Improvements

5.5.27   Participants were asked how they thought the control streets and shared space areas could be improved, either to make them easier to navigate or to make them more enjoyable.

5.5.28   Two participants suggested that control streets would be easier to navigate if the pavements were better maintained/improved.

5.5.29   A number of other suggestions were provided for improving navigation and enjoyment of both street types. However, not more than one participant suggested each.

5.6   Similarities and differences across user types

Users versus Avoiders

5.6.1   Some participants from each user type (visually impaired, mobility impaired, learning difficulties and deaf/hard of hearing) said they avoided certain streets. One reason for avoiding streets, that was identified across all user types, was if the street was particularly busy (both with other pedestrians and with vehicles). Visually impaired participants and mobility impaired participants also both said they might avoid a street if it had a lot of street furniture; visually impaired participants and those who were deaf/hard of hearing both said they might avoid a street if it was particularly wide; and those with learning difficulties and those who were deaf/hard of hearing said they would avoid a street if they thought it had a bad reputation.

Participant Awareness of Surrounding Area

5.6.2   All participants were asked what they were aware of while they walked along the streets on the route, for example, depending on their disability, they were asked what they could see, hear and/or feel. Participants across all user types said they were aware of other people, the traffic in the carriageway and the paving surfaces. None of the participants liked cracked or uneven paving, and some of the mobility impaired participants considered the tactile paving to be uncomfortable underfoot. In addition, visually impaired participants were likely to say they were aware of the building line as they often used this to aid their navigation.

Participant Awareness of own Positioning

5.6.3   Most participants across all user types were able to correctly identify where they were on a street in relation to other users. Visually impaired participants found this harder in the shared space than in the control streets, and also appeared to find it harder than the other user types. It was most common for them to use the building line to help them determine their position, but they also used familiar landmarks, a sense of what other pedestrians around them were doing, the kerb, and the noise and line of the traffic.

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5.6.4   In the shared space some of the participants with learning difficulties identified their position as on the pavement; while there were no pavements, these participants were positioned to the side of the carriageway where one might typically expect a pavement to be. They were asked why they thought they were on the pavement and they either rationalised that they could see where the edge of the carriageway finished or, like the visually impaired participants, they based their assumption on what other users in the street were doing.

5.6.5   Participants across all user types either walked centrally along the footways or stayed closer to the building line. These were considered the safest places to be. For mobility impaired participants positioning was more likely to vary than it was for other user types because they needed to position themselves on the flattest area or needed to avoid obstacles and other people.

How comfortable are participants in different street environments?

5.6.6   The majority across all user types said they felt fine in the control streets. Figure 5.13 shows the overall proportions of disabled participants who felt comfortable and uncomfortable in the control and shared space streets. However, in the shared space streets the visually impaired participants were most likely to feel less comfortable due to an uncertainty over their position in the street.
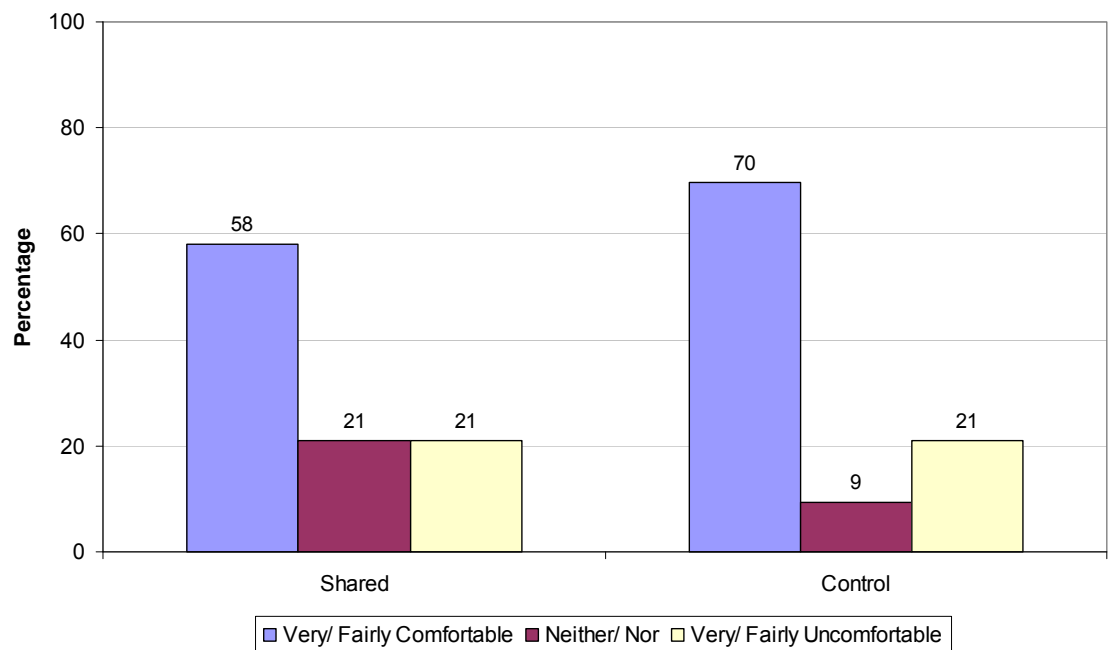
Figure 5.13 Feelings of comfort in the control and shared space streets, across all four disability types

5.6.7   As shown in Figure 5.14, a higher number of visually impaired participants and participants with learning difficulties (n=14 and n=8, respectively) said they felt comfortable in the control streets than said they felt comfortable in the shared space (n=8 and n=7, respectively). Whereas a higher number of mobility impaired participants and deaf/hard of hearing participants said they felt comfortable in the shared space (n=6 and n=4, respectively), than said they felt comfortable in the control streets (n=5 and n=3, respectively).

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Figure 5.14 A comparison of feelings of comfort in the control and shared space streets, by disability type

5.6.8   Visually impaired participants were the only user type to have a higher number of participants saying they felt safe in the control streets (n=9) than saying they felt safe in the shared space (n=6).

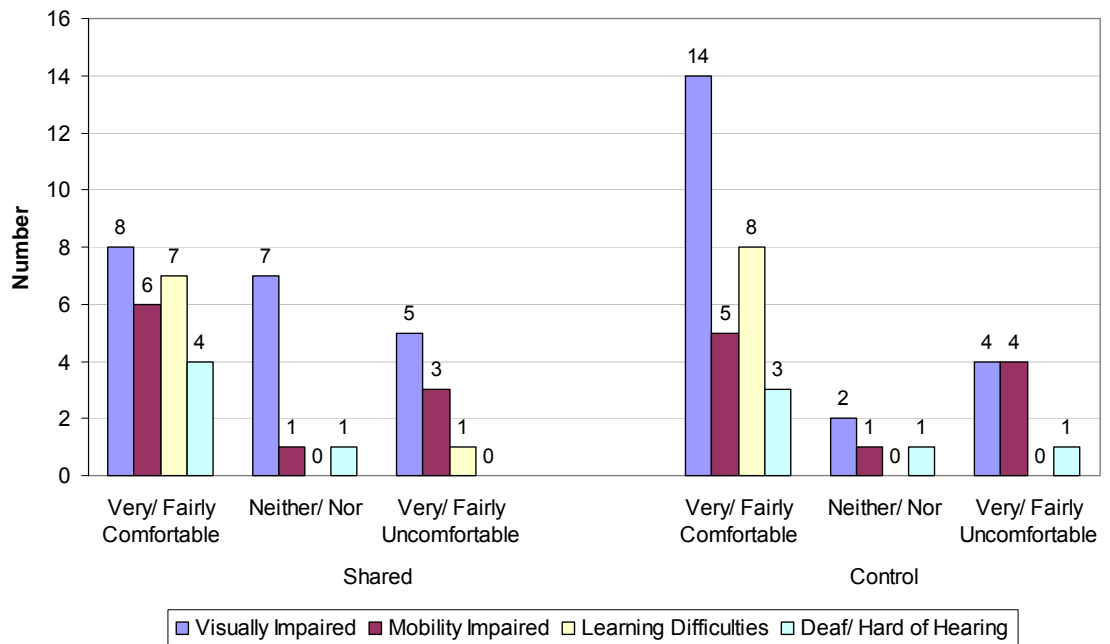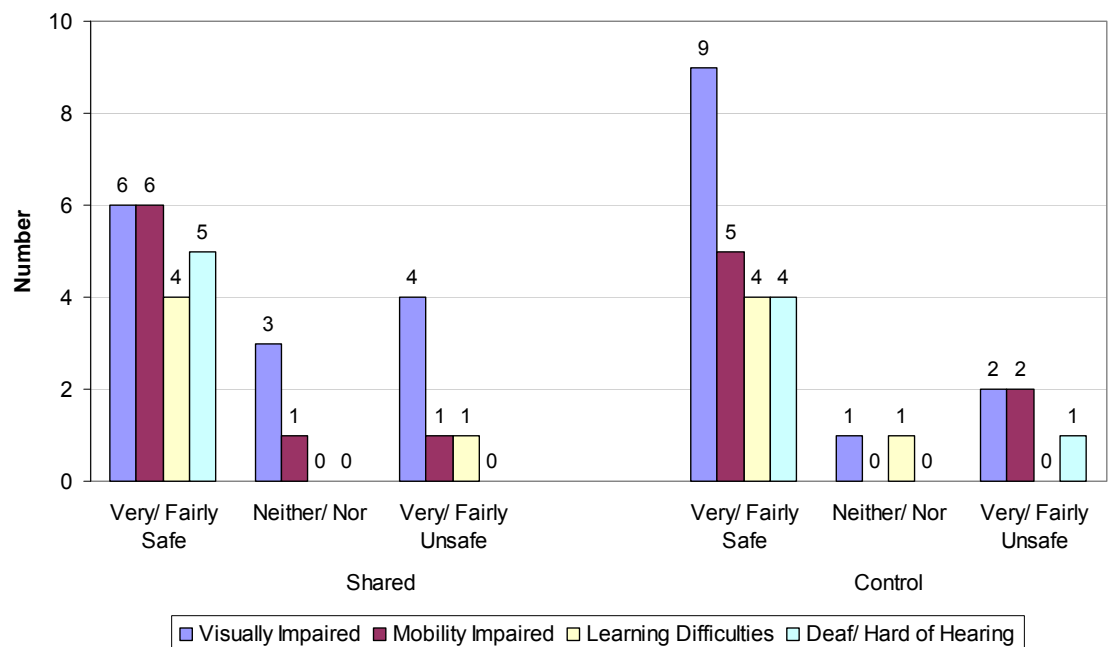**Figure 5.15 A comparison of feelings of safety in the control and shared space streets, by disability type**

5.6.9   Visually impaired participants were equally likely to say the control streets were enjoyable and that the shared space was enjoyable (n=8 for each), whereas all other user types had a

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higher number of participants saying the shared space was enjoyable than saying the control streets were enjoyable.
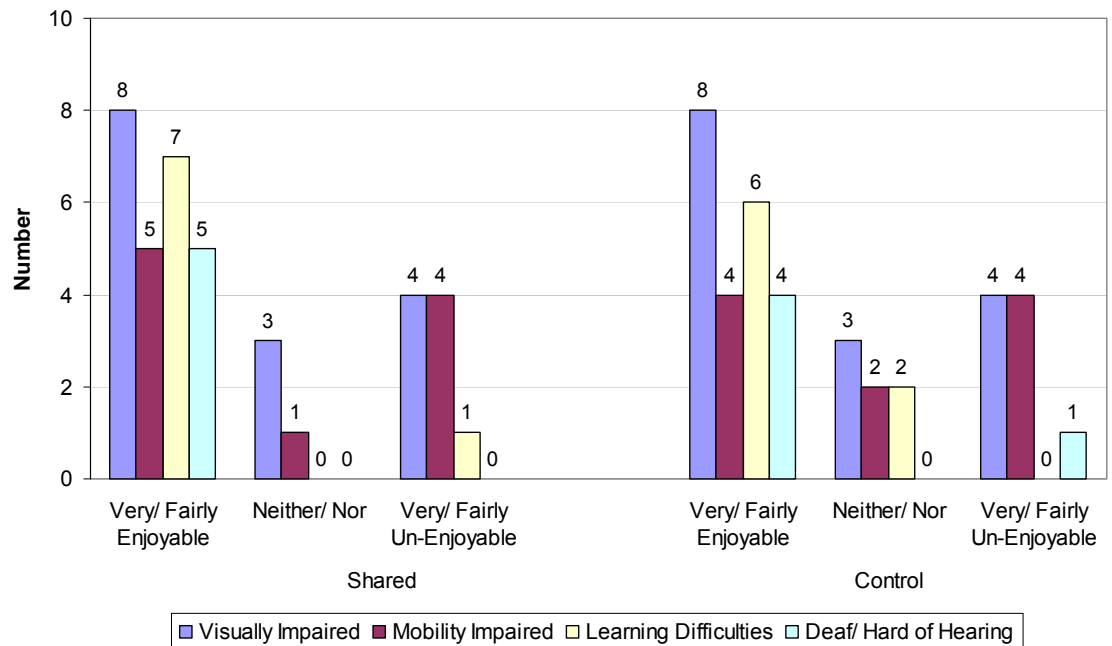

Figure 5.16 A comparison of the extent to which people with different disabilities enjoy control and shared space streets

5.6.10   Across all user types, familiarity with a street was key to helping participants feel safer and more comfortable and hence being able to enjoy it more. Wide pavements and quieter streets were also important for all user types. Uneven paving reduced comfort for all user types.

Participants' Ideal Streets

5.6.11   Participants across all user types were asked to think of their ideal street and answer a number of trade-off questions about what they would prefer:

- ■   The majority of visually impaired participants said they would prefer less obstacles and no seating, than seating that could be an obstacle (the majority of all other user types preferred the opposite scenario);

- ■   The majority of visually impaired, mobility impaired and learning difficulty participants said they would prefer to be able to cross at a controlled crossing but for it to be out of their way, than to be able to cross anywhere but without a controlled crossing (it was also slightly more likely for deaf/hard of hearing participants to prefer this option);

- ■   The majority of visually impaired and mobility impaired participants said they would prefer a narrower pavement separated from cars, bikes and other vehicles, rather than having more space to travel but sharing that space with cars, bikes and other vehicles (it was also slightly more common for learning difficulty participants to prefer this option and equal numbers of deaf/hard of hearing participants preferred each option);

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■   The majority of visually impaired participants said they would prefer a raised kerb to define the road and pavement, than a flat even surface with no kerb (the majority of all other user types preferred the opposite scenario);

■   The majority of visually impaired participants said they would prefer texture defined pavement and road, than colour defined pavement and road (it was slightly more common for mobility impaired participants to prefer colour definition; the majority of deaf/hard of hearing participants preferred colour definition; and, an equal number of learning difficulty participants preferred each option); and

■   The majority of visually impaired, mobility impaired and deaf/hard of hearing participants said they would prefer no vehicles in a street and have to walk from the bus stops/blue badge parking to get there, than vehicles being allowed in the street (the majority of learning difficulty participants preferred the opposite scenario).

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Table 5.1 Participants' Ideal Streets

Trade offs	All	Visually Impaired	Mobility Impaired	Learning Difficulties	Deaf/Hard of Hearing
Less obstacles and no seating	19	13	2	3	1
Seating that could be an obstacle	23	7	8	5	3
To be able to cross anywhere but without a controlled crossing	7	1	3	1	2
To be able to cross at a controlled crossing but for it to be out of your way	33	17	6	7	3
A narrower pavement, but separated from cars, bikes and other vehicles	25	10	9	4	2
More space to travel, but share the space with car, bikes and other vehicles	7	2	0	3	2
A flat, even surface with no kerb	18	3	7	4	4
A raised kerb to define the road and pavement	17	12	2	2	1
Colour defined pavement and road	16	5	4	3	4
Texture defined pavement and road	17	10	3	3	1
No vehicles and have to walk from bus stops/blue badge parking	18	8	5	1	4
Vehicles allowed right in to the street	13	5	3	4	1

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6   Findings: Legibility in Shared Space

6.1   Introduction

6.1.1   'Legibility in Shared Space' was designed to focus on disabled people's specific experiences navigating shared space, including: How they orientate and navigate; what makes it easier or more difficult for them to navigate; and what value different design features have.

6.1.2   Findings are split by disability type:

- Section 6.2 presents the findings from research with visually impaired people;

- Section 6.3 presents the findings from research with mobility impaired people;

- Section 6.4 presents the findings from research with people with learning difficulties; and

- Section 6.5 presents the findings from research with those who were deaf/hard of hearing.

6.1.3   Within each of these sections, the reporting format typically provides the findings from the control streets followed by the findings from the shared space streets for each street feature in turn.

6.1.4   This chapter concludes with a summary of findings across all four user types.

6.2   Visually Impaired People

6.2.1   As with 'Disabled People in Shared Space', twenty visually impaired participants took part in 'Legibility in Shared Space' across seven sites. Ten participants were partially sighted (6 of which said they were registered blind) and 10 were blind (9 of which said they were registered).

6.2.2   In total six guide dog users, 11 cane users (mixture of roller, long and symbol canes), and three visually impaired participants who used no aids participated in the research.

6.2.3   At the end of the accompanied walk, participants were asked how easy or difficult they found it to navigate along the control streets and the shared space areas. Results were fairly similar, with 12 participants saying they found the control streets either fairly or very easy to navigate and 11 saying they found the shared space either fairly or very easy to navigate.
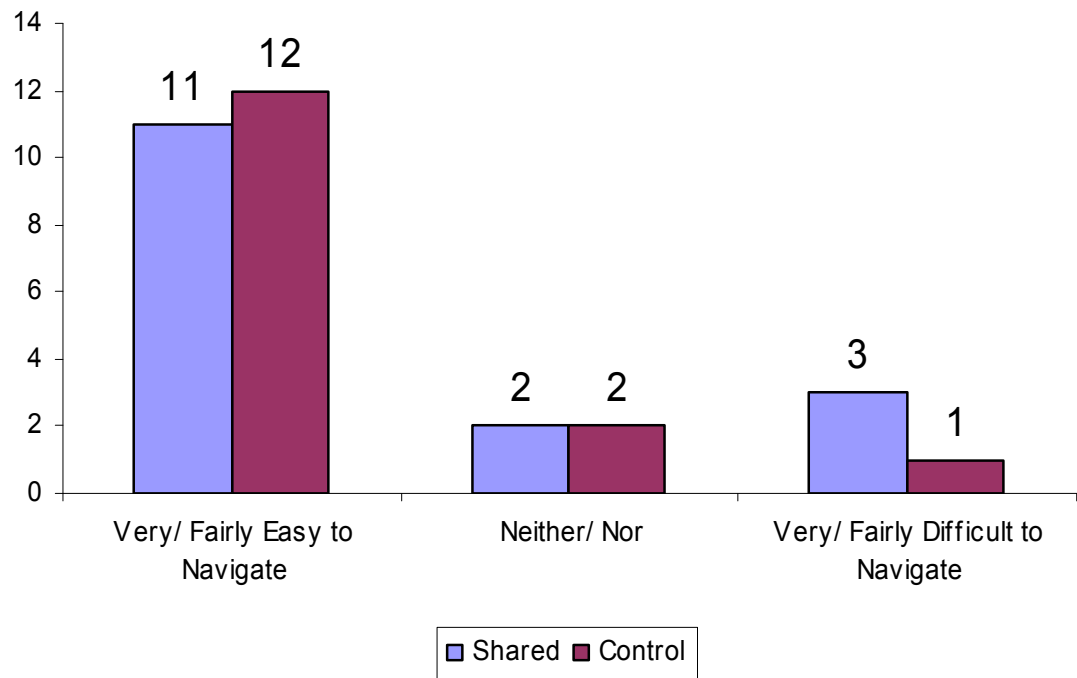
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Figure 6.1 The extent to which visually impaired participants found it easy to navigate the control and shared space streets

6.2.4   The following sub-sections provide the findings from the accompanied journeys split by design feature (e.g. kerb) or by task (e.g. crossing the road). The final sub-section then provides the results from the structured questionnaire which highlight the relative level of importance of each design feature and further information about how participants use design features.

Navigating Kerbs

Control Streets

6.2.5   Ten of the 20 participants came across a kerb during the accompanied journey. They were specifically asked if they knew what it was and they were all able to correctly identify it as the kerb.

"That was the kerb edge so that's made me realise I was walking a bit close to the kerb so I'll just come in slightly." (Visually Impaired, White Cane user, Brighton)

6.2.6   Only two of the 10 participants rated the ease of detection of the kerb, however both said the kerb was very easy to detect.

6.2.7   The remaining 10 participants did not locate the kerb whilst walking along the footway. However, three participants commented that they would have been able to detect it if they had come across it.

"Only by going to the kerb edge to cross." (Visually Impaired, Guide Dog user, Newbury)

"I think I would because I would say to Meg find the kerb and she stops at the kerb." (Visually Impaired, Guide Dog user, Plymouth)

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6.2.8   Participants were asked what the meaning of the kerb was. It was most common for them to say it gave them information about where the edge of the pavement and start of the road is.

"Just as a guide to where the road is for a safety point of view because that tells me hang on a minute that's the road and if I step off there, there's more danger, I've got a chance of getting knocked down. And it is used also as an orientation point you can straighten yourself up against the kerb ... [Interviewer asks: Do you follow the kerb?] Only if I'm looking for something in particular say if I was going along here looking maybe for a post box that was on the edge of the kerb, then I would, or if it was particularly crowded, the pavement, then I would have to just follow the edge of the kerb as best I could. But generally I don't use the kerb unless obviously I want to, the main thing is crossing." (Visually Impaired, White Cane user, Brighton)

"It lets me know I am at the edge of the pavement." (Visually Impaired, White Cane user, Slough)

"The kerb would normally tell me that the road is the road and the pavement is the pavement." (Visually Impaired, does not use an aid, Walworth road)

6.2.9   In addition, one participant added that the kerb was used as an orientation aid to straighten oneself up against; another said that it signalled to them that they had reached the other side of the road and needed to take a step up; and one said they used it as their main landmark. Several participants noted that the information gained from locating the kerb was either fairly or very useful.

6.2.10   In terms of the ease of use of the kerb for navigation, participants gave varying responses. Some felt it was either fairly or very easy to navigate with a kerb while others found it more difficult. Guide dog users were particularly likely to say it was easier to navigate with a kerb because their guide dogs have been trained to find and wait at kerbs.

"[The kerb has] got to be raised for the dog to feel. It can't be just a little tiny bit because you get uneven pavements. It's got to be a decent step for the dogs to pick up on." (Visually Impaired, Guide Dog user, Leeds)

6.2.11   Generally participants liked having a kerb; it gave them reassurance that they were in a safe place and could then enjoy the area more.

"You think oh thank goodness I'm out of it and then you relax a little and get on with what you should be doing." (Visually Impaired, Guide Dog user, Plymouth)

"I'm not so dependent on it [the kerb], but I like to feel that I'm stepping down from a kerb and then I'm actually in the road, or vice versa." (Visually Impaired, does not use an aid, Walworth Road)

6.2.12   Several participants thought a low kerb would be just as good as a standard height kerb, as long as there was some level of height difference for them to detect. In fact several participants undertook journeys in areas with slightly lower kerbs (70mm) than the standard height (125mm – 140mm) and were able to detect them without problem.

"Yeah it's quite low actually compared to a lot of heights but at least it is an edge to find and if I stepped off it I would know it." (Visually Impaired, White cane user, Brighton)

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6.2.13   Two participants noted that high kerbs were difficult to navigate and preferred lower kerbs or even a level surface. This was either due to the participant's physical abilities or their anxiety about tripping on a kerb and falling into the road. One participant said he preferred the use of tactile paving instead of a kerb as he found it easier to detect and because tactile paving was not a tripping concern for him (unlike the kerb).

6.2.14   Two participants noted that a level surface or sloped kerbs would be of benefit to mobility impaired people, but still stated their preference for kerbs due to people with visual impairments relying on a change in surface to indicate the start of the road.

"That's a good kerb for us, it's well pronounced. Some of them aren't clear enough and they slope down, which is good for wheelchairs but not for blind people." (Visually Impaired, White Cane user, Walworth Road)

6.2.15   Some participants were asked what they would do if there were no kerbs. One participant commented that she would have to use the building line instead, while another commented how difficult it would be for him to cross the road safely.

"It would be very difficult, I'd have to wait at every crossing, which I've had to do at times … I don't think I'd risk it … I think I'd have to wait for someone to help me." (Visually Impaired, White Cane user, Walworth Road)

"Well I'd have to try to stick to the building line but obviously along here that would be very difficult because of the things that are out in the pavement and just hope that I walk as centrally as possible and just keep very, very slow and just listen to the traffic and where people are walking." (Visually Impaired, White Cane user, Brighton)

Shared Space

None of the shared spaces streets we undertook research at had kerbs. However, some comments were made about kerbs while being in the shared space:

- One participant commented that not having a kerb made her feel less safe and less confident;

- One participant expressed a desire for a kerb in the shared space due to her Guide Dog needing a kerb in order to guide her as it has been trained to;

    "The dog will wander off because there is no kerb line to stop them." (Visually Impaired, Guide Dog user, Newbury)

- One participant noted the tactile paving which was in place instead of the kerb and said she felt comfortable with this design because she was already familiar with the area. In addition, this participant relied on her own knowledge of the road to control her Guide Dog, rather than the dog guiding her.

    "I felt it was something different, I just knew there was a change in surface but because I know the area and I'd already crossed along there I knew." (Visually Impaired, Guide Dog user, Leeds)

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Navigating Level Surfaces

Control Streets

6.2.16   The side roads in Walworth Road had a level surface with the footway, as did the loading bays, and in Leeds there was a level surface on one crossing and a lowered kerb at another point.

A level surface in Walworth Road

A level surface in Leeds

6.2.17   Six visually impaired participants took part in the research in Walworth Road; four participants were able to detect the the level surface, either because they had some vision or because they felt the different paving underfoot which indicated the difference between two areas; one participant was not able to detect it and had thought she was still on the footway when crossing a side road; and one did not answer questions about the level surface within the control area.

"If I felt the bumps I would know I was coming to some kind of road." (Visually Impaired, White cane user, Walworth Road)

6.2.18   Two participants commented that they liked the the level surface, one of which explained this was because it meant there was no trip hazard.

"Like when crossing is level with street, easier to cross." (Visually Impaired, White Cane user, Walworth Road)

6.2.19   One partially sighted participant thought that better tonal contrast would help better differentiate between the road and the footway.

"I know it's difficult because you don't want to raise surfaces too much because otherwise they can become obstacles but maybe it could be a different colour for people who have some sight." (Visually Impaired, does not use an aid, Walworth Road)

6.2.20   Four visually impaired participants took part in Leeds. Two of these participants were able to detect either the flush crossing or lowered kerb due to a sloping surface and use of tactile paving. One also noted that their Guide Dog was also able to function with this type of tactile paving and the slight gradient change.

6.2.21   Another participant found the use of tactile paving in this area confusing and ended up positioning herself on the wrong side of a set of traffic lights before crossing. The fourth participant did not answer questions about the level surface within the control area.

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Shared Space

6.2.22   All our shared space areas had a level surface. Mostly it was the participants with at least some vision who were able to identify when they had passed from the footway into the road, however some profoundly blind participants were also able to recognise the change. In total 11 participants were able to detect when they crossed from footway into the road.

6.2.23   Ways in which people detected the change included using their existing vision (either by being able to see the road or the colour contrast between the road and the footway); by feeling the tactile paving either with their feet or through their cane (in some locations this was blister tactile paving while in others it was corduroy tactile paving or simply different paving types in the two areas); two participants said that the use of bollards helped make the change in area more obvious; and familiarity with the area was also helpful.

"If I felt the bumps I would know I was coming to some kind of road." (Visually Impaired, White Cane user, Walworth Road)

"I've lived here all my life, before it was even started so I know the outlay." (Visually Impaired, Guide Dog user, Newbury)

6.2.24   Two participants said that they liked the the level surface because it was easier to navigate or cross. However, although some participants could detect the change in surface, it did not necessarily mean they felt comfortable in the space.

"I don't like it, I don't like it at all; I think it's very dangerous." (Visually Impaired, does not use an aid, Walworth Road)

"It depends if my stick gets caught on the cobbles, that makes it difficult, because I don't always see when it gets caught so it ends up hitting me in my stomach." (Visually Impaired, White Cane user, Leeds)

6.2.25   Six participants were not able to detect when they crossed from footway into road and a further one participant was able to detect it at some points but not at others. Two participants did not provide comments on the the level surface.

6.2.26   Reasons for not detecting the change included the lack of kerb, and also in some places a lack of tactile paving. One participant was only aware she had crossed the entire width of the road when she came across some benches on the far side; until that point she had not detected anything that would signal to her she was in the road. Another participant just thought that she was on a very wide pavement; she knew that the building line was on her left and her Guide Dog had taken her up the street along side it, she could also sense that it was quite an open area.

6.2.27   One participant was particularly confused when they located some tactile paving but were then unable to locate the crossing: There were two crossings side by side with tactile paving tails and the one this participant had located was not for the crossing he was making. Another participant missed the tactile paving at one point and drifted into the road. The level surface was also confusing for the Guide Dogs: one participant commanded his dog to 'find the kerb' but the dog was unable to and stopped when we reached the building line instead.

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6.2.28   Some participants noted that they felt disorientated or anxious when there was no kerb to help them navigate.

"A bit disoriented, it's a much wider pavement isn't it and I can hear cups, is it? Cups and saucers over the other side or glasses or something over the other side ... well I'm near a building that's to my left hand side here. Apart from that it's a very wide space I know that ... A bit uncomfortable, I'm not quite so sure of myself." (Visually Impaired, Guide Dog user, Brighton)

"I don't like it; the dog is trained to go to the kerb. I've had to train him myself for shared space." (Visually Impaired, Guide Dog user, Newbury)

"I am very anxious because I really don't know where I'm walking. I don't know if I'm up against the building line or all the way out into the roadway." (Visually Impaired, Guide Dog user, Newbury)

Navigating the Building Line

Control Streets

6.2.29   Fourteen participants detected the building line in the control streets and answered questions about their use of it; two participants said they did not use the building line for navigation; and, four participants did not answer questions about the building line whilst in the control streets.

6.2.30   Of those who identified the building line, some used it as a guide to follow, some used it to help them position themselves on the footway or to give them information about their distance from the traffic and others used it for support or as safety reassurance.

"If you know you've got the building line one side of you and the kerb the other side and you know you are walking between the two you feel a lot more comfortable." (Visually Impaired, Guide Dog user, Newbury)

6.2.31   One participant said he would avoid the building line once he'd detected it in order to avoid obstacles.

"The only time I get near the buildings is when it is really busy ... [to avoid getting] bumped around." (Visually Impaired, White Cane user, Slough)

6.2.32   Participants identified the building line either through their existing sight or with a cane. However, they were not always actively trying to locate it:

"No [I was not trying to locate it], I like to be more independent than that but I like to feel its presence and be aware that it's there." (Visually Impaired, White Cane user, Walworth Road)

6.2.33   Of the two participants who did not use the building line, one had partial sight and one was a guide dog user. Both participants said however, that they might use the building line to aid their navigation in other circumstances eg if in an unfamiliar place or if not out with the guide dog.

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Shared Space

6.2.34   Fourteen participants detected the building line while in the shared space; one participant commented that he didn't use the building line for navigation (this was the same partially sighted participant that said he did not use the building line for navigation in the control streets); one participant was not able to locate the building line; and four participants did not answer questions about the building line whilst in the shared space.

6.2.35   Of those participants who detected the building line, generally they gave the same reasons for why they use the building line and in what way they use it as they did in the control streets i.e. to position themselves on the footway and to use as a guide to follow. Again, participants located it either through sight or with a cane, and in addition one participant commented that they could sense it.

"You can feel the atmosphere of it." (Visually Impaired, Guide Dog user, Plymouth)

6.2.36   As in the control streets, participants were not always actively looking for the building line so that they could use it, but nevertheless it still offered them reassurance if they did locate it.

6.2.37   One Guide Dog user in Leeds commented that his dog uses the building line as a guide in the absence of kerbs; however for most of the shared space area in Leeds there is no building line and so this participant has had to train his dog not to veer off into Millennium Square. This participant also tends to use the building line as his first point of reference when determining his location.

6.2.38   The participant who was unable to locate the building line was also participating in the research in Leeds, but was a white cane user. She was not very familiar with the area and due to the lack of building line she veered off course into Millennium Square.

Navigating Obstacles

Control Streets

6.2.39   While on the control streets, 12 of the visually impaired participants came across or were aware of obstacles in their path and eight did not.

6.2.40   Different types of obstacle were encountered by participants:

- A-Boards;
- Bins;
- Rubbish bags and litter on the floor;
- A bicycle stand and a bike tied to railings;
- Posts;
- Trees;
- An electricity box;
- Raised paving stones;
- Drain covers;

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- Parked cars;

- Benches;

- A Parking Meter; and

- A Phone Box.

6.2.41   Some times participants were able to identify these obstacles correctly and other times they thought they were some other type of object. For example, one participant came across an A-board but commented that she had 'met a table or chair'. Participants could either see obstacles, or feel them with their cane, hands or feet.

6.2.42   When participants come across an obstacle they do not 'use it' as such, but it tells them that they need to make a decision i.e. 'How am I going to get around this?'

6.2.43   Some participants were asked why they chose to go around the object on the side that they did. Generally these participants either preferred to pass an object on the building side so as to avoid the road, or they had no choice because of the positioning of the obstacle e.g. the obstacle was against the building line and so they had to pass it on the other side.

"Well all I thought is I've got to walk one side of it and because I thought 'this isn't a very wide pavement' I wasn't going to move to the left of it [the road side of it] I so I came around to the right of it and hoped there was enough space to get through and there was, just. If I'd have gone the other side I would have probably found the kerb. I mean if there hadn't have been enough space I'd have had to go back to the kerb and found my way around that way." (Visually Impaired, White Cane user, Brighton)

"It depends if it is right in the middle of the path 'cause I don't know if there is anything either side, but that was quite far back so I knew I could get around it quite easily." (Visually Impaired, White Cane user, Leeds)

6.2.44   One participant commented that she is more aware of obstacles when navigating with a cane than she is when she is out with a Guide Dog.

"You find them more with a long cane than with a dog, the dog just walks around them." (Visually Impaired, White Cane user, Leeds)

6.2.45   Some participants found obstacles to be a nuisance and at times they could disorientate them. Obstacles can make it hard for participants to proceed in the way that they would like e.g. an obstacle might prevent them from following the building line. However, not all participants perceived obstacles to be a problem.

"I don't have a problem with A boards outside shops because I like to see [close up] what they say … some people find them a nuisance but I don't mind." (Visually Impaired, White Cane user, Walworth Road)

6.2.46   One participant commented that she wouldn't mind objects such as bike racks if they were positioned at the very edge of the pavement, either at the building line or at the kerb. However, this participant had some sight and for those without sight who use either the building line or the kerb to aid navigation, this suggestion would be problematic.

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"Why do they put it there, why can't they put it near the shops? Why do they put it in the middle, not dead centrally in the middle but why don't they put it right over on an edge where it's not an obstacle." (Visually Impaired, does not use an aid, Walworth Road)

6.2.47   All guide dog users who came across or were aware of obstacles said that they had been aware of their dog guiding them differently.

"She did all that; I don't have to deal with obstacles." (Visually Impaired, Guide Dog user, Leeds)

6.2.48   One participant, a guide dog user who did not have any problems with navigating obstacles, suggested that bollards along the sides of shared space areas are a good idea.

6.2.49   Some of the participants who did not come across any obstacles commented on why they thought this was so. One participant gave each of the following reasons:

- See obstacles before they are reached;

- Wide pavements with plenty of room to manoeuvre;

- Move slowly to avoid trip hazards;

  "I can't rush; I take my time and walk slowly." (Visually Impaired, Symbol Cane user, Walworth road)

- Guide dog takes participant around any obstacles.

  "Xxxx is very good, we go around them, but suddenly I come up against them you know it's not a nice feeling. He walks around them and I follow him but the board is there and I don't like the feeling of it being there … a bit shocked because you suddenly come up against something … it's frightening and I don't like it." (Visually Impaired, Guide Dog user, Brighton)

Shared Space

6.2.50   Fourteen participants each came across at least one obstacle while travelling along the shared space areas and six did not come across any.

6.2.51   Some of the types of obstacles participants came across were the same as those they encountered in the control streets while others were new obstacles for them eg café tables and chairs:

- Café tables and chairs;

- Bollards;

- Bins;

- A-boards;

- People at a cash point in the wall;

- Bicycle racks;

- Lampposts; and

- Parked cars.

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6.2.52   As in the control street, obstacles were located either by sight or through feeling them with a cane, hands or feet. Some participants correctly identify the obstacles they come across while others could not.

6.2.53   Participants felt that most obstacles gave them no specific information and had no particular meaning. However, several participants did comment on the meaning of bollards. One participant thought that bollards indicated that they should not cross (this participant also said they would hold on to them for support); one participant said the bollards were there to separate the footway from the road; and one participant, in an area without bollards, suggested that bollards should be used to distinguish between the road and the pavement and to ensure that blind people do not walk into the road.

6.2.54   Participants were asked which side of an obstacle they would pass them by. Several participants said they would pass obstacles on the building side so as to avoid the road and maintain safety. However, as in the control streets, this was not always possible depending on the exact positing of the obstacles and how busy the streets were.

6.2.55   One participant came across some parked cars; this confused her and she didn't want to move out to the right where the shared space opened out because she was then worried about other cars being able to access the area.

6.2.56   Obstacles tended to make people feel less sure of the situation and generally they consider them to be hazards. Most participants felt that obstacles made navigation harder, particularly for those who were using the building line as a guide to follow.

"I would be a bit concerned here because I guess I'm going to have to go left around it but I'm a bit worried then how near to the main road I'm going to be." (Visually Impaired, White Cane user, Brighton)

"Too much stuff outside … people generally stand around shops and if they move and I haven't realised there's stuff outside I actually bump into the stuff that's outside." (Visually Impaired, White Cane user, Clapham)

"I don't mind benches but what I do object to is cycle racks and lampposts in the middle of the pavement." (Visually Impaired, Guide Dog user, Newbury)

6.2.57   Several participants noted that café tables and chairs are obstructive. One participant made the suggestion that the tables and chairs should have a designated area, which is distinguishable for blind people.

"It would be nice if there was a certain part of the pavement where the furniture could only go up to that part and you could feel that area. That would be helpful." (Visually Impaired, Guide Dog user, Plymouth)

6.2.58   Two participants also commented on the colouring of obstacles, stating that silver metal objects such as bicycle racks and bins were much harder for them to see.

"I find the colours quite confusing… silver bollards blend in with the background." (Visually Impaired, White Cane user, Walworth Road)

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6.2.59   Another two participants were concerned by overhead obstacles; in one case the participant found overhanging tree branches to be problematic, while another participant in Clapham was concerned with some scaffolding and the possibility of walking into a side bar.

"It would be nice if there was a warning when something was going to hit your head." *(Visually Impaired, White Cane user, Walworth Road)*

6.2.60   Although the majority of participants were unhappy at the prospect of encountering obstacles, one participant actually found them useful as cues to aid navigation: At one point the participant noticed a manhole cover underfoot and, having previously noticed the slope into the market which led to the manhole cover, she said she would now know in future to go straight on at this point.

"When you're a guide dog owner and you've no sight at all, then you feel everything and you take your area and direction from all of it." *(Visually Impaired, Guide Dog user, Plymouth)*

6.2.61   As in the control streets, guide dog users were aware of their guide dogs guiding them around obstacles. However, it was pointed out by one participant that Guide Dogs are trained to go around obstacles keeping obstacles on their right and to stop at kerbs – this participant was of the view that because there is generally no kerb in shared space areas, guide dogs will take you into the road to get around obstacles, which the participant considered to be unsafe.

6.2.62   Of the six participants who did not come across any obstacles, all but one had partial sight. The one participant who was blind had been walking centrally along the footway and had managed to miss any obstacles.

Navigating Vehicles

Control Streets

6.2.63   None of the participants had to navigate any moving vehicles while travelling along the control streets. However, as was highlighted in the previous chapter regarding 'Disabled People in Shared Space', participants were generally aware of any traffic in the road.

"Traffic is a great help… I walk parallel to the direction of traffic." *(Visually Impaired, Guide Dog user, Newbury)*

6.2.64   Some participants were asked questions regarding parking bays. It was noted that two participants failed to detect them (one of which thought a more vibrant tonal contrast was needed); while a further two were able to detect them, both of whom said this was because of the use of tonal contrast.

"I did not realise that, that's a bit dangerous … it should be painted yellow and raised up." *(Visually Impaired, White Cane user, Walworth road)*

Shared Space

6.2.65   In the shared space areas there were a few vehicle encounters, though not many and these encounters were with parked cars; with moving vehicles while waiting to cross the street; or with cyclists.

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6.2.66   Three participants were aware of vehicles while standing on the virtual 'edge' of the road. Two respondents were waiting to cross; one waited for a bus to pass while the other waited until he could hear it was safe to cross. The third participant was standing on tactile paving which marked out the edge of the road and was able to detect a bus as it passed through road.

6.2.67   Two participants detected cyclists; one saw a cyclist on the footway and commented that it angers her, while the other assumed the cyclist was in the road as she wasn't aware that it was a shared space.

6.2.68   One participant found parked cars very confusing as she had assumed she was on the footway with the building line on her right, but had then located a parked car on her right hand side.

> "So I'm now totally confused, am I in the road, on the pavement, where? ... I can hear people ahead of me, I'd like to think it might be the pavement but I really don't know."
> (Visually Impaired, White cane user, Brighton)

Crossing the Street

Control Streets

6.2.69   Sixteen of the 20 participants crossed over a control street at some point during the accompanied journey. The remaining four participants did not cross a control street.

6.2.70   Of those who did cross over, they were aware of the following street features, signals or potential hazards:

- Tactile paving;
- Traffic lights;
- Green/red man;
- Audible crossing signals;
- Tactile rotating cone;
- Gradient change leading into the crossing;
- Presence of a kerb;
- Black and white lines of a zebra crossing;
- White broken lines;
- The level of traffic;
- Cars stopping; and
- Bicycles.

6.2.71   Half of the participants who crossed a control street rated how comfortable they felt while crossing the road; six of the eight participants said they felt either fairly or very uncomfortable, while two said they felt either fairly or very comfortable.

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6.2.72   Other feelings participants said they experienced were nervousness, uncertainty, and confidence. One participant noted that it was important for him to leave enough time to make journeys because he felt it was dangerous if he had to rush.

6.2.73   Participants tended to cross at controlled crossings as it was perceived to be the safest place to cross.

"It's probably the safest because that's a main crossroads, central to every direction round here." (Visually Impaired, White Cane user, Clapham)

6.2.74   At some of the pelican crossings our participants used there were neither audible signals nor tactile rotating cones. Participants said they therefore either had to watch out for what other people were doing and follow them or ask for help. In this situation, all would have preferred to have had at least one of these features to aid them.

"So I'll just wait till I see someone walk across and if I'm really in trouble then I'll just ask someone to get me across the road … I'm going to go when I hear traffic from the other direction gone, so I know it's safe to go." (Visually Impaired, White Cane user, Clapham)

"Wait at crossing until someone tells me it is safe." (Visually Impaired, White Cane user, Clapham)

6.2.75   Some participants said they would have preferred to cross in a different place to where they had done. For example, two participants (one in Newbury and one in Leeds) commented that they would prefer to cross somewhere with a perpendicular crossing rather than at a diagonal. Another participant commented that they would have preferred to cross at a different controlled crossing where the traffic was coming from fewer directions.

"They don't work for the average blind person [diagonal crossings]. You need to go from kerb to kerb. I could wander off anywhere." (Visually Impaired, Guide Dog user, Newbury)

"I do like to cross up there [outside the train station] because that one is, as they say, one line of traffic. Here you have one, two, three traffic from different directions coming at you all at the same time … I would have crossed up there because I don't mind walking extra distances just to get myself there safely." (Visually Impaired, White Cane user, Clapham)

Shared Space

6.2.76   Eighteen of the 20 participants crossed over the shared space area; the other two participants did not cross over.

6.2.77   Of those who did cross, they were aware of the following street features, signals or potential hazards:

- Noise (including traffic/audible crossings/general);
- Yellow lines;
- Tactile paving;
- Cyclists;
- Some participants actively tried to locate a kerb edge; and

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■   Some participants were aware that they would usually need to ask someone to help them cross.

6.2.78   Half of the participants who crossed the shared space rated how comfortable they felt while crossing the road. Responses varied from very comfortable to very uncomfortable. Two participants crossed and rated the shared space twice and both scored pelican crossings as more comfortable than zebra crossings. Other feelings participants said they experienced were vulnerability, apprehension, and a feeling of safety.

"A bit apprehensive crossing here because obviously I don't know how frequently cars are going to come down here and you've got the main road on your left." (Visually Impaired, White Cane user, Brighton)

"I'm looking for a kerb edge or something to tell me now I might be at the edge of the pavement and into the road … I've still got no idea now. I could be in the middle of the road, I could be anywhere … [I feel] vulnerable really. I think if I was on my own I'd be very concerned because I've got no way of knowing where I am." (Visually Impaired, White Cane user, Brighton)

"I know that I'm in a safe place." (Visually Impaired, White Cane user, Clapham)

6.2.79   Some participants found it very difficult to cross the shared space while others found it fairly easy, particularly if there was a controlled crossing. Participants tended to cross at controlled crossings if they were available and in some situations went back on themselves or further out of their way to ensure they could cross at one.

"This to me is the safest place to cross because you've got a zebra crossing here and you've got the dots [tactile paving] … well they have to stop it's a zebra crossing isn't it and they have to stop its my priority." (Visually Impaired, White Cane user, Clapham)

"If there was a crossing that's where I'd always go to, I'd never cross without a crossing because it's not safe." (Visually Impaired, Guide Dog user, Plymouth)

"If I'd been on my own it would have been a bit more daunting because I'd have to keep listening for traffic … I always go out of my way to find a pedestrian crossing." (Visually Impaired, Guide Dog user, Leeds)

6.2.80   Participants tended to rely on kerbs, tactile paving or tonal contrast to indicate a crossing, both at the start of it and at the end so that they know they have completed the crossing safely. One participant was not aware they had crossed a side road during their journey until the interviewer informed her; the participant suggested better use of tonal contrast to make the road more obvious would help. Some participants missed the tactile paving at the far side of the crossing meaning they were uncertain about whether they had completed the crossing or not; one participant suggested the tactile paving needed to be wider to increase the chances of finding it.

6.2.81   Several Guide Dog users instructed their guide dogs to 'find the pavement' while crossing the shared space; the guide dogs appeared to struggle with this command given the lack of conventional pavement in the vicinity.

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6.2.82   After the accompanied journey, during the interviewer administered questionnaire, participants were asked to rate how easy or difficult they found it to cross the shared space and the control streets. The same number of participants (n=8) said the streets were either very or fairly difficult to cross. However, a higher number said the control streets were easy to cross than said the shared space was easy to cross (n=9 compared to n=7, respectively).
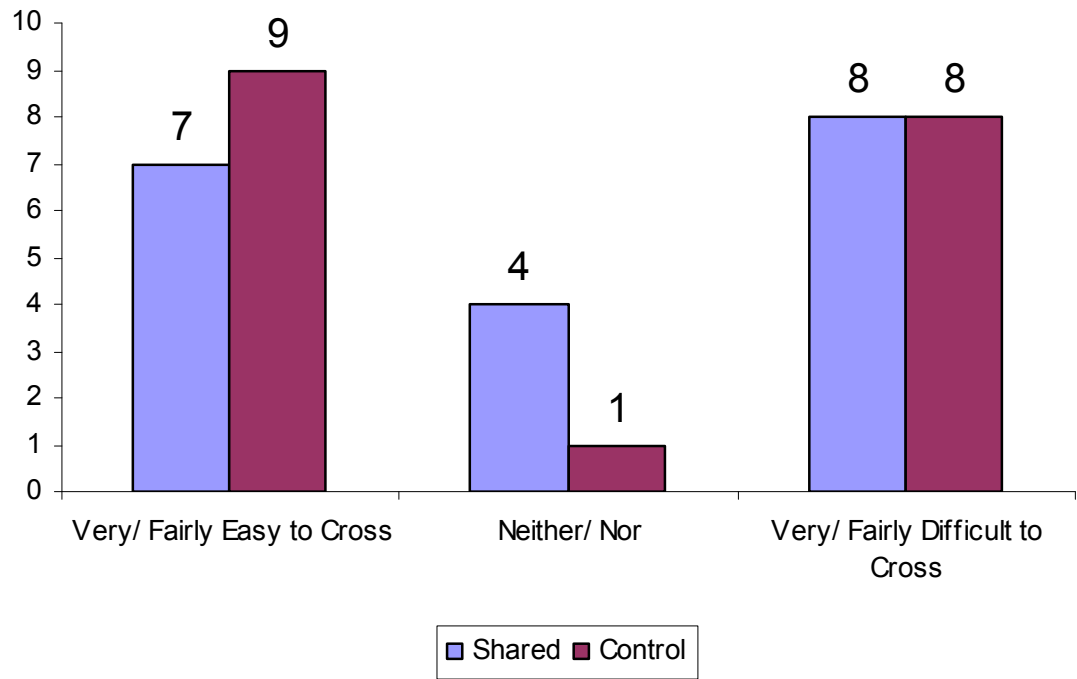

Figure 6.2 The extent to which visually impaired participants found it easy/difficult to cross the control and shared space streets

Navigating Tonal Contrast

Control Streets

6.2.83   There was no tonal contrast between the road and the footway in any of the control streets, other than the usual difference in the colour of tarmac and paving slabs. However, in Walworth Road the loading bays did use a different shade and type of grey brick. Although participants could generally detect this difference it was somewhat difficult for some and was generally thought not to be very clear. It was noted that it would be particularly difficult to detect if it was dark or raining.

Shared Space

6.2.84   There was no tonal contrast in the shared space areas in Newbury and Leeds. However, the remaining five sites did have tonal contrast. For the severely sight impaired (blind) participants tonal contrast is obviously of no use and so no questions were asked about it. However, the remaining 10 participants were asked about it.

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6.2.85   Half (n=5) were able to detect the tonal contrast (although sometimes this was prompted rather than spontaneous); a further two did detect it but found it hard to do so; and three did not detect it.

6.2.86   Of those who did detect the change in colour, generally participants were uncertain what it meant. Suggestions included:

- Indicates buses only;
- A warning;
- The difference between the road and the pavement;
- Indicates the road; and
- A pattern in the paving.

"If I was focussing on it I can see the pattern on it, but as an indicator of something as I said, I just thought it was a pattern." (Visually Impaired, does not use an aid, Walworth Road)

6.2.87   All but one of these participants said they did not tend to use tonal contrast to help them navigate and did not consider it particularly useful; one participant even considered it confusing.

"I don't do good at colours and that's no good at night time that would just look black." (Visually Impaired, White Cane user, Clapham)

6.2.88   However, the one participant who did think it was useful thought it was a very important feature for partially sighted people.

"For someone like me, I do have some sight so I'm not so reliant on changes in surface, but because I do rely on my sight colour is very important so." (Visually Impaired, does not use an aid, Walworth Road)

6.2.89   When asked what the easiest and hardest colours were to detect participants said they found yellow or other bright colours or highly contrasting colours, e.g. black and white, easiest. The hardest colours to detect were said to be grey, white and generally the use of similar colours together. One participant specifically commented that if tonal contrast is to be of any use it needs two colours that are very different to make it stand out:

"It depends on what kind of flooring it is. Like red and white that's good, it makes the white stand out more … one of the colours has to stand out more than the other." (Visually Impaired, White Cane user, Clapham)

6.2.90   Of the two participants who found it hard to detect the tonal contrast, both were in a shared space area that used different tones of grey. They acknowledged that this was a particularly difficult colour contrast to detect and that bright colours (eg yellow or white) were easiest for them to see.

6.2.91   Of the three participants who did not detect the tonal contrast, all three also stated that bright colours (e.g. white, orange and yellow) were easier for them to detect.

Navigating Tactile Paving

Control Streets

6.2.92   Fourteen of the 20 participants detected tactile paving during their accompanied journey; a further three participants did not detect it; and three participants did not come across any.

6.2.93   The fourteen participants who detected tactile paving did so either by feeling it with their feet or cane, or by sight, or using a combination of these. Some thought it was very easy to detect while others thought it was not pronounced enough or, for the partially sighted participants, some thought it needed to be a brighter colour (at some sites the blister tactile paving was grey rather than red).

6.2.94   The majority of participants were able to correctly identify what the tactile paving was for and gave the following responses:

- It indicates where you should cross;
- A crossing point;
- A safe crossing point;
- A controlled crossing;
- A pelican crossing;
- As a guide to a crossing control box ('push button');
- Traffic lights;
- It indicates that the road is there;
- It indicates the road edge;
- It indicates the end of the pavement;
- A change in surface level; and
- An aid for visually impaired people.

"I would use it to find the traffic lights so I'd know where to cross." (Visually Impaired, White Cane user, Walworth Road)

"I know from experience that if the tactile comes right across the pavement and you follow the tactile down to the kerb you know there is going to be a push button. If it is just a little bit of tactile by the kerb and it doesn't come across the pavement a) you can't find it you've got to rely on someone else to tell you and b) you know because it doesn't come across the pavement there is no light controlled crossing there." (Visually Impaired, Guide Dog user, Newbury)

6.2.95   Generally participants thought that tactile paving was a useful design feature, although partially sighted participants were less reliant on it than severely sight impaired (blind) participants.

"Tactile paving is really useful, I mean I used to get around with a cane and with my first dog when there was no such thing as tactile paving so having tactile paving makes it so

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much easier to locate crossings and places to cross the road, yeah it's invaluable really."
(Visually Impaired, White Cane user, Brighton)

6.2.96   One participant did however experience some difficulty using the tactile paving; when crossing over a side road he became slightly disorientated as he had found the tactile paving but could not locate the crossing lights. This was because there were two crossings side by side with tactile paving tails and the tactile paving he had found was not for the crossing he needed to make.

6.2.97   Guide dog users were all able to command their dogs to 'find the crossing' and their dogs would locate the tactile paving.

6.2.98   Of the three participants who did not detect the tactile paving, one had not felt it due to the blister tactile paving being somewhat worn down; another said they had not noticed it because they were wearing particularly thick soled shoes; and the third participant had not noticed as she was unaware that the tactile paving had a purpose and so had not paid any attention to it.

"Well it depends what area you're in. This, right here, I find quite difficult, I think they're worn out … so it depends like not everyone wears the same type of shoes so it has to be really noticeable." (Visually Impaired, White Cane user, Clapham)

6.2.99   The participant who had thought the tactile paving was worn down said that he did actually normally use it to help him navigate, particularly at night time when his vision is at its worst. He understood what it meant and how it should be used.

6.2.100   *"That I'm in a safe place and that's the area that I need to be at." (Visually Impaired, White Cane user, Clapham)*

Shared Space

6.2.101   When in the shared space areas, only 12 participants detected tactile paving; a further two did not detect it; and five participants did not come across any. The two participants who did not detect any had not detected it in the control streets either.

6.2.102   As in the control streets, those participants who did detect the tactile paving did so either by sight, through feeling it with their feet or cane, or through a combination of these.

"I do feel it through the cane but not quite as good as I do through my foot. Sometimes I think it is just a little rut in the foot path." (Visually Impaired, White Cane user, Leeds)

6.2.103   All but one of the 12 participants who detected tactile paving were confident they knew what it meant and gave similar responses to those they had given in the control streets:

- ■   That there is something coming up;
- ■   It indicates that the road is there;
- ■   It indicates that you should stop because there is a road;
- ■   It indicates the edge of the pavement;
- ■   It indicates where to cross the road;

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- A pelican crossing;

- That you have reached the far side of the crossing; and

- An aid for visually impaired people.

"If I felt the bumps I would know I was coming to some kind of road." (Visually Impaired, White Cane user, Walworth Road)

"That tells me now that I've reached the end and this is the mouth of New road and I've got to cross it." (Visually Impaired, White Cane user, Brighton)

6.2.104   The one participant who was not so sure about how to use the tactile paving or what it meant undertook the accompanied journey in Brighton where some untraditional tactile paving has been implemented; in New Road in Brighton the entrance to the street uses a strip of uneven paving slabs set at a different angle, and all down one side of the street there is a form of tactile paving similar to corduroy tactile paving running along side the gutter.

"I'm not following it because I don't know what it's supposed to denote … I might [use it in the future] but I would be a bit concerned because I think it could be very easy to lose it … because its not distinguishable." (Visually Impaired, White Cane user, Brighton)

6.2.105   Generally participants still felt that tactile paving was useful in the shared space areas.

"I'd be lost without it." (Visually Impaired, Guide Dog user, Plymouth)

Corduroy Tactile Paving Detection Test

6.2.106   At the sites where corduroy tactile paving was present, participants were asked to undertake a fairly rudimentary detection test. This involved positioning them at varying distances (between 1m and 10m) from the corduroy tactile paving and orientating them at various angles, then asking them to walk forward and say if they noticed anything.

6.2.107   Fourteen participants undertook the test, of which 11 were able to detect the paving despite its limited width of 400mm. Corduroy tactile paving was detected through one or a mixture of participants' sight, through their feet or through their cane.

"I do feel it through the cane but not quite as good as I do through my foot. Sometimes I think it is just a little rut in the foot path." (Visually Impaired, White Cane user, Leeds)

6.2.108   Two of the three participants who did not detect it said afterwards that it could be easily missed and needed to be wider or set further back from the road.

"I think they need to bring it back a little bit more because here it's far too late because you might take another step and that's going to be too late and then you might get knocked down by another vehicle … it's too close to the road, I mean there's no gap between the road and itself apart from the little line they've got there." (Visually Impaired, White Cane user, Clapham)

6.2.109   Twelve of the 14 participants rated how easy or difficult they had found it to detect the corduroy tactile paving. Six people said it was either fairly or very easy to detect; four said it was neither easy nor difficult; and two said it was fairly or very difficult.

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6.2.110   Participants were asked if they knew what the corduroy tactile paving was for. Twelve of the 14 participants answered, with six people correctly identifying the purpose of it, four being somewhat confused about the purpose and two people not knowing at all. Interviewers ensured all participants understood the purpose the corduroy tactile paving before asking how them how useful they thought it was. Five participants thought the corduroy tactile paving was useful; a further five thought some aspects of it were useful and others were not; and two participants did not think it was useful.

"It's very useful; it lets me know I am getting to a road." (Visually Impaired, White Cane user, Slough)

"It's a bit tricky because I can see it both ways, it's better to have this as a blister one because it's a potential hazard and that's more pronounced." (Visually Impaired, White Cane user, Walworth Road)

Navigation Overall

6.2.111   At the end of the accompanied journeys, participants completed a structured questionnaire with an interviewer and answered specific questions about the aids they use for navigation; which ones they rely on most; and how useful they are, etc. Having heard what participants said about various design features during the walk, we now see how they rate them compared to each other.

Cues to aid navigation

6.2.112   Participants were asked what cues they use to navigate roads. They could give more than one answer. The top five navigation aids were: The building line (n=16); tactile paving (n=14); hearing (n=12); the kerb (n=11); and the sound of the road/traffic (n=10).
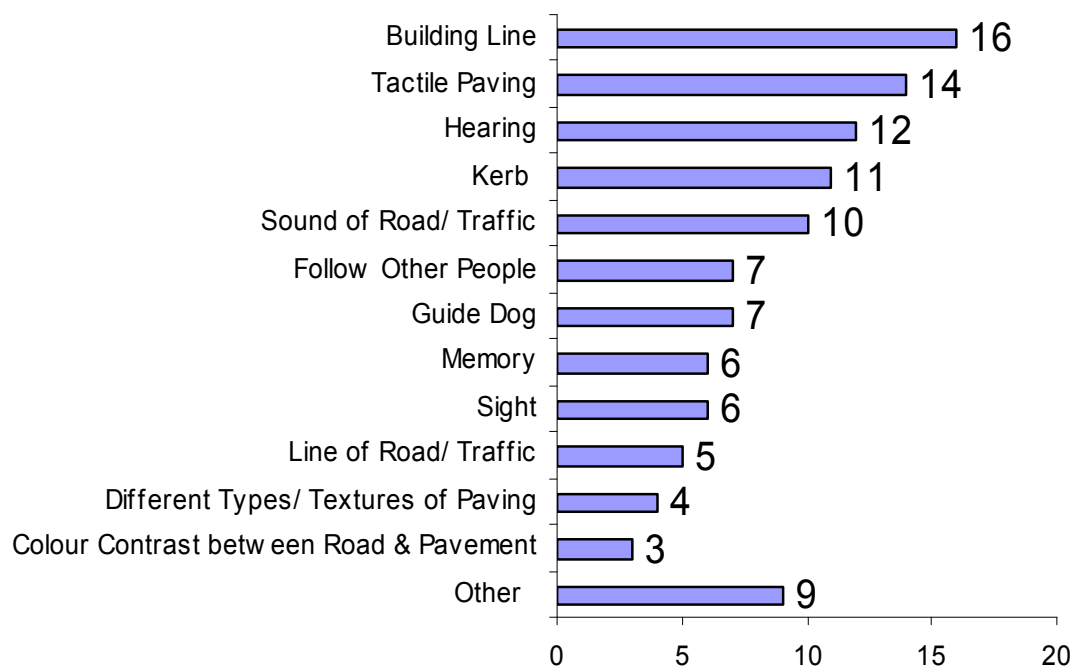

Figure 6.3 Cues used by visually impaired participants to navigate roads

6.2.113   Participants were then asked which three cues they relied on most and had to rank their top three. We have calculated scores for each of the cues that were rated. The building line has the highest score of 28, with seven people ranking it as the cue they rely on 1st most, two people ranking it as 2nd most important, and three people ranking it 3rd most important. The kerb and tactile paving scored equally at 17 points, however more people ranked the kerb as 1st most important (n=3), compared to tactile paving (n=1). Please see Table 6.1 for further details.

Table 6.1 Most important navigation aids, ranked

Navigation aids	Score	Ranking		
		1st	2nd	3rd
Building Line	28	7	2	3
Kerb	17	3	4	0
Tactile Paving	17	1	6	2
Colour Contrast	7	0	2	3
Line of the Road/Traffic	6	2	0	0
Hearing/Sound (e.g. traffic noise)	6	2	0	0
Memory	6	1	1	1
Patterns on Paving	3	1	0	0
Building Line & Kerb, equally	3	1	0	0
Guide Dog	3	1	0	0
Follow Other People	2	0	1	0
Information gained from a White Cane	1	0	0	1

6.2.114   For those navigation cues which were part of the street, participants were asked further questions about how they located the cue, how they used it, and what information it gave them etc.

6.2.115   Of the 12 participants who said the building line was the street feature they relied on the most, second or third most, for navigation, it was most common for them to say they located it by seeing it, feeling it with their hands or using their white cane (n=4 for each). It was most common for those who rely on tactile paving to say they feel it on the ground or using

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their white cane (n=5 for both). Colour contrast was located through vision, as would be expected.

Table 6.2 How navigation aids are located

How located?	Building Line	Kerb	Tactile Paving	Colour Contrast	Line of the Road/Traffic	Patterns on Paving	Building Line & Kerb, equally
Hear it	0	0	0	0	2	0	0
See it	4	1	2	4	0	1	1
Feel it with my hands	4	0	0	0	0	0	0
Feel it on the ground	1	2	5	0	1	0	0
Using white cane	4	1	5	0	0	0	1
Guide dog locates it	1	2	1	0	0	0	0
Ask someone	1	0	0	0	0	0	0
Just sense it is there	2	0	0	0	0	0	0
Memory/Familiarity	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0

6.2.116   It was most common for participants who said the building line was the street feature they relied on the most, second or third most, to say they used it as a guide (n=7) and it provided information about their location or position on the pavement (n=5). Those who said the kerb was the street feature they relied on the most, second or third most, were most likely to say if they found the kerb they would know to avoid the area (n=4) or it would tell them their position (n=4), and that it gave them information about their distance from the road (n=5). Those who said they relied most, second or third most, on tactile paving, said the tactile paving tells them where the traffic is (n=5) and gives them information about their distance from the road (n=4) and about their position on the pavement (n=4). Those who said they rely on colour contrast were most likely to say if they saw it they would know to avoid the area (n=3), that it tells them where the traffic is (n=3) and that it gives them information about their distance from the road (n=3).

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Table 6.3 How navigation aids are used

How used/Info provided?	Building Line	Kerb	Tactile Paving	Colour Contrast	Line of the Road/Traffic	Patterns on Paving	Building Line & Kerb, equally
Use it as a guide	7	1	2	1	2	1	1
Know to try to avoid area	1	4	0	3	0	0	0
A memory prompt/reassurance	0	1	1	1	0	0	0
Tells me where the traffic is	1	2	5	3	0	0	0
Tells me my position on the road	2	4	2	2	0	0	0
Tells me I need to make a decision	0	2	1	1	0	0	0
Info about direction of travel	4	1	2	0	1	1	0
Info about distance from road	2	5	4	3	1	0	0
Info about location/position on pavement	5	2	4	1	1	0	1
Info about hazards	0	0	2	2	0	0	0
Info about other users	0	1	0	1	1	0	0
Other	1	1	2	2	1	1	0

6.2.117　A higher number of participants rated tactile paving (n=8) and the building line (n=7) as either fairly or very useful than other street features. However, it should be noted that five participants also said they found the kerb either very or fairly useful.
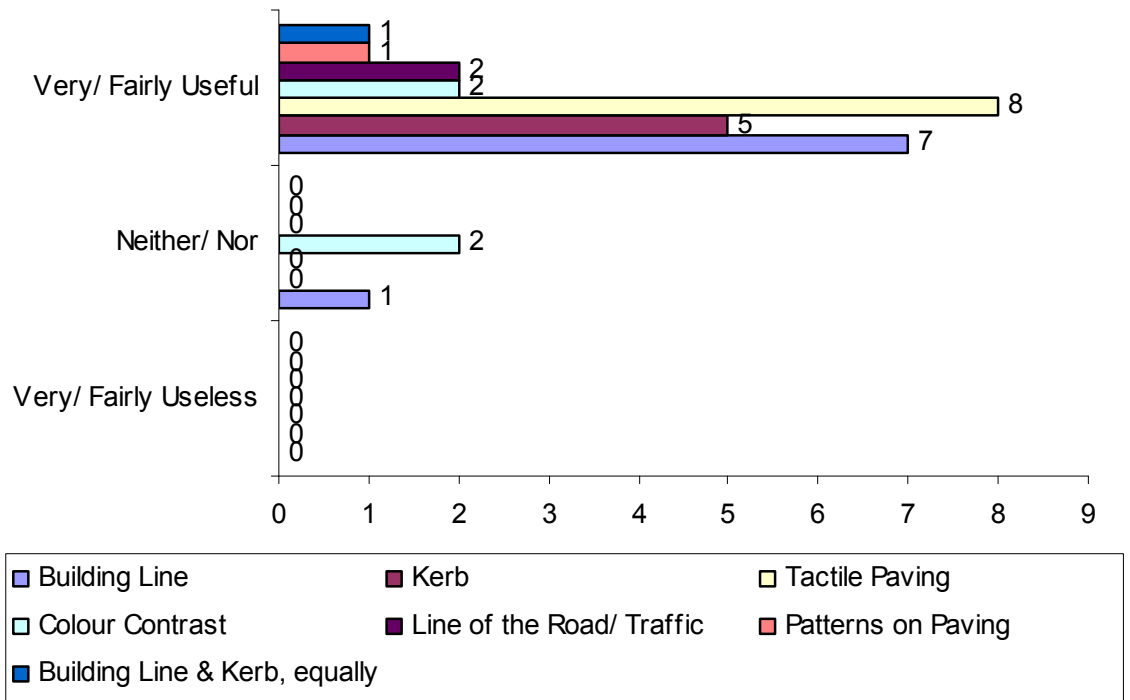
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Figure 6.5 How useful visually impaired participants found different street features

6.2.118   A higher number of participants also said that tactile paving (n=7) and the building line (n=6) were either fairly or very easy to navigate compared to other street features.
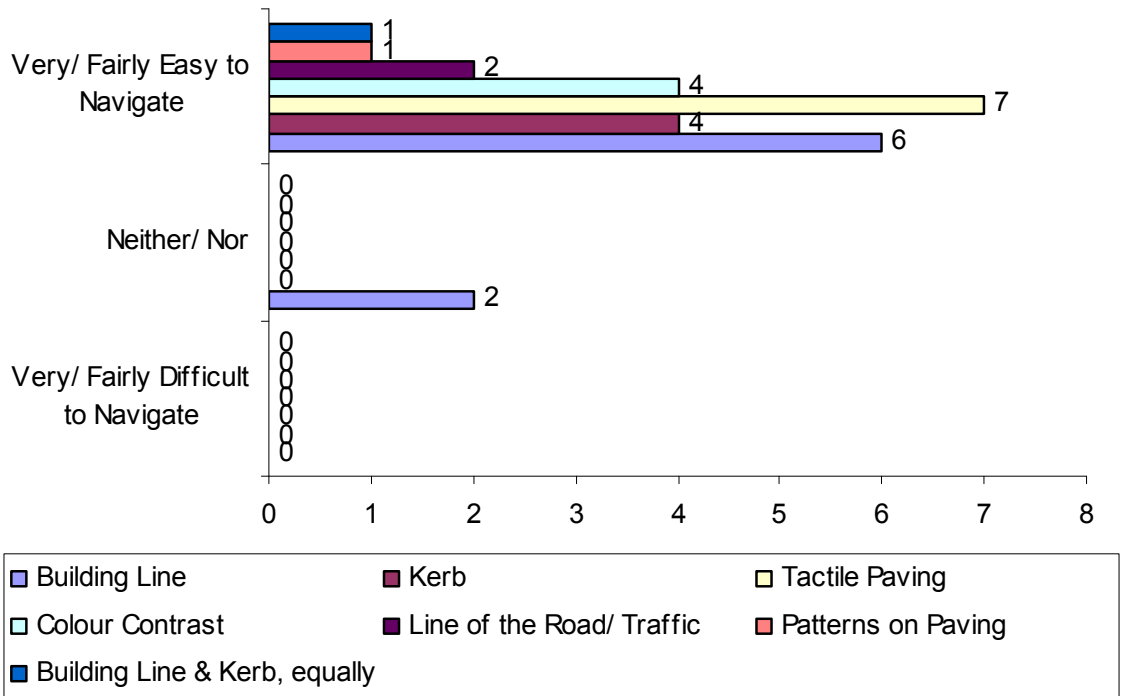

Figure 6.7 How easy to navigate visually impaired participants found different street features

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6.2.119   Tactile paving and the building line also had more participants (n=6 for each) saying they felt either fairly or very safe when they locate these street features, compared to the other street features.
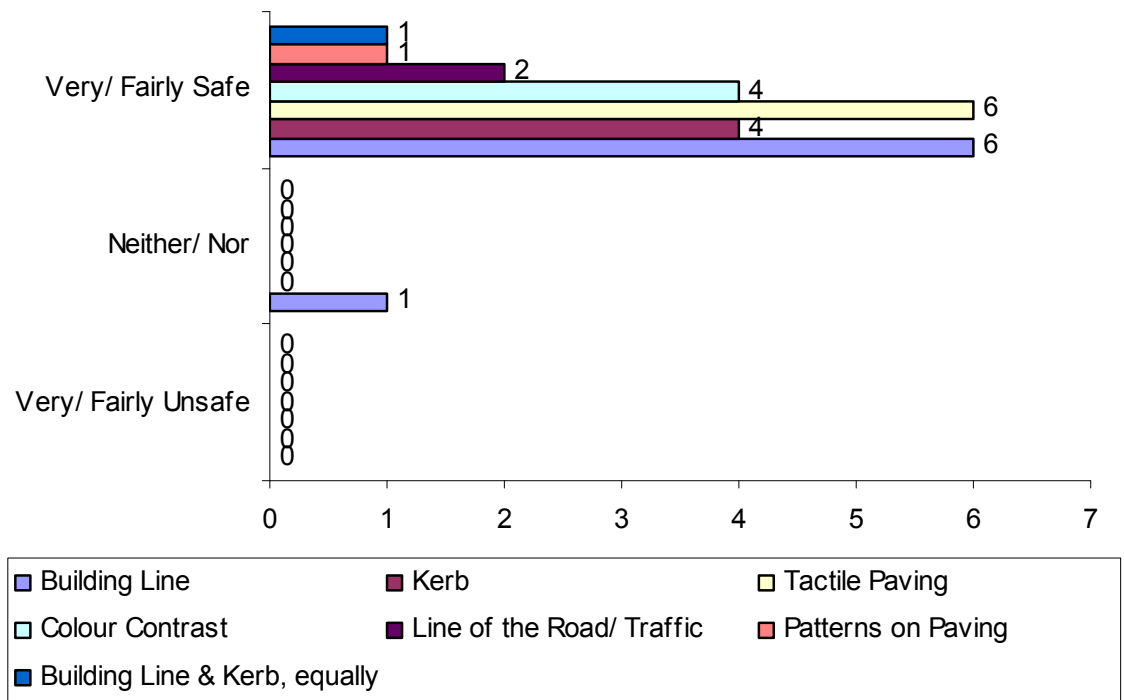

Figure 6.8 How safe different street features helped visually impaired participants to feel

Features that make navigation difficult

6.2.120   Participants were asked if any aspects of the roads made it difficult for them to navigate. They could give more than one response. It was most common for participants to say that non-fixed obstacles, such as displays outside shops, parked cars, bicycles, etc, made it difficult for them to navigate. Eleven people also said fixed obstacles, such as benches, bollards, bins and signs, made it difficult for them to navigate. Nine people also said uneven surfaces made navigation difficult. A full list of answers is shown in Figure 6.9.
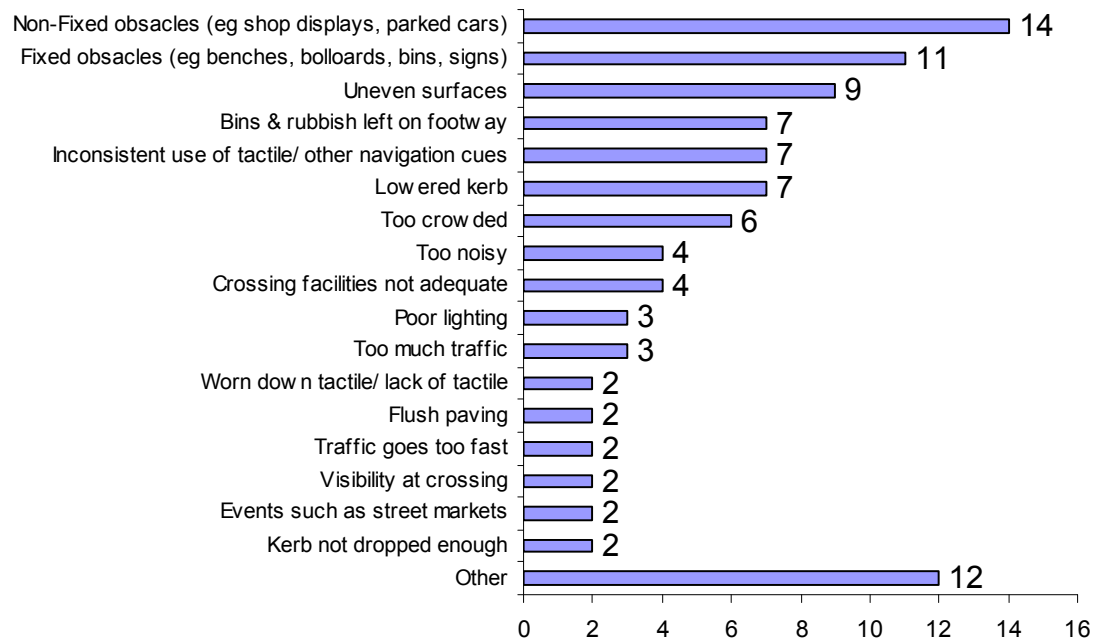
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Figure 6.9 Street features which make navigation difficult for visually impaired participants

6.2.121   From the responses participants gave, they were then asked which one aspect made it most difficult to navigate. Six people said a lowered kerb made it most difficult for them to navigate; three people said fixed obstacles made it most difficult; and two people said non-fixed obstacles. Further aspects of the road were also said to be most difficult for people, but not more than one participant said each.

6.2.122   Of those who said lowered kerbs made it most difficult for them to navigate, all of them said this was because it made if hard to distinguish the road from the pavement. One participant also said 'It is not clear what a change in texture/colour means', when there is a lowered kerb they do not know where to cross, and that they do not know where to go generally. One other participant said their Guide Dog does not understand lowered kerbs. Five of the six participants said they found it either fairly or very difficult to navigate when there are lowered kerbs, and that they felt either fairly or very unsafe in this situation (the sixth participant did not provide an answer).

6.2.123   Of the three participants who said fixed obstacles made it most difficult to navigate, two participants said this was because they did not know where they were supposed to go, one also said they were scared of tripping, and the third participant said it unnerves and disorientates them. Ease of navigation around fixed obstacles was rated as fairly difficult by one participant, and neither difficult nor easy by another (the third participant did not answer this question). How safe participants felt in this situation was rated as fairly unsafe by one participant and very unsafe by the other two.

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6.3   Mobility Impaired People

6.3.1   As with 'Disabled People in Shared Space', 10 mobility impaired participants took part in the 'Legibility in Shared Space' research component; four were ambulant and six were wheelchair users.

6.3.2   At the end of the accompanied walk, participants were asked how easy or difficult they found it to navigate along the control streets and the shared space areas. Results were fairly similar, however a higher number of participants said they found the shared space either fairly or very easy to navigate than said the control streets were either fairly or very easy to navigate (n=7 compared with n=5, respectively).

6.3.3   The following sub-sections provide the findings from the accompanied journeys split by design feature (e.g. kerb) or by task (e.g. crossing the road). The final sub-section then provides the results from the structured questionnaire which highlight the relative level of importance of each design feature and further information about how participants use design features.

Navigating Kerbs

Control Streets

6.3.4   Participants with mobility disabilities had fairly mixed views about how easy or difficult it was to negotiate kerbs. Some felt that the kerbs they negotiated in the control streets were very easy to navigate while others thought they were very difficult to navigate. The actual heights of the kerbs that participants came across varied from 70mm to 140mm.
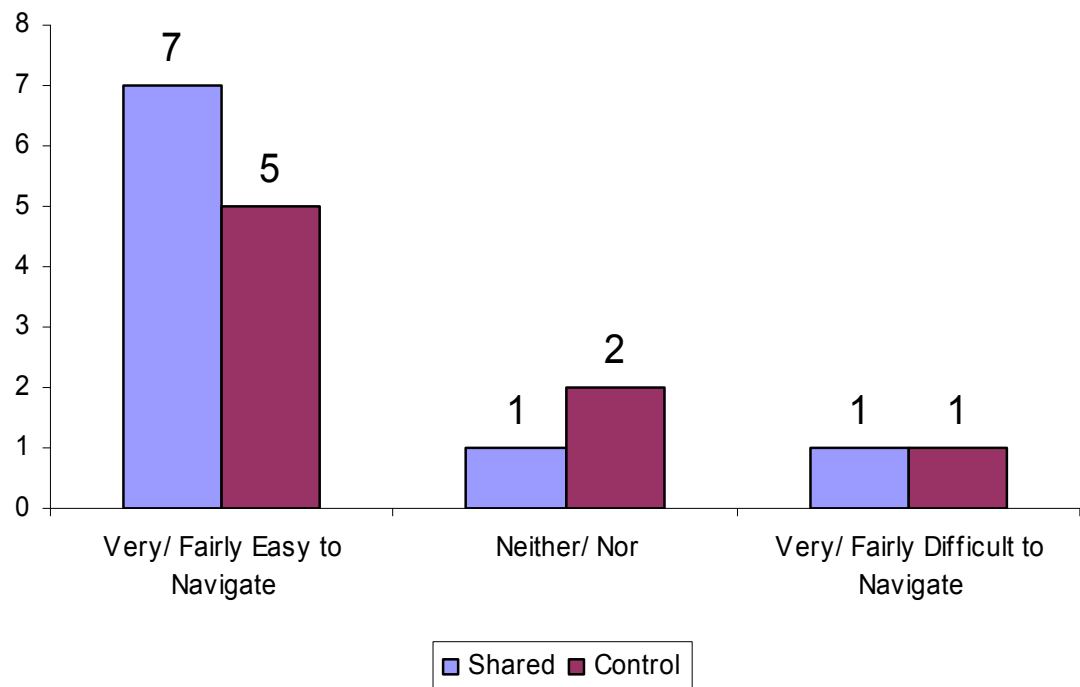

Figure 6.10 The extent to which people with mobility impairments found it easy to navigate control and shared space streets

6.3.5   The difference in opinions tended to be between participants in wheelchairs and those who were ambulant. Wheelchair and mobility scooter users tended to prefer either low kerbs or no kerb at all, whereas ambulant participants tended to say they did not mind what height the kerb was as long as there was a smooth drop kerb for them to cross at.

"I have to look out for 'bobbly' bits like this and try and find the best kerbs or whatever, 'cause sometimes you can get to a bit and its quite high and I wouldn't be able to do it on my own … looking at the kerb over there and it goes up quite steep. Now if I go up there in this [wheelchair] I'm pretty liable to tip over on my own. So I have to either go there, reverse and do it backwards, which is quite a bind really." (Mobility Impaired, Wheelchair user, Clapham)

"A little one like this isn't much of a trouble." (Mobility Impaired, Ambulant, Plymouth)

"As long as there was a slope at a safe place for me to negotiate if necessary." (Mobility Impaired, Ambulant, Walworth Road)

"The drop kerb when you cross over Great George Street was actually a very good drop. And the one down here was a good drop; if they were all like that it would be great." (Mobility Impaired, Wheelchair user, Leeds)

6.3.6   However, two ambulant participants did note that although low kerbs were easier to navigate than high kerbs, one was less likely to see them until they got to them and hence they could be more of a hazard. One participant suggested that if low kerbs are used then they should be used in conjunction with colour contrast to make them more noticeable.

"If these kerb stones were painted white so you saw them without thinking about it, it would be fine because it's easier for me to get down a short step. But I have noticed that the taller kerbs, which are harder for me to get up and down, I see sooner. I'm less likely to step off a tall kerb than I am a short kerb." (Mobility Impaired, Ambulant, Plymouth)

6.3.7   Despite most of the mobility impaired participants having at least some difficulty with kerbs, the majority could appreciate the purpose of the kerb, in that it differentiates between the road and the footway.

"In this area it tells me I'm going into an area with vehicles." (Mobility Impaired, Ambulant, Plymouth)

6.3.8   One participant commented that kerbs were particularly useful when getting in and out of taxis and buses etc, however they are not useful when one has to move along a narrow stretch of pavement and is then forced to negotiate the kerb.

"You've got to pick your route carefully here. I know I can just get through there but I'm near the edge of the kerb." (Mobility Impaired, Wheelchair user, Newbury)

6.3.9   Another participant also discussed how she would plan her route to ensure she was on the side of the street she needed to be on well in advance, limiting the likelihood of having to negotiate kerbs.

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6.3.10   None of the shared spaces streets we undertook research at had kerbs.

Navigating Level Surfaces

Control Streets

6.3.11   The side roads in Walworth Road had a level surface with the footway, as did the loading bays, and in Leeds there was a level surface on one crossing and a lowered kerb at another point.

6.3.12   Three mobility impaired participants took part in the research in Walworth Road, and one took part in Leeds.

6.3.13   In Walworth Road, all three participants liked the the level surface, however one noted that there needed to be more definition between the footway and the loading bays because it could be confusing knowing what was what.

6.3.14   The mobility impaired participant that undertook the research in Leeds commented that she liked the the level surface because she has to navigate kerbs backwards, which is difficult for her.

Shared Space

6.3.15   All the shared space areas we used had a level surface and most participants commented on this feature without being prompted about it.

6.3.16   Generally participants preferred the a level surface to having kerbs, noting that it was easier to get around, there was no tripping hazard or it was more comfortable.

"This is better I think, there's no kerb there. It's a one way street … I'd rather have no kerb at all." (Mobility Impaired, Ambulant, Clapham)

"I can see from here that if I had my mobility scooter, I could go across there without any problems whatsoever." (Mobility Impaired, Wheelchair user, Walworth Road)

"This kind of thing, this is brilliant … it takes it out of the equation you know you don't have to worry you just cross and this is nice." (Mobility Impaired, Wheelchair user, Clapham)

"It's very useful obviously for a wheelchair user because you can dash about from side to side because there's no way I could get up a kerb on my own." (Mobility Impaired, Wheelchair user, Slough)

6.3.17   However, some disadvantages of a level surface were also identified: As was noted by one participant when discussing kerbs, it was thought that getting in and out of cars and buses in an area with a level surface could be difficult; in addition one participant noted that although a level surface had been implemented, cobbles had been used rather than smooth paving slabs which were considered unsafe and uncomfortable and hence made the space un-enjoyable; and, one other participant noted a gully adjacent to the corduroy tactile paving which marked the edge of the road and said she would avoid this because it makes the paving uncomfortable to pass over.

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6.3.18   There were also some concerns over how easy it was for people in general to observe a difference between the road and the footway. It was thought that the road needed to be more distinct from the footway, either through the use of corduroy tactile paving or painted lines.

"It should look like a road … I believe the pavement should certainly be different to the road…that way everybody knows it's a road, the white lines would continue around." (Mobility Impaired, Wheelchair user, Walworth Road)

"That [the corduroy] I'm happy about … you can see a distinct difference, you know that's the kerb … it's still a level surface, it still makes life easier but there is a distinct difference." (Mobility Impaired, Wheelchair user, Walworth Road)

Navigating Obstacles

Control Streets

6.3.19   Not all participants came across obstacles while on the control streets. However, for those who did, the types of obstacles discussed were as follows:

- Uneven surfaces (n=3);
- Trees (n=2);
- A-boards (n=2);
- Café tables and chairs (n=1); and
- Other people (n=1).

6.3.20   Benches were also discussed with several participants, but were considered to be a necessity rather than an obstacle.

6.3.21   Generally participants said they could see obstacles in advance and navigate around them fairly easily. However, it could still make them feel anxious. Uneven surfaces were the most difficult for participants because they tended to be uncomfortable for participants to pass over or try to avoid.

6.3.22   Although two participants had commented on trees being an obstacle, one participant did not mind them and thought they made the space more enjoyable.

"I love the trees, they make a big difference." (Mobility Impaired, Ambulant, Walworth Road)

6.3.23   Another participant commented on manhole covers, which would usually be an obstacle for her, but in this situation they were not because they had been paved in the same surface material as the footway.

"They've done pretty good as far as pavement goes, like I've said this is a flat pavement it's not always. They've gotten rid of many of these by concreting them over because these are extremely slippery when it's wet … it's made a big difference, I don't fall over now." (Mobility Impaired, Ambulant, Plymouth)

Shared Space

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6.3.24   The types of obstacles experienced in the shared space areas were as follows:

- Bollards (n=3);
- Uneven paving (n=2);
- Trees (n=2);
- Bin bags (n=1);
- Scaffolding (n=1);
- A sign (n=1);
- A bus stop (n=1);
- Loading bays (n=1); and
- Bicycle racks (n=1).

6.3.25   As with the obstacles in the control streets, participants generally said they were able to see them in advance and navigate them fairly easily without experiencing discomfort. Two participants commented on the wide pavements making it easier for them to get around any obstacles.

"I knew it was out there but I said well it's not in my [way] … I had enough room." (Mobility Impaired, Ambulant, Clapham)

"Not really no, it was fine, if its on a nice surface it doesn't, its quite easy really … I'm quite aware, quite visually, I can see what's coming, it doesn't bother me really." (Mobility Impaired, Wheelchair user, Clapham)

6.3.26   Benches were also discussed again and, as in the control streets, they were considered necessary rather than an obstacle. One participant stated that having benches added to his enjoyment of the street.

Navigating Vehicles

Control Streets

6.3.27   Most participants did not have the opportunity to navigate a vehicle on the control streets. However, two participants encountered vehicles pulling into loading bays close to where they were walking.

6.3.28   One participant encountered a van pulling into the loading bay which she considered to be very close to her and said it frightened her. She disliked the loading bays at the side of the footway because she felt that vehicles pulled in too fast and unexpectedly.

6.3.29   The second participant was less affected by his encounter which was with a lorry reversing into the loading bay. He said he felt comfortable and safe in this environment as he was aware of his surroundings. However, he noted that he would not walk in the loading bay and would stay nearer the building line.

Shared Space

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6.3.30   As with the control streets, there was very little participant and vehicle interaction in the shared space areas.

6.3.31   Two participants expressed concern over vehicles being able to travel over the same areas as pedestrians; one noted that buses and taxis sometimes cut corners over the footways.

"The problem with shared space is when cars don't register that you are there and so don't stop." (Mobility Impaired, Wheelchair user, Leeds)

6.3.32   One participant was waiting at a zebra crossing in the shared space when a bus came past and didn't stop for him. He was not concerned and explained that it is the pedestrian's responsibility to ensure any traffic is stopped before they cross the road.

"No, I wasn't concerned; you've just got to keep an eye on it. You're not supposed to make a move until the vehicle is stopped." (Mobility Impaired, Ambulant, Clapham)

Crossing the Street

Control Streets

6.3.33   Seven of the ten participants crossed over one or more of the control streets. Participants all experienced different feelings while crossing, ranging from feeling 'alright' and 'safe' through to finding it 'stressful' and 'difficult'.

6.3.34   Four of the seven participants were more positive about the experience. Two of these participants were wheelchair users and two were ambulant. Three of the four participants crossed at controlled crossings, the fourth participant did not use a controlled crossing but noted that it was a quiet street.

"Alright; I assumed I was safe because I was on a pedestrian crossing and also the traffic was stopped and I was watching the traffic." (Mobility Impaired, Wheelchair user, Slough)

"This end of it isn't too bad and I never have a problem once I'm off the kerb I never have a problem crossing the road at this end, so I always use this end." (Mobility Impaired, Ambulant, Plymouth)

6.3.35   The other three participants had more negative experiences. Two of these participants were wheelchair users, one of which said the tactile paving made it difficult for him, and the other generally found navigating an area with kerbs difficult because they can cause him to tip out if they are too steep.

"I don't feel fearful anymore because I've been you know I'm quite, I've been getting used to it the last couple of years, so it's not a fear factor, it's just a nuisance I find it, just to do anything, to get somewhere, can be quite tricky really … Just the fact of getting across, and the fact that you were with me, fair enough, because there was someone to push me, but as an individual I would be struggling there … I can do it backwards and then it stops me tipping." (Mobility Impaired, Wheelchair user, Clapham)

6.3.36   This particular wheelchair user said he felt fairly uncomfortable crossing the control streets and found it fairly difficult to do so.

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6.3.37   The third, ambulant participant found crossing the control streets stressful because she said she had to be constantly aware of any changes in surfaces which meant she could not pay as much attention to the road itself.

"Most people should be looking for the green man, but I have to be constantly looking down … (due to the) constant changes in surface and colour." (Mobility Impaired, Ambulant, Clapham)

Shared Space

6.3.38   Nine of the ten participants crossed over the shared space. The majority felt comfortable doing so, however two participants felt uncomfortable and a further two expressed some concerns with the situation.

6.3.39   Those who were comfortable crossing the shared space also said they felt:

- Safe (n=3);
- Fine (n=1);
- Un-concerned about tripping because there was no kerb (n=1); and
- That it was easy to navigate across the level surface (n=1).

6.3.40   Two of these participants chose to cross at a controlled crossing while the other three crossed without this aid. However, one of the three participants who did not use a controlled crossing said that he usually would because it is safer to do so.

"Didn't really think of choice or whatever, I mean it saved walking, I should have really crossed where the crossing was, I suppose I should have gone there for safety wise, but its not very busy down here so … I generally would cross at a crossing point." (Mobility Impaired, Wheelchair user, Clapham)

"Myself, I would just go where I wanted." (Mobility Impaired, Wheelchair user, Slough)
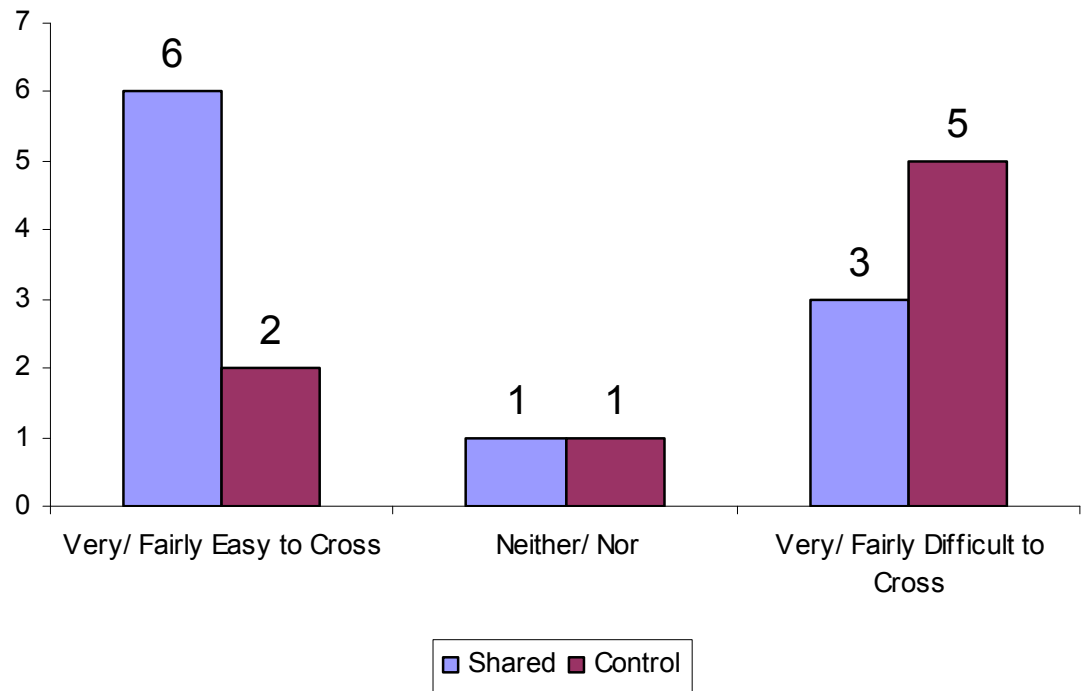
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Figure 6.11 The extent to which participants with mobility impairments found it easy to cross the control and shared space streets

6.3.41   The two participants who felt uncomfortable while crossing the shared space said this was because of the uneven surfaces; one participant was in an area with cobbled paving and the other felt that the surfaces at the zebra crossing were inadequate and she was concerned about tripping.

"This has got bumps, followed by a dip, followed by an even road, I would want to look for a flat bit … any raised lumps and bumps are a lot worse for my complaint." (Mobility Impaired, Ambulant, Clapham)

6.3.42   The remaining two participants did not experience any problems crossing the shared space and in fact quite liked the level surface, however they expressed concerns over the need to be more aware of your surroundings

"I would be a very conscious if I wasn't accompanied." (Mobility Impaired, Ambulant, Walworth Road)

6.3.43   After the accompanied journey, during the interviewer administered questionnaire, participants were asked to rate how easy or difficult they found it to cross the shared space and the control streets. Six of the ten participants said they had found the shared space either fairly or very easy to cross compared to just two who said they found the control streets either fairly or very easy to cross.

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Navigating Tonal Contrast

Control Streets

6.3.44   There was no tonal contrast between the road and the footway in any of the control streets, other than the usual difference in the colour of tarmac and paving slabs. However, in Walworth Road the loading bays did use a different shade and type of grey brick. Two participants suggested that it would be better if the distinction was made more obvious with the use of colour.

Shared Space

6.3.45   There was no tonal contrast in the shared space areas in Newbury and Leeds. However, the remaining five sites did have tonal contrast and eight participants took part across these sites.

6.3.46   Some participants pointed out the tonal contrast without being prompted, while others said they were aware of it after prompting. However, two participants said, after prompting, that they had not really noticed it.

6.3.47   There was some confusion over what different colours were meant to indicate. Most participants seemed to have some understanding, even if they could not articulate it very well. However, others clearly had not previously considered it.

"It's the beginning of the road or the road is splitting … I think its, well it's a good sign, because if it was one colour then people wouldn't even be looking left and right. And I know there's not a lot of traffic round here but obviously it does happen." (Mobility Impaired, Wheelchair user, Clapham)

"I think it's a good idea but I think lots of people don't know what they're for, like me!" (Mobility Impaired, Ambulant, Clapham)

"I don't know really what the point is and whether having different things tells the driver that something is coming up I don't know. But why it stops and starts here I don't know." (Mobility Impaired, Wheelchair user, Slough)

6.3.48   Generally the mobility impaired participants did not find the tonal contrast particularly useful nor did they consciously use it to help them navigate, however two participants thought it did make them more aware; influencing their behaviour by making them look around.

"Can alert me that there is going to be something different." (Mobility Impaired, Ambulant, Clapham)

6.3.49   There were mixed views as to whether participants liked or disliked the tonal contrast. Some thought it was confusing and 'messy' while others did not mind it or thought it looked nice.

Navigating Tactile Paving

Control Streets

6.3.50   Nine of the ten participants passed over some form of tactile paving while in the control streets. Seven of these participants experienced discomfort when passing over the tactile

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paving three of which understood the purpose of tactile paving and appreciated that it was a necessity for visually impaired people, even though they disliked it for themselves. Of the other four, three did not know what the tactile paving was for and one thought that it was for grip.

"If you've got very thin shoes it sticks up through you, you know what I mean, if you've got tender feet … I don't like it because I've got bad feet anyway." (Mobility Impaired, Ambulant, Clapham)

"I can't see the point of that … if you're going to have paving there it might as well be a flat one." (Mobility Impaired, Wheelchair user, Walworth Road)

"Not easy but one accepts why it's there … It has to be there and it's there for a specific purpose." (Mobility Impaired, Wheelchair user, Slough)

"These I find a bloody nuisance, and they're everywhere but I tolerate them because I know why they are there." (Mobility Impaired, Wheelchair user, Newbury)

"I wouldn't want all the pavements everywhere to be like this, but if they are like that for a reason it is good enough." (Mobility Impaired, Wheelchair user, Leeds)

6.3.51   However, when it was explained to participants what the tactile paving was for they were much more accommodating of it.

"Well if it's useful for someone, then it's better than that stuff [the uneven paving on the other side of the crossing]." (Mobility Impaired, Ambulant, Clapham)

6.3.52   Generally participants who experienced discomfort on the tactile paving said they found it fairly or very uncomfortable and would usually try to avoid it. Two participants specifically said they were concerned about tripping on it.

6.3.53   Of the two participants who did not experience any discomfort, one was a wheelchair user and only passed over the corner of it and the other was ambulant and was unaware of the tactile paving until it was underfoot and the interviewer pointed it out to him.

Shared Space

6.3.54   Participants felt the same about tactile paving in the shared space areas as they had about it in the control streets, with the majority finding it uncomfortable.

6.3.55   The wheelchair user, who in the control streets had only passed over a corner of the tactile paving and therefore not experienced any discomfort, was still not bothered by the tactile paving in the shared space despite travelling over a larger section of it this time around. However, he did state that it might be uncomfortable in much larger sections.

"Not really, it's only a short … If you had a lot of that you'd get fed up with it I mean its like cobble stones really." (Mobility Impaired, Wheelchair user, Clapham)

6.3.56   The majority of participants started their accompanied journey in a control street and hence, by the time they came across tactile paving in the shared space, had already been made

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aware of its meaning by the interviewer. It was therefore more likely for participants to point it out without prompting.

"Now I've learnt something anyway, that's [the blister tactile paving] for blind people." *(Mobility Impaired, Ambulant, Clapham)*

Corduroy Tactile Paving Comfort Test

6.3.57   At the sites where corduroy tactile paving was present, participants were asked to undertake a comfort test. This involved asking them to cross the corduroy tactile paving at various angles.

6.3.58   Seven participants took part. Most found it fairly or very easy to pass over the corduroy tactile paving and did not consider it uncomfortable, though one noted it was difficult to push their mobility aid over it.

"That's alright because the lines are going the other way, you know what I mean. The red stuff is pimply you know what I mean, that goes across your foot and the pimple kind of … it's [the corduroy is] not as uncomfortable." *(Mobility Impaired, Ambulant, Clapham)*

"Not really, it was so small. If it was a whole road of it you'd probably, I'd be moaning, but that was yeah you didn't even notice it really." *(Mobility Impaired, Wheelchair user, Clapham)*

6.3.59   One participant specifically thought the corduroy tactile paving was a safety aid and another said it was a useful visual marker differentiating the road from the footway.

6.3.60   Despite this, three participants still considered it a trip hazard and would try to avoid it.

"When it is used, a lot more care should go into the process of laying it." *(Mobility Impaired, Wheelchair user, Walworth Road)*

6.3.61   When asked if they knew what the corduroy tactile paving was for only one participant was able to confidently give the correct answer. One other participant correctly guessed that it was for blind people (having had the purpose of the blister tactile paving explained to him earlier) and another said that it showed where the road began. Other participants either said they did not know what it was for or gave incorrect answers such as one participant who thought the corduroy tactile paving provided grip for people standing at the edge of the road waiting to cross.

"Well that's for blind people again I expect is it not?" *(Mobility Impaired, Ambulant, Clapham)*

"I don't know why that it's there." *(Mobility Impaired, Wheelchair user, Walworth Road)*

"That tells you that you're on the edge of the bit between the pedestrians and the road traffic." *(Mobility Impaired, Wheelchair user, Slough)*

6.3.62   Clearly not all the participants had come across corduroy tactile paving before and even if they had they were not always sure what it was for. One participant commented that all

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street users need to understand the meaning of such features if they are to serve their purpose.

"These might be alright to tell people that they are walking into an area where cars might be, but then you need to tell the cars they're not supposed to drive the other side of them." (Mobility Impaired, Ambulant, Plymouth)

6.3.63   Three participants also commented on the width of the corduroy tactile paving (which in most locations was 40cm wide). One participant thought it needed to be wider because it was thought it could easily be stepped over and missed completely.

"I think it could be wider because it's very easy just to miss it, I think it should be the same again … double it because it's very easy, you can step right over it and miss it altogether." (Mobility Impaired, Ambulant, Clapham)

6.3.64   Two other participants thought the current width was appropriate.

"I think it's about right … If you had it wider you could perhaps get in a groove and just go along and not realise it was there. It's probably just about the optimum width." (Mobility Impaired, Wheelchair user, Slough)

Navigation Overall

6.3.65   At the end of the accompanied journeys, participants completed a structured questionnaire with an interviewer and answered specific questions about the aids they use for navigation; which ones they rely on most; and how useful they are, etc. Having heard what participants said about various design features during the walk, we now see how they rate them compared to each other.

Cues to aid navigation

6.3.66   Participants were asked what cues they use to navigate roads. They could give more than one answer. The main navigation aid for mobility impaired participants was their sight. However, the next five most common navigation aids were the kerb (n=6); memory (n=5); line of the road/traffic (n=5); sound of the road/traffic (n=5); and hearing (n=5).
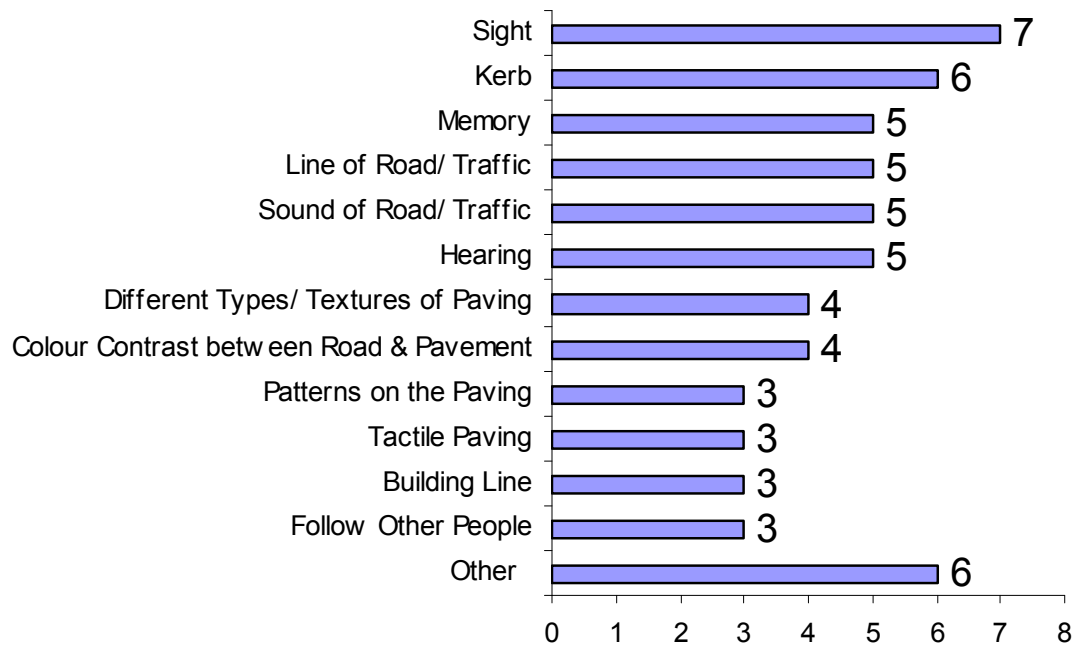
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Figure 6.12 Cues used by mobility impaired participants to navigate streets

6.3.67   Participants were then asked which three aspects they relied on most and had to rank their top three. We have calculated scores for each of the cues that were rated. 'Types/Textures of Paving' has the highest score of 11, with three people ranking it as their most important navigation aid and one person ranking it as their second most important aid. The kerb scored the second highest and sight was third, however two people rate sight as their most important navigation aid while only one participant rated the kerb as most important but two people rated it second most important. Please see Table 6.4 for further details.

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Table 6.4 Most important navigation aids, ranked

Navigation Aids	Score	Ranking		
		1st	**2nd**	**3rd**
Types/Textures of Paving	11	3	1	0
Kerb	7	1	2	0
Sight	6	2	0	0
Line of road/Traffic	5	1	1	0
Hearing/Sound (eg traffic noise)	4	0	2	0
Colour Contrast	3	0	0	3
Follow Other People	1	0	0	1
Pubs	1	0	0	1

6.3.68   For those navigation cues which were part of the street, participants were asked further questions about how they located the cue, how they used it, and what information it gave them etc.

6.3.69   Of the four participants who said the types and textures of the paving were the street feature they relied on the most, second or third most, for navigation, it was most common for them to say they located it through sight (n=3). One respondent also said they feel it on the ground and one said they use their memory. In terms of how participants use different types and textures of paving and what information it gives them, various different responses were given as follows:

- I use it as a guide to follow (n=1);
- Know to try and avoid that area (n=1);
- Tells me where on the road I am (n=1);
- Info about hazards (n=1); and
- Easier to navigate because it is flat (n=1).

6.3.70   Of the three participants who said they rely on the kerb most, second or third most, for navigation, two said they located it through sight and one said they use their memory. How they use the kerb and the type of information it gives them was reported as follows:

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- I use it as a guide to follow (n=1);

- Tells me where traffic is (n=1);

- Info about distance from road (n=1);

- Info about hazards (n=1); and

- Info about other users (n=1).

6.3.71   Of the two participants who said they rely on the line of the road/traffic, only one said how they locate it and said they did so through sight. Participants said they use the line of the road/traffic as follows:

- I use it as a guide to follow (n=1);

- As a memory prompt/reassurance (n=1);

- Tells me where traffic is (n=1);

- Tells me where on the road I am (n=1);

- It tells me that I need to make a decision (n=1);

- Info about distance from road (n=1); and

- Info about location/position on pavement (n=1).

6.3.72   Of the three participants who said they rely most, second or third most of colour contrast, one said they locate it through sight and one said they use their memory. The third participant did not state. These participants use the colour contrast as follows:

- I use it as a guide to follow (n=1);

- Know to try and avoid that area (n=1);

- Tells me where traffic is (n=1);

- Tells me where on the road I am (n=1); and

- Info about hazards (n=2).

6.3.73   The following charts show how useful, easy to navigate and safe participants found the street features that they rely on for navigation. Base numbers are obviously very low and so it is difficult to draw any conclusions from these. However, for information we can see that the types and textures of the paving and the kerb were considered useful and easy to navigate by a higher number of people than were the line of the road/traffic and colour contrast; a higher number of people also said they felt safe when they locate the kerb than said this about any of the other street features.
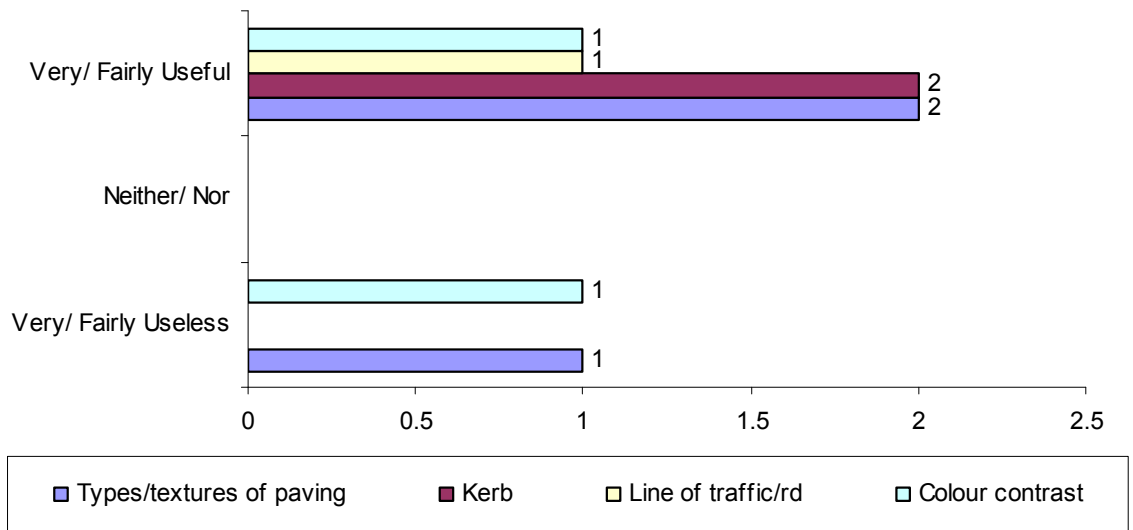
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Figure 6.14 The extent to which participants with mobility impairments found different street features useful
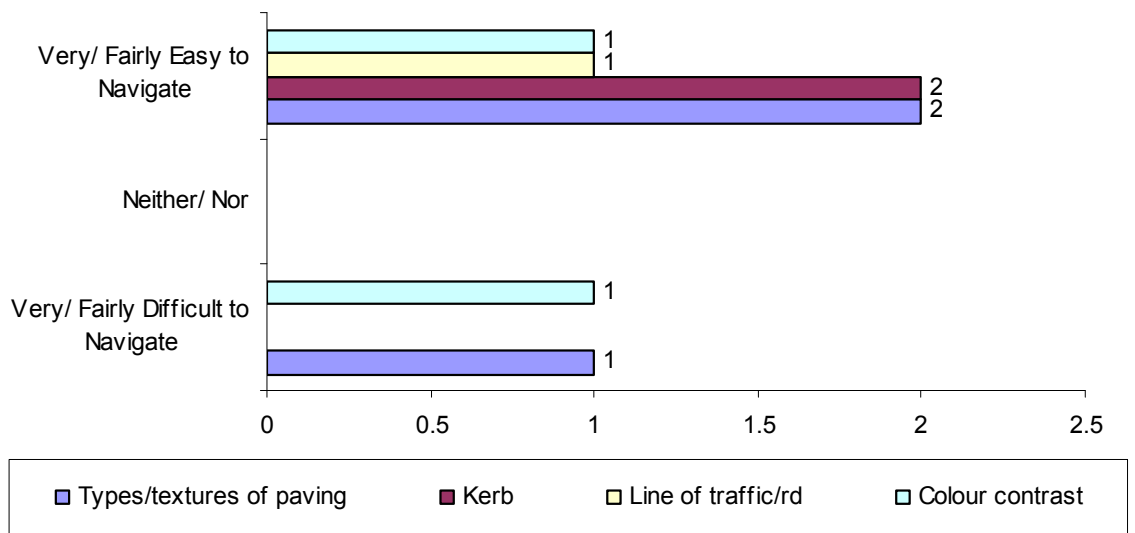

Figure 6.15 The extent to which participants with mobility impairments found different street features easy to navigate
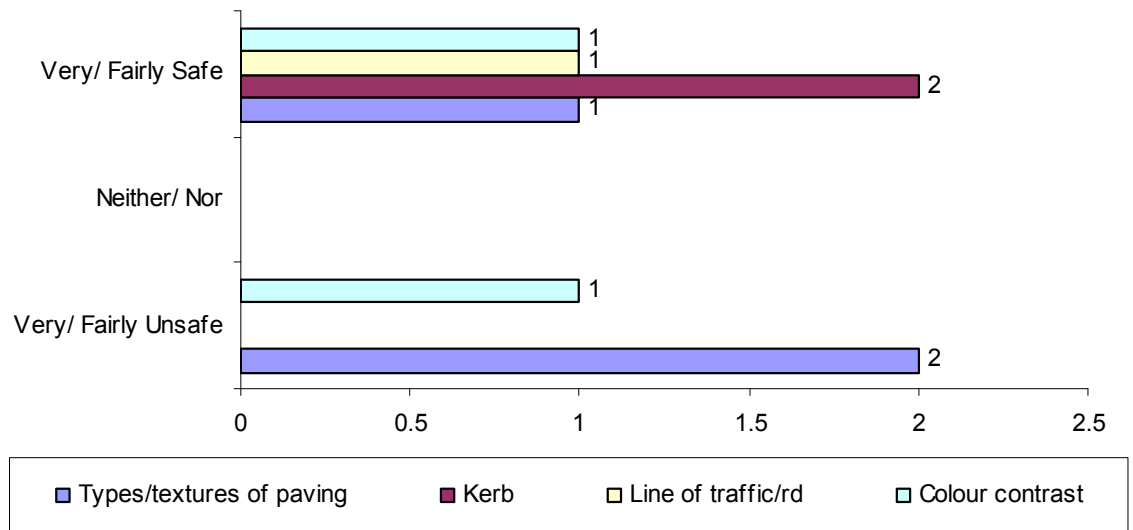
Figure 6.16 The extent to which participants with mobility impairments found different street features safe

Features that make navigation difficult

6.3.74   Participants were asked if any aspects of the roads made it difficult for them to navigate. They could give more than one response. It was most common for participants to say that uneven surfaces made it difficult for them to navigate (n=6), followed by kerbs not being dropped enough and tactile paving (n=4 for each). Figure 6.17 shows the remaining responses; 12 people gave 'other' answers, all of which were different.
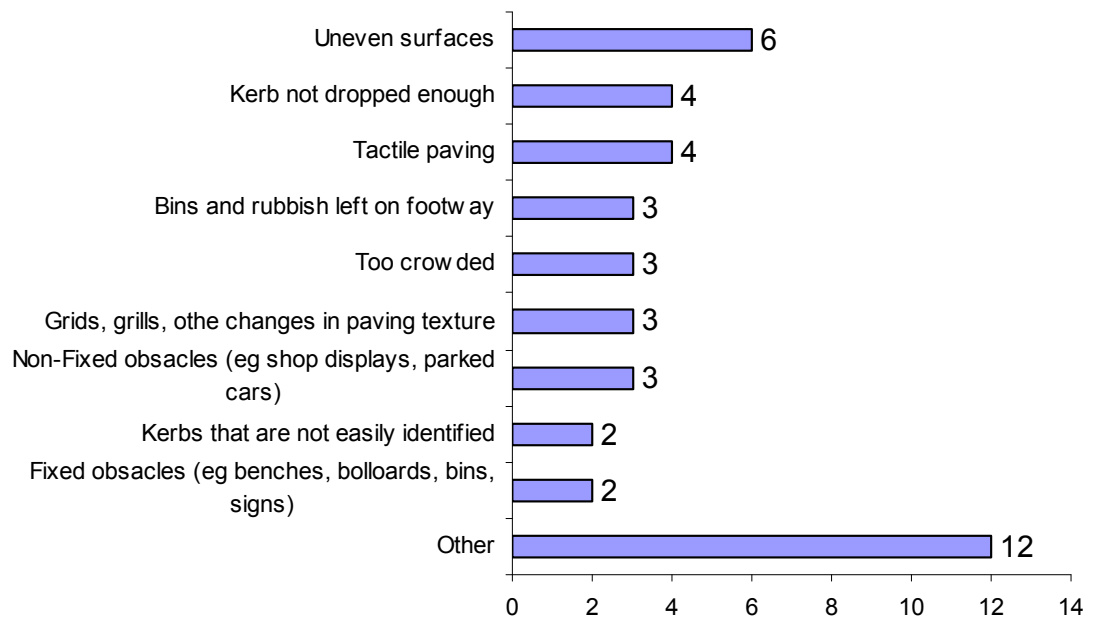

Figure 6.17 Street features which made it difficult for participants with mobility impairments to navigate

6.3.75   From the responses that were given, participants were then asked which made it most difficult for them to navigate. Four participants said uneven surfaces; two said when the kerb

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is not dropped enough; one said bins and rubbish left on footway; one said fixed obstacles (eg benches, bollards, bins, signs); and one said grids, grills and other changes in paving texture.

6.3.76   Of those who said uneven surfaces make it most difficult for them to navigate, three said this was because it was uncomfortable to travel over, one said they were scared of tripping and one said they have to be constantly aware. Three of these four participants said they found it either fairly or very difficult to navigate when there is uneven paving and said they felt fairly or very unsafe in this situation; the fourth said they found it easy and felt safe despite the uneven paving.

6.3.77   Of the two participants who said they found it most difficult to navigate kerbs that were not dropped enough, one said they were uncomfortable to travel over and they were too high to cross, while the other participants suggested it would be better if corduroy tactile paving was used in place of kerbs. Both participants said they found it difficult to navigate high kerbs and one felt unsafe when faced with this while the other participant said they felt neither safe nor unsafe.

6.4   People with Learning Difficulties

6.4.1   As with 'Disabled People in Shared Space', nine participants with learning difficulties took part in the 'Legibility in Shared Space' research component; four were classed as having mild learning difficulties and five were classed as having moderate learning difficulties.

6.4.2   Before commencing the accompanied journey a number of questions were asked in order to gain an understanding of the participants' comprehension. Most but not all of the participants could read, or at least understand through pictures, what road signs said. Most participants were able to orientate themselves to '3 O'clock' when asked, however some had difficulty in understanding this concept. The interviewers undertaking the research noted that the level of understanding of some participants was low and therefore it was not always possible to gather the desired amount of data from them.

6.4.3   At the end of the accompanied walk, participants were asked how easy or difficult they found it to navigate along the control streets and the shared space areas. The same number of participants said they found the shared space easy to navigate as said they found the control streets easy to navigate (n=4 for both).
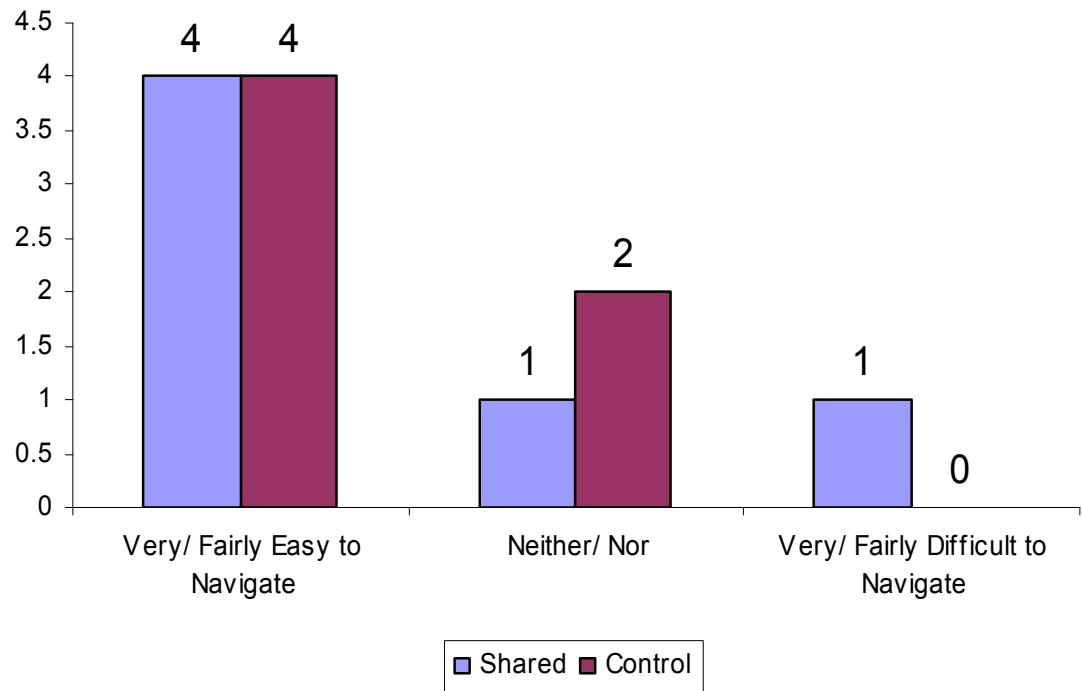
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Figure 6.18 The extent to which participants with learning difficulties found it easy to navigate the control and shared space streets

6.4.4   The following sub-sections provide the findings from the accompanied journeys split by design feature (e.g. kerb) or by task (e.g. crossing the road). The final sub-section then provides the results from the structured questionnaire which highlight the relative level of importance of each design feature and further information about how participants use design features.

Navigating Kerbs

Control Streets

6.4.5   While in the control streets some of the participants with learning difficulties answered questions about kerbs. They all seemed to be aware of kerbs and knew what they indicated.

"Stop and make sure there are no cars around and then you stop and cross."(Learning Difficulties, Plymouth)

"[The kerb is for] people crossing road." (Learning Difficulties, Slough)

"It shows you this is where the pavement ends." (Learning Difficulties, Newbury)

6.4.6   Generally these participants seemed comfortable with kerbs; however one participant did express a dislike for them, the reason for which was understood to be that the participant viewed the kerb as a tripping hazard.

"Yeah they're alright." (Learning Difficulties, Brighton)

"I don't want have it there, bit too dangerous." (Learning Difficulties, Slough)

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6.4.7   Two participants thought the kerb should be higher. Reasons included not thinking it was high enough for vehicles to notice and thinking it should be higher to ensure the safety of children who might run onto the road.

"I don't think it's enough for a van or maybe a bus to be aware of if they've gone up it."
(Learning Difficulties, Walworth Road)

6.4.8   Some participants commented on how they used the kerb, one noted that he uses it mostly for his sense of security; one said she usually doesn't pay it any attention though sometimes she may follow it; and one said she finds it very useful and it shows her the difference between the road and the footway.

Shared Space

6.4.9   None of the shared spaces streets we undertook research at had kerbs.

Navigating Level Surfaces

Control Streets

6.4.10   The side roads in Walworth Road had a level surface with the footway, as did the loading bays. In Leeds there was a level surface on one crossing and a lowered kerb at another point, however none of the participants with learning difficulties took part in Leeds.

6.4.11   Two participants took part in Walworth Road and both recognised the lack of kerb. One participant particularly liked the level surface as it made it easier for him to get around, yet at the same time he noted he liked to be able to recognise paving as paving and roads as roads.

"It's a blessing for me not having to go from one level to another ... made life a lot easier."
(Learning Difficulties, Walworth Road)

6.4.12   The other participant had altered his position on the footway to avoid vans parked in a loading bay. He was asked why he had done this and he noted that he recognised it as a loading bay.

"The kerb, pavements follows around and the bricks change." *(Learning Difficulties, Walworth Road)*

6.4.13   The participant said he would not walk through the loading bay irrespective of whether there were vehicles using it or not.

Shared Space

6.4.14   All the shared space areas we used had a level surface. Of the nine participants, four commented on the lack of kerb or noticed the differences in the road surfaces and the footway surfaces; one participant did not notice any change; and the remaining four did not comment.

6.4.15   Of those who noticed the changes in surfaces, two said they had done so because of the different paving types in each area. The other two did not say how they had noticed.

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"Where the pavement ends and the road begins … because of the different paving stones that were there, the one that I'm walking on now is smooth and the one near the road has a 'bobbly' effect to it." (Learning Difficulties, Clapham)

6.4.16   Two of the participants noted their position in relation to everything else as being 'on the path'. Although technically a shared space does not always have a path, in these situations the participants were separated from the road by obstacles such as pillars, café tables and chairs, posts and other street furniture.

6.4.17   Participants tended to assume cars should be in the road and pedestrians should be on the pavement, despite the fact that in reality there are no traditional pavements. However, one participant had assumed the street was pedestrianised and that the taxis that drove through it were not supposed to be there.

"With taxi drivers, they can do what they want." (Learning Difficulties, Brighton)

6.4.18   Three participants commented that they liked the level surface, with two noting that it makes it easier to travel through them. However, one of these participants also stated that they did like to be able to differentiate between the road and the footway and to have two distinct areas.

"No kerbs, that's good … I like that … you walk better … it's really easy." (Learning Difficulties, Brighton)

"I'm fine as it is." (Learning Difficulties, Plymouth)

Navigating Obstacles

Control Streets

6.4.19   Only three participants came across an obstacle to negotiate while in the control streets; A-boards, trees and other people. The obstacles did not cause a particular problem for the participants, they were able to see and identify them in advance and move around them accordingly.

6.4.20   Two other participants commented on obstacles, despite not having to negotiate any while in the control streets: At the beginning of the walk one participant mentioned how he does not like chairs and A-boards on the pavements; the other commented that he is not consciously aware of them but assumes he notices them subconsciously and negotiates them accordingly without thinking about it.

"If you had a group of people you'd have to go onto the path via the road and then come back on again so that's quite dangerous." (Learning Difficulties, Brighton)

"I am not immediately aware of them … on a subliminal level I can prepare and negotiate accordingly." (Learning Difficulties, Walworth Road)

Shared Space

6.4.21   Six of the nine participants came across an obstacle during the stretch of the walk in the shared space area. The types of obstacles participants came across were:

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- A roped off area for café tables and chairs;

- Bike racks;

- Plants;

- Scaffolding;

- Lampposts;

- An electricity box; and

- Signs.

6.4.22   Obstacles did not pose a great problem for these participants in terms of navigation; they would just walk around them. However, two participants did think they could be dangerous and it was important to be aware of them and more careful when passing them by so as not to trip or bump into them.

"I don't like them [bike racks] … not safe to put it there… to dangerous." (Learning Difficulties, Slough)

"I don't like it [a lamppost], it's too big and it's too dangerous…… people bump into it." (Learning Difficulties, Slough)

"It would be much better if they [electricity boxes] were up against the wall." (Learning Difficulties, Walworth Road)

Navigating Vehicles

Control Streets

6.4.23   While in the control streets, four participants came across vehicles which they needed to navigate past; two came across vehicles in loading bays, one came across a vehicle in a parking bay, and one saw a car parked illegally on the side of the road. Two participants noted that the vehicles were not supposed to be there; one because it was on double yellow lines and the other because it was not loading/unloading.

6.4.24   One of the participants who passed a loading bay and the participant who passed the parking bay both felt uncomfortable in these situations; one stated this was because the area was more congested and the other said it was because it made it difficult to cross the street.

"If you try and cross the road, they [the cars] are in way." (Learning Difficulties, Slough)

6.4.25   One participant commented that he felt comfortable passing vehicles in the loading bays and the fourth participant did not comment on their comfort at this point, though the interviewer did not witness any distress or change in behaviour.

Shared Space

6.4.26   When in the shared space areas, five participants came across a vehicle(s) which they had to negotiate, including:

- Bicycles;

- Vans;

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- Parked cars;

- Taxis;

- Lorries; and

- A jeep with a trailer.

6.4.27 The vehicles did not seem to particularly bother any of the participants, though it was noted (and actioned) by two participants that one should be careful when going past vehicles and either stop and wait for them to pass before proceeding (because that is what he has been trained to do) or watch out for other vehicles or activity on either side of the vehicle you are passing.

"We have to be careful to get round that way … In case a car comes along, I don't know if cars do come along this way … If they've got shopping in there, when they go the van, they take the shopping in there." (Learning Difficulties, Brighton)

6.4.28 Despite participants not showing particular discomfort with the vehicles they met, three of the five felt (incorrectly) that the vehicles were not supposed to be there. For example, the participant who met the jeep and trailer reported that she felt 'fine', 'comfortable' and 'safe', yet thought that the vehicle should not be on the footpath and reversing as it was. However, she also rationalised the driver's behaviour, and considered that they must have a business in one of the nearby shops and be trying to deliver to it which is why they were behaving in this way.

6.4.29 In addition to the vehicle encounters described above, three participants came across parking bays (two of which were disabled parking bays), which at the time did not have any vehicles in, and discussed the meaning of them. Neither of the participants who came across the disabled parking bays correctly identified them; one thought it was a designated area for wheelchair users to travel through, and it was not clear what the other participant thought though the quote shown below indicates she may have thought the disabled sign was a warning sign. The meaning of the disabled parking bays was explained to both participants.

"The disabled sign there … that's probably just for people with wheelchairs to go along … I think it could be shown a bit more … a bit like that but maybe colours … because if you were walking past you wouldn't see that really … I wouldn't have known that was a disabled parking space." (Learning Difficulties, Brighton)

"Be careful when they've got wheelchairs." (Learning Difficulties, Brighton)

6.4.30 The third participant who came across the other parking bays had noticed that there was a change in paving tone and colour but this had not indicated anything to her. Again the interviewer explained that there was a parking bay but the participant stated that she would only have realised this had there been cars parked in it.

"If the car's there I'd know what's going on, if the car isn't there I wouldn't know what's going on." (Learning Difficulties, Plymouth)

6.4.31 One participant commented that they did not mind sharing the space with bikes but that they did not like sharing it with cars.

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Crossing the Street

Control Streets

6.4.32   Six of the nine participants crossed a control street during their accompanied journey. All six seemed fairly comfortable while doing so; two specifically stated that they felt comfortable; however one said they felt neither comfortable nor uncomfortable and noted that the traffic came quite close to the crossing.

"Quite daunting because the traffic pulls up really close to these lights!" (Learning Difficulties, Walworth Road)

6.4.33   All six participants chose to cross the control streets at a controlled crossing; five did so at a pelican crossing (four noting that you should wait for the 'green man') and one crossed at a zebra crossing. One participant observed other people crossing on a 'red man' and thought that this was 'silly'. Another participant commented that they may cross away from a controlled crossing if there was no traffic.

6.4.34   When asked why they crossed at these locations, two commented that it was the safest place to cross and one said that it was the easiest place to do so. The other three participants did not comment.

"Because it was the safest place to cross." (Learning Difficulties, Clapham)

"It is safe, it is traffic lights; it is dangerous crossing the road." (Learning Difficulties, Newbury)

6.4.35   Two of the three participants who did not cross a control street did however discuss where they would have crossed if they had needed to. Both participants said they would have crossed at a pelican crossing and would have waited for the 'green man' before doing so.

"I'd go up to where the crossing is up there and press the button so you get the green man." (Learning Difficulties, Brighton)

Shared Space

6.4.36   Six of the nine participants also crossed the shared space streets. Just one participant reported that they felt uncomfortable when doing so. This was because there was a level surface and he did not realise he was crossing the road until he was half way across.

"I didn't like that bit, we were crossing a road without really knowing … It doesn't look like a road because that ones very narrow and one way so it's quite easy to just walk across without realising." (Learning Difficulties, Walworth Road)

6.4.37   The remaining five participants all appeared comfortable, with some stating that they were or stating that they felt safe or found it easy to cross the street.

"Very comfortable because I do it all the time." (Learning Difficulties, Plymouth)

6.4.38   Participants were less likely to cross at a controlled crossing while in the shared space; only two did so. However, participants were more likely to actively and consciously stop and look for traffic before crossing.

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"To make sure that there was no traffic coming." (Learning Difficulties, Clapham)

"I looked to my left and to my right to see if any cars come." (Learning Difficulties, Slough)

"I was aware that cars can come down that way or that way." (Learning Difficulties, Plymouth)

6.4.39   After the accompanied journey, during the interviewer administered questionnaire, participants were asked to rate how easy or difficult they found it to cross the shared space and the control streets. Not all participants answered the question, but of those who did results for the shared space and control streets were similar; four participants said the shared space was easy to cross compared to five who said the control streets were easy to cross.
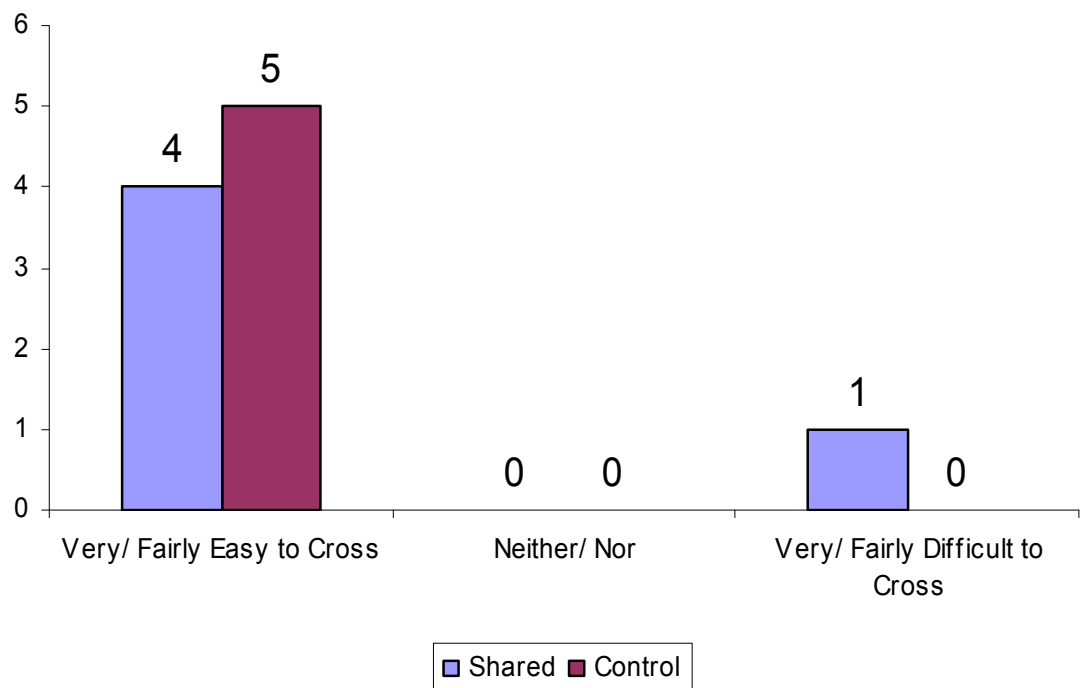

Figure 6.19 The extent to which participants with learning difficulties found it easy to cross the control and shared space streets

Navigating Tonal Contrast

Control Streets

6.4.40   There was no tonal contrast between the road and the footway in any of the control streets, other than the usual difference in the colour of tarmac and paving slabs. However, in Walworth Road the loading bays did use a different shade and type of grey brick.

6.4.41   Two participants with learning difficulties took part in the research in Walworth Road but only one of these commented on the loading bays. The participant thought the tonal contrast was useful and alerted one to beware of vehicles.

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"Makes you aware vehicles may be parking there … indicates an inlet for traffic." (Learning Difficulties, Walworth Road)

Shared Space

6.4.42   There was no tonal contrast in the shared space areas in Newbury and Leeds. However, the remaining five sites did have tonal contrast.

6.4.43   Of the eight respondents who took part in the research in an area with tonal contrast, all had to be prompted before commenting on it, however once prompted, two participants said they had seen the tonal contrast before.

6.4.44   When asked what the tonal contrast indicated, if anything, three participants correctly stated the purpose of it.

"Shows where roads are." (Learning Difficulties, Clapham)

"Makes you aware vehicles may be parking there." (Learning Difficulties, Walworth Road)

6.4.45   However, one participant thought it was just a pattern and two said they did not know. The other two participants did not state what they thought the tonal contrast was for.

"No, I think it's just a pattern." (Learning Difficulties, Brighton)

6.4.46   None of the participants appeared to use the tonal contrast to aid their navigation and four specifically said that they did not use it. Despite this two participants said they did like it.

"Like it because say someone who's partially sighted, they can see the colours." (Learning Difficulties, Clapham)

Navigating Tactile Paving

Control Streets

6.4.47   Seven of the nine participants came across tactile paving while in the control streets and when prompted about its purpose etc, were able to talk about it. Most participants could correctly state what it is for, with some having a full understanding and others a partial understanding.

"For people if they are blind … to help people cross over the road better." (Learning Difficulties, Brighton)

"Blind people and their stick, so they know they're near the road." (Learning Difficulties, Clapham)

"Signals you are in a danger area." (Learning Difficulties, Walworth Road)

"When a car comes you have to wait … it's for people crossing the road." (Learning Difficulties, Slough)

6.4.48   However, two participants did not know the meaning of tactile paving. One participant thought it was for wheelchair users while the other thought it was for grip.

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"I didn't even know that was what that was for down there. That's something I've learnt; very good." (Learning Difficulties, Brighton)

"The paving changes slightly at each end of the crossing so you can grip the floor." (Learning Difficulties, Walworth Road)

6.4.49   Participants did not use the tactile paving to help them navigate, however two did note that it was useful for other people. Participants were invited to feel the tactile paving underfoot; some did not think you could really feel it while others did. One participant commented that it is not of use if it is worn down.

"You can't hardly notice it when you're standing over there … as you go over it you can't feel the bobbles in it." (Learning Difficulties, Clapham)

"It feels weird under your feet, but otherwise it doesn't really bother me." (Learning Difficulties, Walworth Road)

6.4.50   Participants were fairly impartial about the tactile paving.

Shared Space

6.4.51   Seven of the nine participants also came across tactile paving in the shared space. Due to the majority of participants starting the accompanied journey in the control streets, most had been made aware of the correct meaning of the tactile paving in advance of discussing it in the shared space.

6.4.52   As in the control streets, participants did not use the tactile paving to help them navigate and did not consider it useful for themselves, however several noted that it was useful for blind people.

"It is for blind people so they would know that this is the way to cross the traffic light." (Learning Difficulties, Newbury)

6.4.53   Two participants took part in the research in Brighton where an untraditional form of tactile paving is used at the entrance to the shared space street; the entrance is marked out with uneven paving slabs that have been laid at an angle to the surrounding surfaces. Two participants took part in Brighton; both could see and feel that the paving was different but did not know what it was supposed to indicate. One participant said she did not like it.

"It's just like it's been re-done or something." (Learning Difficulties, Brighton)

"I notice a different bit [it feels] lumpy … no I don't [like it]." (Learning Difficulties, Brighton)

Corduroy Tactile Paving Awareness Test

6.4.54   At the sites where corduroy tactile paving was present, participants were asked to undertake an awareness test. This involved positioning them facing the corduroy tactile paving and asking them questions about it. Eight participants undertook the test.

6.4.55   None of the participants knew that this form of tactile paving was called 'corduroy' and none reported that they had seen it anywhere before undertaking the accompanied journey.

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Unsurprisingly therefore, the majority of participants did not know what the corduroy tactile paving was for.

"I don't know… Is it something for bicycles?" (Learning Difficulties, Walworth Road)

"It's for if you wait for the traffic." (Learning Difficulties, Slough)

6.4.56   Two participants however, did correctly guess that it was for blind people.

"No reason I think. Or it's those blind people." (Learning Difficulties, Brighton)

"Is it for the blind people?" (Learning Difficulties, Clapham)

6.4.57   The name and purpose of the corduroy tactile paving was explained to participants before asking them further questions about it, such as did they think it should be wider or narrower, would they use it in the future to help them navigate, etc:

- ■   Two participants thought the corduroy tactile paving was the correct width;

"I think its fine the way it is. If it's too narrow they might not be able to feel it." (Learning Difficulties, Clapham)

- ■   One participant noted that now that he knew what it was he thought it was useful;

- ■   One participant expressed dislike for the corduroy tactile paving, stating that he preferred conventional pavements with kerbs;

"I don't like it. I like normal paths; it's safer on the normal paths." (Learning Difficulties, Slough)

- ■   One participant said that the presence of corduroy tactile paving did not bother her, but that it was of no use to her and she would not use it; and

- ■   One participant thought that the corduroy tactile paving helped to distinguish the road from the footway.

"It does separate the road from the pavement a bit more." (Learning Difficulties, Walworth Road)

Navigation Overall

6.4.58   At the end of the accompanied journeys, participants completed a structured questionnaire with an interviewer and answered specific questions about the aids they use for navigation; which ones they rely on most; and how useful they are, etc. Having heard what participants said about various design features during the walk, we now see how they rate them compared to each other.

Cues to aid navigation

6.4.59   Participants were asked what cues they use to navigate roads. They could give more than one answer. It was most common for those with learning difficulties to say they use their sight (n=7) followed by their memory (n=6). Other navigation aids were the kerb (n=3), the line of the road/traffic (n=3), the sound of the road/traffic (n=3) and hearing (n=3). Figure 6.20 below shows a full breakdown.
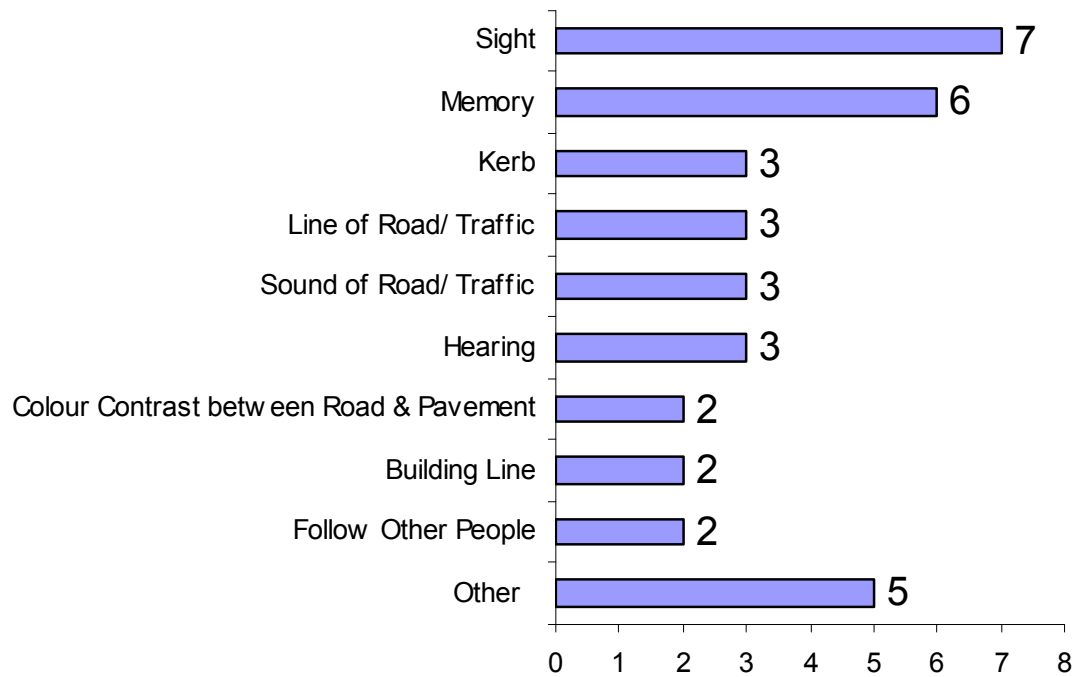
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Figure 6.20 Cues used by participants with learning difficulties to aid navigation

6.4.60   Participants were then asked which three cues they relied on most and had to rank their top three. We have calculated scores for each of the cues that were rated. 'Sight' scored the highest, with two participants rating it as the most important navigation aid and one participant rating it as second most important. The 'kerb' and participants' 'memory' both scored the next highest, however two people rated the kerb as the most important navigation aid while only one participant rated their 'memory' as the first most important. Please see Table 6.5 for further details.

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Table 6.5 Most important navigation aids, ranked

Navigation Aids	Score	Ranking		
		1st	2nd	3rd
Sight	8	2	1	0
Kerb	6	2	0	0
Memory	6	1	1	1
Hearing/Sound (eg traffic noise)	5	1	1	0
Line of Road/Traffic	4	1	0	1
Types/Textures of Paving	2	0	1	0
Building line	1	0	0	1

6.4.61   For those navigation cues which were part of the street, participants were asked further questions about how they located the cue, how they used it, and what information it gave them, etc.

6.4.62   Of the two participants who said the kerb was the street feature they relied on the most, second or third most, for navigation, both said they locate it through their sight and then use it as a guide to follow. One participant also said they use it as a memory prompt and to tell them where the traffic is, and the other said it gave them information about hazards. Both participants found the kerb useful, very easy to navigate with and said they felt very safe when they locate it.

6.4.63   Of the two participants who use the line of the road/traffic to aid their navigation only one said how he located it and used it etc, saying that he could see it; he uses it as a guide to follow; it tells him where the traffic is; it tells him where on the road he is; it provides information about direction of travel; information about distance from road; information about his location/position on pavement; and information about hazards. He said he found the line of the road/traffic useful, easy to navigate with and it made him feel safe.

6.4.64   Just one participant ranked 'types/textures of pavement' as one of the top three most important aids for navigation. He said he located it through sight and that he used it as a guide to follow and to know to try to avoid the area. He said it provided him with information about hazards and that it was fairly useful. However, he said he found it neither easy nor difficult to navigate with it and actually felt very unsafe when he came across it.

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6.4.65   One participant ranked the building line as one of their top three most important aids for navigation. He said he could see it and used it as a guide to follow. He said that it gave him information about his location/position on the pavement and that he felt safe when he located it. However, when asked how useful it was and how easy it was to navigate with, he said it was neither useful nor useless and neither easy nor difficult.

Features that make navigation difficult

6.4.66   Participants were asked if any aspects of the roads made it difficult for them to navigate. They could give more than one response. Three participants said that there were no aspects of the road that made it difficult for them to navigate. However, of the remaining participants, it was most common for them to say they found it difficult if it was too crowded (n=3), if there was fixed obstacles in their way (n=3) and if there were other, non-fixed obstacles in their way (n=3). Figure 6.22 shows the results; 12 participants gave an 'other' aspect of the road that made it difficult for them to navigate, however not more than one person said each.
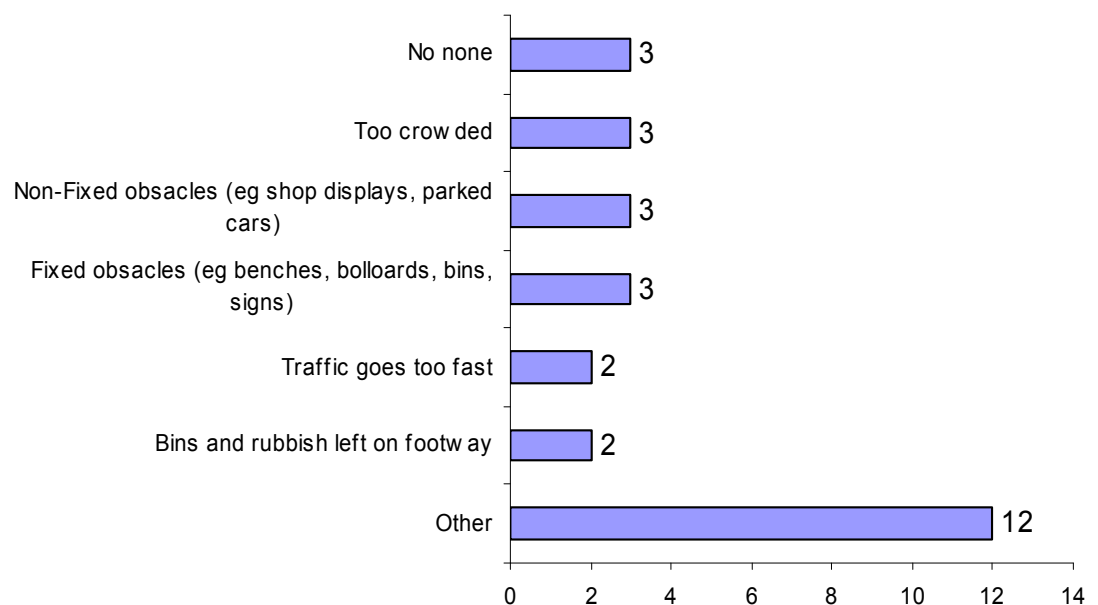

Figure 6.22 Street features which made navigation difficult for participants with learning difficulties

6.4.67   From the responses participants gave, they were then asked which made it most difficult to navigate. Two participants said fixed obstacles made it most difficult; one said this was because it meant you had to change direction and be more careful, and the other said this was because they were in the way and you could bump into them. One of these two participants said that fixed obstacles were very difficult for him to navigate and made him feel very unsafe, the other participant did not state how difficult or unsafe they made him feel.

6.4.68   Of the remaining participants who had named street features that made it difficult to navigate, one said a lowered kerb made it most difficult for them, one said other, non-fixed obstacles were most difficult to navigate, and one said it was most difficult when the street was too crowded.

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6.5   People with Hearing Loss

6.5.1   As with 'Disabled People in Shared Space', five deaf or hard of hearing participants took part in the 'Legibility in Shared Space' research component; three were deaf from birth and had almost no spoken English, and two were hard of hearing, wore hearing aids and both spoke English as their first language.

6.5.2   Please note that quotations taken from the three deaf participants are quotations from the interpretation provided by the BSL translator, whereas all other quotations in this report are directly taken from participants.

6.5.3   At the end of the accompanied walk, participants were asked how easy or difficult they found it to navigate along the control streets and the shared space areas. Results were similar, with five participants saying the shared space was fairly or very easy to navigate and four participants saying the control streets were fairly or very easy to navigate.
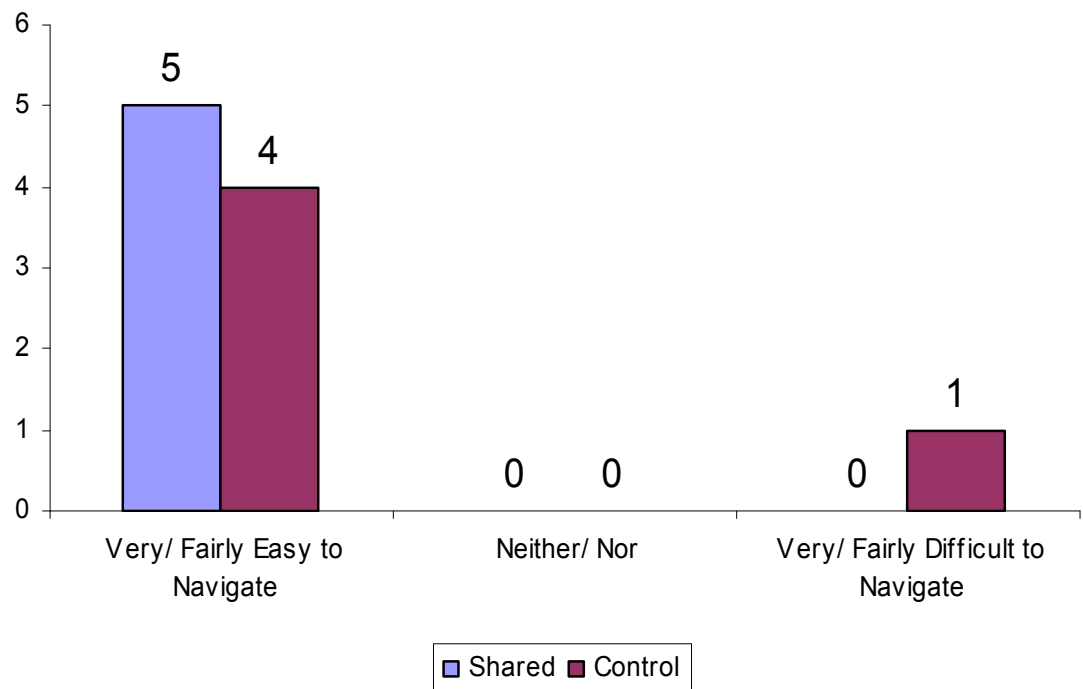

Figure 6.23 The extent to which participants with hearing loss found it easy to navigate the control and shared space streets

6.5.4   The following sub-sections provide the findings from the accompanied journeys split by design feature (e.g. kerb) or by task (e.g. crossing the road). The final sub-section then provides the results from the structured questionnaire which highlight the relative level of importance of each design feature and further information about how participants use design features.

Navigating Kerbs

Control Streets

6.5.5   Four of the five deaf or hard of hearing participants discussed with the interviewers the presence of the kerb in the control streets.

6.5.6   One of the participants did not fully grasp what the interviewer wished to discuss and instead focussed on the section of the kerb where there was a drop for a controlled crossing. She had not been paying attention to the kerb while walking along the pavement, it was only when she stopped and was prompted about it that she honed in on the dropped kerb.

"No because I was walking in the middle and I was walking to this particular type, but I did notice that it was a 'slanty' kerb to allow me to cross the road and I do normally go to places where it's easily accessible to cross the road." (Hard of Hearing, Clapham)

6.5.7   The remaining three participants all correctly discussed the stretch of kerb running along the pavement edge. Two participants correctly stated the purpose of the kerb and that they thought it was a useful feature.

"That it's the end of the pavement, don't go any further, you're going to end up in the road. We were taught that as children." (Hard of Hearing, Walworth Road)

6.5.8   However, there were mixed feelings about whether a kerb or a level surface was preferred. Two participants noted that a kerb could be a tripping hazard, yet at the same time two participants could see the safety benefits of having it.

"They've always been a safety feature because a vehicle can't come up on the pavement, but people can trip down them so it works both ways really." (Hard of Hearing, Walworth Road)

Shared Space

6.5.9   None of the shared spaces streets we undertook research at had kerbs.

Navigating Level Surfaces

Control Streets

6.5.10   The side roads in Walworth Road had a level surface with the footway, as did the loading bays, and in Leeds there was a level surface on one crossing and a lowered kerb at another point. Just one hard of hearing participant took part in Walworth Road. He did not comment on the level surface while in the control area.

Shared Space

6.5.11   All the shared space areas we used had a level surface, however participants did not point it out without first being prompted to discuss it. Once prompted all participants were able to observe the level surface and note that it was different to the kerbs in the control streets. All the participants seemed to be able to understand where different users should be; two noted the different textures in the surfaces and another picked up on the use of tonal contrast indicating the difference between the road and footway.

"Of course this alerts you as well, the bubble … unconsciously I suppose you do, you know, I was aware I was walking over and that's what made me look." (Hard of Hearing, Clapham)

"This is smooth so I know it's for me." (Deaf, Plymouth)

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6.5.12   Three of the five participants said they liked the level surface, either because it was considered to be safer than having a kerb (which one might trip over) or because it was considered to be more accessible for mobility impaired users and those with prams etc and provided greater ease of movement for people generally. One participant also noted that he liked how the raised entry treatments in Walworth Road appeared to represent speed bumps which slowed the cars down.

"It's more or less a speed ramp, to stop speeding which I'm in favour of. Plus for people with wheelchairs they are on a level surface." (Hard of Hearing, Walworth Road)

"It's nice not having pavement and it's nice not having to go up and down … because you've got the warning that you're coming to a kerb [the blister tactile paving] which I was aware of and you've not got the kerb to worry about which was lovely." (Hard of Hearing, Clapham)

"I like it flat." (Deaf, Plymouth)

6.5.13   The other two participants said they were not bothered either way because it did not affect them.

6.5.14   Four of the five participants said they thought the streets looked nicer as they were, without kerbs. The fifth participant did not state either way.

"I think that's very nice the way that's done." (Hard of Hearing, Clapham)

"I think this is nicer when it's all the same level." (Deaf, Clapham)

Navigating Obstacles

Control Streets

6.5.15   Just one participant came across obstacles while in the control streets. He had to navigate around an A-board, bicycle rack and electricity boxes in Walworth Road.

6.5.16   With regards to A-boards the participant commented that they were not a problem for him as he could see them in advance and move around them. However, he thought they could cause problems for other users and did not believe that such additional advertising on the street was necessary as the shops had the same information in the shop window.

6.5.17   With regards to the electricity boxes, the participant was aware they could not be removed completely but felt they should be positioned to one side rather than centrally. He also felt the bicycle racks could be positioned more appropriately as he currently felt they were a hazard.

"Ok, that can't be helped but they can either put it near the kerb or by the wall." (Hard of Hearing, Walworth Road)

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6.5.18   Participants were more likely to come across obstacles in the shared space streets than they had been in the control streets. The types of obstacles were:

- Bollards;

"Not fussed really. I think it spoils it to be honest with you." (Hard of Hearing, Clapham)

- Uneven surfaces;

"That is a lifted brick which isn't very good because it's quite easy to trip, especially for the elderly I would say." (Hard of Hearing, Clapham)

- A trolley bay (no longer in use);

"They should give the pavement back." (Hard of Hearing, Walworth Road)

- Large skip bins (outside a restaurant);
- Seating;
- Trees; and
- A-boards.

6.5.19   However, participants did not necessarily view these obstacles as a problem or something they had to actively navigate. In fact one participant thought that without street furniture the area would be 'boring'.

6.5.20   Other interesting comments included:

- One participant commenting that the seating may be too low for some people to use easily; and
- One participant commenting that the bins were not a problem in themselves but the rubbish left around them could be a slip hazard.

Navigating Vehicles

Control Streets

6.5.21   None of the deaf/hard of hearing participants had to navigate vehicles while in the control streets.

Shared Space

6.5.22   Three of the five participants came across vehicles while in the shared space. In one situation, the participant noted that there were buses in the road and that she thought cars weren't allowed in this street. The buses did not bother her; she said she was used to the traffic as she had grown up in London.

"I thought it was a no car place, probably is, just for deliveries. I thought this was only pedestrian apart from buses." (Hard of Hearing, Clapham)

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6.5.23   The same participant was also asked about a car that was parked at the side of the road. Again, this did not bother her, though she noted that it could be an obstacle for other road users.

"It's no where near a crossing so it's quite safe I suppose to park there but it does block the road off doesn't it?" (Hard of Hearing, Clapham)

6.5.24   Another participant experienced a car pulling into a side road from behind him. When asked had he been aware of the vehicle he replied that no he had not as he could not hear it and it had been behind him so had not seen it in advance either. However, this participant expressed greater discomfort with the flush loading bays at the side of the footway. He considered them to be dangerous and would rather that they were separated from the footway by bollards.

"This I don't like, vehicles parked up on the kerb/pavement, I don't like that at all." (Hard of Hearing, Walworth Road)

6.5.25   The third participant encountered a car that was illegally parked at an angle half on and half off the footway. The participant was initially uncertain as to whether the car should be there or not. The participant concluded that the car was parked illegally and indicated that there are official parking spaces close by. He was able to identify the official bays because of the white lines. He said that this sort of illegal parking activity in the space can affect his level of comfort because the activity is less predictable.

Crossing the Street

Control Streets

6.5.26   Four of the five participants crossed over one or more of the control streets. Three of these participants used controlled crossings and one did not, however there were no controlled crossings close by for her to use. At the time this participant undertook the accompanied journey the traffic was not heavy but there were some vehicles passing though the area. The participant was asked how she felt and she noted that for people with hearing it would be ok, but for her she needs to be particularly aware and look around for traffic. She commented that sometimes she will walk to the next road where she knows there is a controlled crossing. Despite this, she said she felt fairly comfortable crossing the street.

6.5.27   The other three participants all crossed at pelican crossings; however they did not always wait for the 'green man'. Two of the participants crossed once after waiting for a 'green man' and then crossed a second stretch of road on a 'red man'. Both of these participants were hard of hearing, rather than completely deaf. Both indicated that they used their vision of the traffic on the road as well as the traffic lights to help them choose when to cross.

"We're at the lights, ready to cross the road. It's the lights that give a red or green pedestrian so we know we're safe to cross. Not that I always take notice of that. I normally look at the traffic being a driver. Unless I've got my grandchildren with me then I'm very particular." (Hard of Hearing, Clapham)

6.5.28   The third participant who crossed at a pelican crossing did choose to always wait for the 'green man'. She was deaf from birth; however with a hearing aid she could hear loud noises such as sirens. She said that the availability of a controlled crossing made her feel safer

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when crossing busy roads. She said she had to rely heavily on her vision to ensure she was safe to cross and felt that people with hearing could be very careless when crossing the street.

"I need to make sure I don't feel scared and that I feel safe before I cross the road, because the sounds and the sirens I don't really know where they come from I need to look around. I need to make sure." (Deaf, Clapham)

6.5.29   This participant also said she preferred to cross narrower streets rather than wide streets if possible. This was because she also suffers from vertigo, and combined with the balance problems she experiences in relation to her deafness; it makes it very difficult for her to cross particularly wide streets.

"It's a very big road, that's a very big road, I suffer from vertigo … I don't like it, I can't. This one is much smaller and makes me feel safer, that one makes me feel nervous, it's too big." (Deaf, Clapham)

Shared Space

6.5.30   All five participants crossed over the shared space street on their accompanied journey. Two did so at a controlled crossing (one crossed at a zebra crossing and one at a pelican crossing) and the other three crossed without a controlled crossing. Generally they felt fine and not uncomfortable; however one participant reported feeling very unsafe due to the traffic.

"It's a bit frightening, you're going to go across and something's going to come up and hit you." (Hard of Hearing, Walworth Road)

6.5.31   The two participants who crossed at a controlled crossing said this was because they felt safer doing so and/or it was easier to do so.

"I feel safe and also because of my balance problems I chose to cross here [at the zebra crossing] because I have a good visual field and I can see the bus coming and it was very clear and I knew when he was stopping. It was better for me to use the zebra crossing than just crossing over there when there's nothing really." (Deaf, Clapham)

6.5.32   The respondents who did not use a controlled crossing were asked if they would have preferred to cross elsewhere. None said that they would have preferred to use an alternative crossing point.

"No I was fine crossing there because it's not such a busy street. I mean if it was a really busy street I would have walked down to the lights and crossed there." (Hard of Hearing, Clapham)

6.5.33   One of the hard of hearing participants noted that he liked having a crossing with an audible beep as well a 'green man'.

"When you cross, ok the amber light flashes but there should be a sound like an alarm to say it's about to change, so a warning tone to let people know it's about to change." (Hard of Hearing, Walworth Road)

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6.5.34   One of the deaf participants commented that at one crossing the sunlight made it harder for her to cross the street because it obscured the 'red man'.

"It's really bright now and the red sign in the traffic light is not clearly visible, this is a problem for me." (Deaf, Clapham)

6.5.35   After the accompanied journey, during the interviewer administered questionnaire, participants were asked to rate how easy or difficult they found it to cross the shared space and the control streets. Of the five deaf/hard of hearing participants, three said the shared space was easy to cross and three also said the control streets were easy to cross.
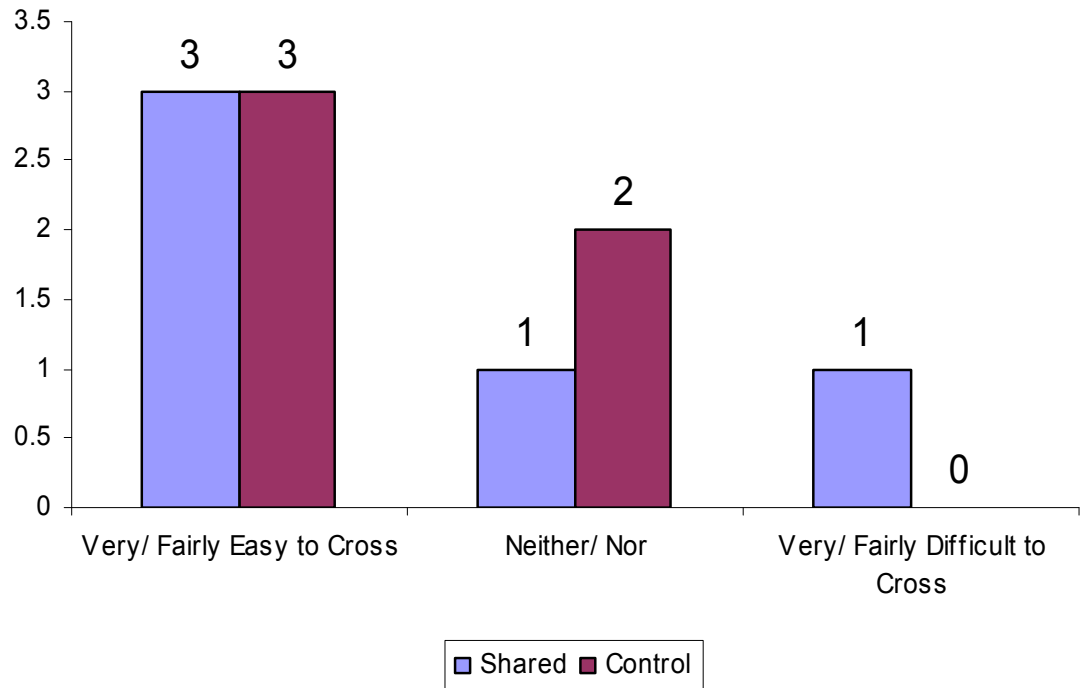
Figure 6.24 The extent to which participants with hearing loss found it easy to cross the control and shared space streets

Navigating Tonal Contrast

Control Streets

6.5.36   There was no tonal contrast between the road and the footway in any of the control streets, other than the usual difference in the colour of tarmac and paving slab and in Walworth Road the loading bays used a different shade and type of grey brick. None of this was discussed.

Shared Space

6.5.37   There was no tonal contrast in the shared space areas in Newbury and Leeds. However, the remaining five sites did have tonal contrast.

6.5.38   None of the five participants pointed out the tonal contrast of their own accord. However, when prompted they all noted that they could see it and were able to discuss it. Three of the participants liked the tonal contrast, one was not bothered as she said it did not affect her,

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and one thought it needed to be brighter to greater serve its purpose and to be noticeable at night.

"I like it, it lifts it. And it makes you aware as well … you can see where the road is and where the pavement is quite clearly which is very good … The terracotta is the road and the white is the pavement … where you can walk and where you shouldn't walk." (Hard of Hearing, Clapham)

"My opinion is that it should be a zebra crossing with colour, luminous colour so it can be seen at night." (Hard of Hearing, Walworth Road)

6.5.39   When prompted on the tonal contrast, four of the five participants immediately picked up on the contrast between the road and the footway. However, one participant first commented on the different colours of tactile paving used – the red blister tactile paving and yellow corduroy tactile paving.

"Over there I noticed the different colour, the one over there where the blind people cross was red now it's a different colour its yellow … it's a little bit strange like the same thing but a different colour." (Deaf, Clapham)

6.5.40   Participants did not consciously or noticeably use the tonal contrast and one participant specifically commented that the tactile paving surfaces were more useful.

Navigating Tactile Paving

Control Streets

6.5.41   Only two of the five deaf/hard of hearing participants came across tactile paving in the control streets. Both participants took part in the research in Clapham.

6.5.42   The first participant came to the traffic lights to cross the road and noticed the uneven paving slabs leading down to the crossing which she considered would be particularly difficult for wheelchair users. She also noted that it was fairly uncomfortable for her and that it could be a tripping hazard.

"It's quite raggedy. I would say that would be quite difficult for a wheelchair to go on, quite uncomfortable, maybe not very easy to negotiate … I find this quite uncomfortable to walk on; the pebbles they're very high." (Hard of Hearing, Clapham)

6.5.43   The same participant then mentioned, without prompting, the blister tactile paving on the island in the middle of the road. She said she felt fine on the blister tactile paving but rated it as a '3' for safety (neither safe nor unsafe) because the connection between the ordinary paving and the blister tactile paving was not very smooth.

"Quite safe, was easy to negotiate, no problem." (Hard of Hearing, Clapham)

6.5.44   The second participant did not notice the blister tactile paving of her own accord. After prompting her on it, the interviewer invited her to walk over it again and see how it felt. The blister tactile paving did not bother the participant and she noted that whether she felt it or not depended on the type of shoes she was wearing.

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"I actually feel something now because I'm wearing these very flat sandals, if I wear trainers I don't really feel anything. It depends on how thick the shoes are." (Deaf, Clapham)

6.5.45   The interviewer asked the participant if she knew what the blister tactile paving was for. The participant did not know and so the interviewer explained it to her. The participant was then able to point out other blister tactile paving along the route and, when she reached the corduroy tactile paving, was able to transfer this new knowledge to that.

Shared Space

6.5.46   All five participants came across a form of tactile paving in the shared space. Three were able to correctly identify that the tactile paving was to help blind people navigate, though one was only aware of this because it had been explained to her earlier in the accompanied journey.

"For blind people I would assume so they would know they're coming to a crossing." (Hard of Hearing, Clapham)

Four of the five participants said they did not personally use the tactile paving to help them navigate but two of these participants still thought it useful because they appreciated how blind people use it.

"If I didn't know about it, then I would ignore it, but I think it's about '2' [fairly useful] … In my opinion it shouldn't just be at crossings, it should be up by the kerb all the way up so that they can see that if they walk there, they know that they won't walk into the road." (Hard of Hearing, Walworth Road)

"It's really useful, blind people need that." (Deaf, Plymouth)

6.5.47   The fifth participant thought that she probably used the tactile paving subconsciously to alert her to the road.

"Of course this alerts you as well, the bubble … unconsciously I suppose you do, you know, I was aware I was walking over and that's what made me look." (Hard of Hearing, Clapham)

6.5.48   Participants were not bothered by the tactile paving and did not consider it to be uncomfortable. However, two participants did note that sometimes it caused balance problems. Despite this, one participant said he would still be happy to have tactile paving in the street because he appreciated what it was for. One participant noted that because it was grey in colour it looked quite similar to the rest of the paving and so blended in well.

6.5.49   One participant thought that blister tactile paving was better than corduroy tactile paving because you could feel it underfoot with greater ease.

"They are raised up more…where the other one is only up a little bit, it's not giving you anything…it's harder to know what you're doing because it could just be a bit of corrugated iron/cardboard because that gives you the same thing." (Hard of Hearing, Walworth Road)

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Corduroy Tactile Paving Awareness Test

6.5.50   At the sites where corduroy tactile paving was present, participants were asked to undertake an awareness test. This involved positioning participants facing the corduroy tactile paving and asking them questions about it. All five participants undertook the test.

6.5.51   None of the participants were aware of corduroy tactile paving before undertaking the accompanied journey; they had not noticed it anywhere before and they were unfamiliar with the terminology. Some of the participants were able to guess at the purpose of it, mainly because of their discussions with the interviewers about blister tactile paving earlier along the route. The corduroy tactile paving was explained to participants to ensure they had a full understanding of it before any further questions were asked.

6.5.52   Participants were asked how they felt when they walked over the corduroy tactile paving. They said they felt fine and that it was not uncomfortable.

*"I think that this is better than the little dots … the little dots hurt the sole of your feet. This is flat, it's more stable, it's better … they [the blister tactile paving] affect your balance."
(Deaf, Clapham)*

6.5.53   They were asked what they thought about the width of the corduroy tactile paving. Three participants thought the width was fine as it is while the other two thought it needed to be wider to give people more of a chance to notice it.

"I think it could do with being a bit wider … especially at the road because I was almost over it before it registered, so I think if it was wider it would give you more of a warning, especially younger people that tend to rush." (Hard of Hearing, Clapham)

"It should be a little bit wider really … it gives a better option for blind people to actually realise better that the road is coming … its OK but a little larger would be better." (Deaf, Clapham)

6.5.54   One participant in Walworth road, where the tactile paving is grey in colour, suggested that the width was fine but it would be useful to change the colour to make it more noticeable for partially sighted people.

"Again, it should be coloured because you can get some people who are partially sighted who would see the colour but not feel it." (Hard of Hearing, Walworth Road)

Navigation Overall

6.5.55   At the end of the accompanied journeys, participants completed a structured questionnaire with an interviewer and answered specific questions about the aids they use for navigation; which ones they rely on most; and how useful they are, etc. Having heard what participants said about various design features during the walk, we now see how they rate them compared to each other.

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Cues to aid navigation

6.5.56   Participants were asked what cues they use to navigate roads. They could give more than one answer. 'Line of the road/traffic', the 'building line' and 'sight' were the most common responses, with all five people naming each as a navigation aid. 'Memory', 'tactile paving' and 'colour contrast' were the next most common navigation aids with four people stating each. Please see Figure 6.25 for full details.
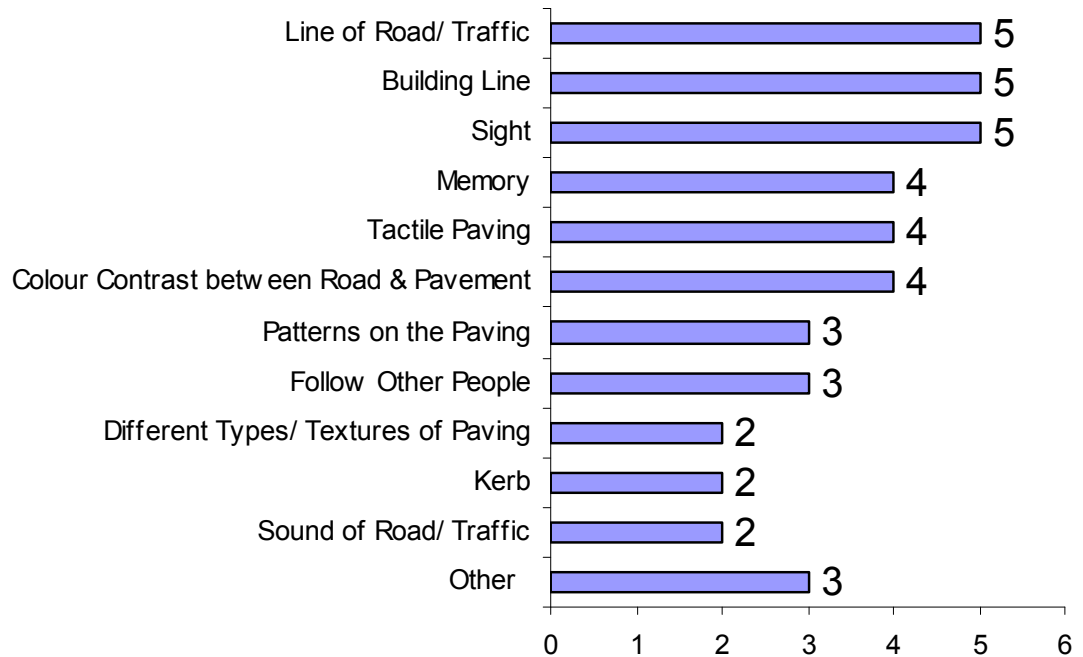
Cue	Count
Line of Road/ Traffic	5
Building Line	5
Sight	5
Memory	4
Tactile Paving	4
Colour Contrast between Road & Pavement	4
Patterns on the Paving	3
Follow Other People	3
Different Types/ Textures of Paving	2
Kerb	2
Sound of Road/ Traffic	2
Other	3

Figure 6.25 Cues used by participants with hearing loss to aid their navigation

6.5.57   Participants were then asked which three cues they relied on most and had to rank their top three. We have calculated scores for each of the cues that were rated. The building line had the highest score with two people ranking it as the most important navigation aid. The kerb was the second highest scoring navigation aid, followed by 'Types/textures of Paving' and 'Sight' in joint third.

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Table 6.6 Most important navigation aids, ranked

Navigation Aids	Score	Ranking		
		1st	2nd	3rd
Building Line	9	2	1	1
Kerb	5	1	1	0
Types/Textures of Paving	3	1	0	0
Sight	3	1	0	0
Line of Road/Traffic	2	0	1	0
Colour Contrast	2	0	0	2
Follow Other People	2	0	1	0
Crossings/Traffic Lights	2	0	1	0

6.5.58   For those navigation cues which were part of the street, participants were asked further questions about how they located the cue how they used it, and what information if gave them, etc.

6.5.59   Of the four people who said the building line was the street feature they relied on the most, second or third most, for navigation, it was most common for them to say they located it through sight and they used it as a guide to follow. When asked how useful they found the building line one participant said very useful, two said neither useful nor useless, and one did not state. When asked how easy or difficult they found it to navigate with the building line, only two participants answered, but both said it was very easy. Participants were also asked how safe or unsafe they felt when they located the building line; three said they felt safe and the fourth did not answer.

6.5.60   Of the two people who said the kerb was the street feature they relied on most, second or third most, for navigation, it was most common for them to say they could see it and that they used it as a guide to follow and it gives them information about where the traffic is. When asked how useful the kerb is for navigation, one participant said fairly useful while the other said it was neither useful nor useless; one participant found it very easy to navigate using the kerb while the other said it was fairly difficult; and one participant said they felt fairly safe when they locate the kerb while the other did not state.

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6.5.61   Of the two participants who said the colour contrast was the street feature they relied on most, second or third most, for navigation, only one participant answered further questions about it saying they could see it and they found it useful as a memory prompt/reassurance. This participant thought the colour contrast was fairly useful, was fairly easy to navigate with and made him feel fairly safe when he located it.

Features that make navigation difficult

6.5.62   Participants were asked if any aspects of the roads made it difficult for them to navigate. They could give more than one response. One respondent said that there were no aspects of the roads that made it difficult for them to navigate. The following aspects were named by the remaining four participants. Those marked with an asterisk (*) are the road aspects that three participants considered most difficult for navigation:

- Traffic goes too fast* (n=2);
- Poor lighting (n=1);
- Too much traffic (n=1);
- Visibility at crossing (n=1);
- Bins and rubbish left on footway (n=1);
- Too crowded (n=1);
- Too noisy* (n=1);
- Crossing facilities not adequate (n=1);
- Uneven surfaces (n=1); and
- Tactile paving* (n=1).

6.6   Similarities and differences across user types

Overall Ease of Navigation

6.6.1   Participants across all user types were asked how easy or difficult they found it to navigate the control streets and the shared space areas. Overall results were very similar for each street type, with 25 participants saying the control streets were either very or fairly easy to navigate and 27 participants saying the shared space was either very or fairly easy to navigate. Results were also very close within each of the user types, however slightly fewer visually impaired participants said the shared space was easy to navigate than said the control streets were easy to navigate, while slightly more mobility impaired and deaf/hard of hearing participants said the shared space was easy to navigate than said the control streets were easy to navigate. An equal number of participants with learning difficulties said each street type was easy to navigate.

6.6.2   Across all user types, the number of participants who found the control streets easy to cross was again very similar to the number who found the shared space streets easy to cross (n=20 compared with n=19), and within user types results were again also very similar. However, a higher number of visually impaired participants and those with learning difficulties said they found the control streets easy to cross than said they found the shared space streets easy to cross, while a higher number of mobility impaired participants said

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they found the shared space easy to cross than said they found the control streets easy to cross. An equal number of deaf/hard of hearing participants said they found the control streets and the shared space easy to cross.

Navigation Aids

6.6.3   Participants were asked what they relied on to aid their navigation. The following navigation aids were the six most commonly stated by both participants with mobility impairments and participants with learning difficulties:

- Sight;
- Kerb;
- Memory;
- Line of road/traffic;
- Sound of road/traffic; and
- Hearing.

6.6.4   It may seem strange that kerbs were stated as a navigation aid by the mobility impaired participants. However, although they often caused these participants difficulty, they also meant the participants could clearly distinguish between the area for pedestrians and the area for vehicles, which they liked. Participants with learning difficulties also found kerbs useful for the same reason, and because they offered a sense of security/safety.

6.6.5   Visually impaired participants and deaf/hard of hearing participants also relied on some of these navigation aids. However, the most commonly used navigation aid by visually impaired participants was the building line, followed by tactile paving, hearing, the kerb, and the sound of the road/traffic. The visually impaired participants who used the building line as a navigation aid were most likely to say it helped them position themselves in the footway and that they used it as a guide to follow. It also provided these participants with reassurance that they were in a safe place.

6.6.6   It was most common for deaf/hard of hearing participants to say they relied on the line of the road/traffic, the building line, their memory, tactile paving and colour contrast. Those who said they relied on the building line said this was because they used it as a guide to follow. Although not explicitly stated, this may be due to the balance problems that deaf people can experience.

6.6.7   All user types used additional navigation aids to the ones mentioned here, but these were the ones stated by the most participants.

Street features which make navigation more difficult

6.6.8   Participants were also asked what aspects of the road made navigation difficult. Lots of street features were stated, such as fixed and non-fixed obstacles, uneven surfaces and inadequate crossing points etc. However, the most frequently cited features were not necessarily the features that participants went on to say were the most difficult to navigate. For example, 14 visually impaired participants stated that 'non-fixed obstacles' (such as shop displays and parked cars) made navigation difficult, while seven said lowered kerbs made

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navigation difficult. Yet when asked which one aspect made navigation most difficult, six participants said a lowered kerb and only two said non-fixed obstacles.

6.6.9   The results for mobility impaired participants were more consistent, with uneven surfaces being stated most frequently as a feature that makes navigation difficult, and uneven surfaces also being the most common answer to the question 'What one feature makes navigation most difficult?' In contrast to the visually impaired participants, and as one might expect, mobility impaired participants were also likely to say that kerbs not being dropped enough and tactile paving can make navigation difficult.

6.6.10   Three of the nine participants with learning difficulties said that nothing made navigation difficult for them. However, of those who did experience problems navigating, it was most common for participants to say this was either due to streets being too crowded, or because of fixed or non-fixed obstacles. Two participants then went on to say that fixed obstacles made it the most difficult to navigate.

6.6.11   Of the five deaf/hard of hearing participants, two participants said that traffic travelling too fast made their navigation difficult. A number of other street features were also stated, but not by more than one participant each. Three participants responded to the question 'What one feature makes navigation most difficult?' to which one stated traffic travelling too fast, one said if it was too noisy and one specified the tactile paving.

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7   Conclusions

7.1   Introduction

7.1.1   This chapter presents the conclusions drawn from the qualitative research undertaken with all user types; drivers, pedestrians, visually impaired participants, mobility impaired participants, participants with learning difficulties and those who are deaf/hard of hearing.

7.2   Points to note

7.2.1   While digesting the research findings and reading these conclusions it is important to note that even within individual user types, opinions and experiences varied and were subjective, with individual participants contradicting themselves at times.

7.2.2   It is also important to remember the differences in the control streets and shared spaces across the sites: some sites had particularly busy control streets with high traffic flows and higher speed limits while other had particularly quiet control streets with low traffic flows and lower speed limits; and, some sites incorporated shared space junctions while others used shared space link roads and squares.

7.2.3   One final matter to bear in mind was that participants in Ashford were generally more aware of the term 'shared space' than participants at any other sites. The Ashford shared space scheme has been subject to criticism in the media and hence many participants in Ashford came into the research with a seemingly negative bias.

7.3   Conclusions

7.3.1   In all street design, there are commonalities among different user types such as a preference for clearly defined areas for vehicles and pedestrians and designated crossing points. The majority of pedestrian participants (both disabled and non-disabled) preferred wide pavements, narrow carriageways with one way traffic, and reduced vehicle flow and vehicle speeds, while drivers tended to prefer clear rules/guidance and for the behaviour of all users (both pedestrians and other vehicles) to be predictable.

7.3.2   Among disabled people, visually impaired participants appeared to be the most uncertain in their navigation of streets and tended to have needs and desires that were often different from those with other disabilities. For example, when answering trade-off questions they were more likely to say they would prefer texture defined pavement and road to colour defined pavement and road, whereas mobility impaired and deaf/hard of hearing participants were more likely to say they would prefer colour defined pavement and road. An equal number of those with learning difficulties preferred either option.

7.3.3   The issue of whether shared space areas should be designed with a level surface or not is clearly key. It is already known and apparent from these research findings, that visually impaired people feel more at ease when there is a kerb and mobility impaired pedestrians find it physically easier when there is none. However, the research suggests, it should be possible to reach workable compromises in street design. Taking the example of a level surface versus kerb, the findings show that a higher number of visually impaired participants

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relied on the building line for navigation, than relied on the kerb. In addition, the visually impaired participants undertook a fairly rudimentary corduroy tactile paving detection test during their accompanied journeys. 11 out of 14 participants were able to detect the paving despite its width of 400mm. On one occasion a guide dog stopped and sat down when it reached the corduroy tactile paving, as it would if it had reached a kerb. Not all visually impaired participants had been aware of corduroy tactile paving and its purpose before taking part in the research and it was also common for other disability types to have been unaware of the purpose of tactile paving prior to the research. In fact, many mobility impaired participants initially complained about tactile paving, saying it was uncomfortable to travel over, however once it was explained to them what it was for they generally did not mind it anymore as they could appreciate its purpose.

7.3.4   It seems that for any new street design, whether it is shared space or not, to ensure that users are content it is an advantage if they understand the purpose of street features. People want to and need to understand why design features are implemented and how they should be used so that they can behave accordingly and predict other users' behaviour. Whether this understanding comes via training, a media campaign, a leaflet drop or some other form of communication is beyond the scope of this research, but with better understanding comes better acceptance, as shown in the example above regarding tactile paving and mobility impaired participants.

7.3.5   People tend to like clearly defined rules because they make the behaviour of others more predictable. However, this research indicates that in the absence of such rules (e.g. no road markings, etc.) drivers tend to behave more cautiously.

7.3.6   Familiarity with the surroundings was also key to all user types feeling more confident, comfortable and at ease in any given street. Mobility training is already available for some visually impaired participants; however it currently relies on kerbs (as well as other street features) to provide meaningful information for navigation. It seems that further mobility training, with a shift in focus away from kerbs, could be a vital step in helping visually impaired people become more proficient, and hence confident, in navigating shared space. In fact, the building line came out as being more important to visually impaired participants for navigation than the kerb and numerous other aids were also used. There is also potential for mobility training to be useful for other user groups such as those with severe learning difficulties.

7.3.7   In summary this research explored how people use and share streets, and provides details of the experiences of people from a number of different user types, in order to inform design guidance. The key points are:

- There is little overt communication between users:
    - Communication is usually subtle and spontaneous in nature;
    - Body language is the most frequently used mechanism for communication, not eye contact;
    - Pedestrians prefer not to have to concentrate on, and therefore interact with other users, during their journey;
    - Drivers tend to be more aware of pedestrians than pedestrians are of drivers, and assess risk based on pedestrian behaviour.

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- Both drivers and pedestrians value predictability and therefore like to have clearly defined rules to define their behaviour in the space:

  - All user types like clearly defined and separate areas for vehicles and pedestrians, and designated crossing points;

  - Shared space appears to deliver pedestrian benefits but pedestrians need to feel comfortable and safe in the space if they are to enjoy it;

  - Participants often tried to fit existing rules to the new situations they encountered in shared space.

- A key benefit of a kerb is that it signifies a boundary:

  - Although the kerb is often used as a navigation aid by people who are visually impaired, it was more common for them to use the building line as a navigation aid;

  - All user types understood a kerb to signify a boundary (the edge of a pedestrian area) and it offered them a sense if security.

- Sharing of a street is generally limited to when pedestrians cross it:

  - Pedestrians are more likely to occupy the carriageway when traffic flow and speed is low;

  - The most common sign a pedestrian gives to show they wish to cross the carriageway is to wait at the edge and look towards the on-coming traffic;

  - Drivers are more likely to give way when user behaviour is less predictable and when pedestrian flow is high;

  - The most common sign a driver gives to show they are giving way is to slow down or stop.

- Familiarity with and understanding of the surroundings improves perception of safety, comfort and hence enjoyment:

  - It is common for the purpose of tactile paving to be misunderstood by users and therefore not be appreciated.

7.3.8   We can conclude that both design guidance and street design itself should be clear and simple for all to understand and, based on the above points, should include or address the following:

- The apparent lack of desire for different user types to communicate with one another, through:

  - Controlled crossings;

  - Clear delineation of a 'comfort space' for pedestrians i.e. an area which pedestrians know they can use without encountering vehicles;

  - Clear boundaries or 'rules' for vehicles to ensure predictable behaviour;

  - The presence of kerbs or, where absent, other mitigating measures.

- Pedestrians' desire to enjoy the space, rather than concentrate on other users, through:

  - Reduced obstacles (and keeping the building line clear);

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- Even surfaces;

- Reduced vehicle flows;

- Reduced vehicle speed.

■ The importance of user understanding by:

- Implementing tactile paving correctly;

- Acknowledging that there is a limit to the information that can be conveyed using tonal contrast;

- Ensuring users are provided with the information they need to understand and accept such features;

- Keeping the 'language' conveyed by these features clear and simple.

■ The importance of inclusive and accessible design by also considering:

- The importance of a strong building line (due to its function as a guide for people to follow);

- The benefits of narrow carriageways, for ease of crossing;

- How visual cues are important and how non-visual cues are crucial for those who are severely sight impaired; and

- Designing for legibility at night, as well as during the day.

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