

Materials and Specification

7.5 ~ Accessibility...

Compliance with the Disability and Discrimination Act (DDA), 2005

Introduction

Street design should be carried out in accordance with current national and local accessibility policies and best practice. These factors must be considered from the outset, rather than requirements being applied retrospectively. The following provides design guidance on key principles as well as references to further information.

Designated Parking Bays

It is essential that high quality designated parking bays are provided that comply with current standards. The arrangement of parallel and right angle bays are shown in Figure 7.17. In addition the following design criteria should be applied:

- Car park entry and payment equipment must be accessible for disabled people.
- An accessible and clearly identifiable route(s) should be provided from the car park.
- Consideration should be given to the incorporation of dropping-off points close to key destinations, with a flush surface between the carriageway and footway.
- Where designated on-street parking bays are provided, they should be sited where road gradient and camber are reasonably level, e.g. 1:50.
- As part of off-street parking provision, where space permits, at least one large designated parking space, 4800 mm wide × 8000 mm long, should be provided to cater for commercial vehicles converted for side or rear access using hoists or ramps.
- The location of designated car parking bays within a car park should be clearly signed so that they can be found easily.

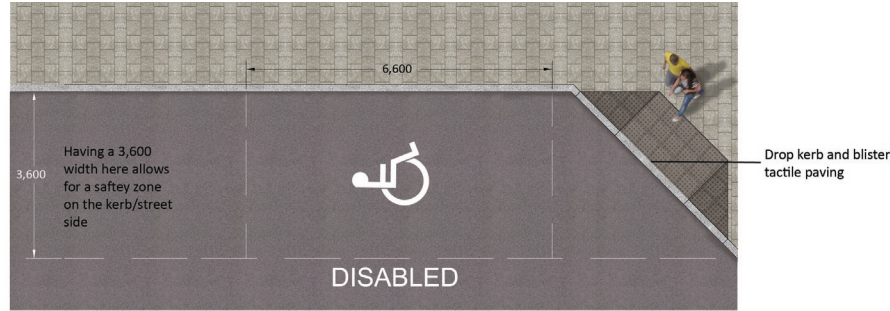
- For shopping, recreation and leisure facilities, one designated space should be provided for every employee who is a disabled motorist, plus 6% of the total capacity for visiting disabled motorists. A further 4% of the total capacity should be enlarged standard spaces (that can become designated parking at a later date).



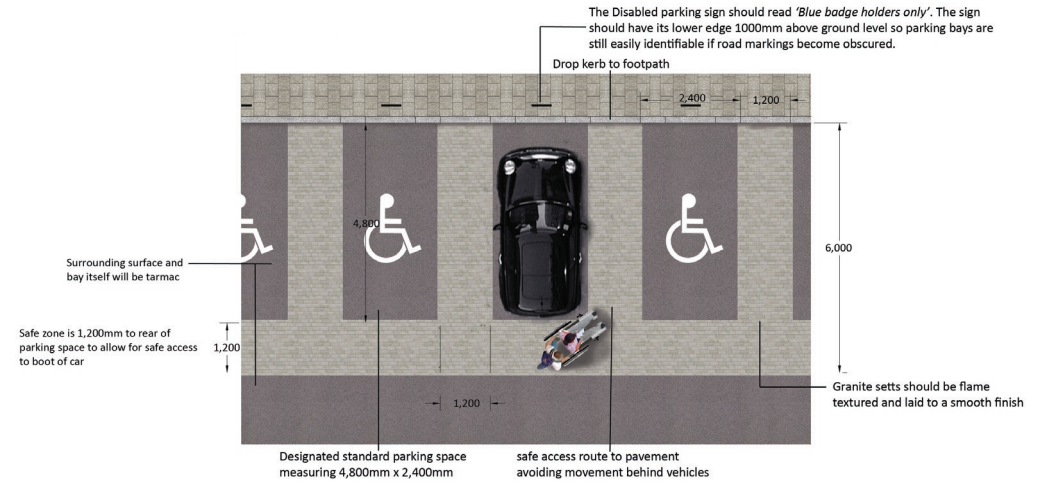
Example of high quality accessible parking bays at Liverpool One

Figure 7.17 – Accessible parking arrangements

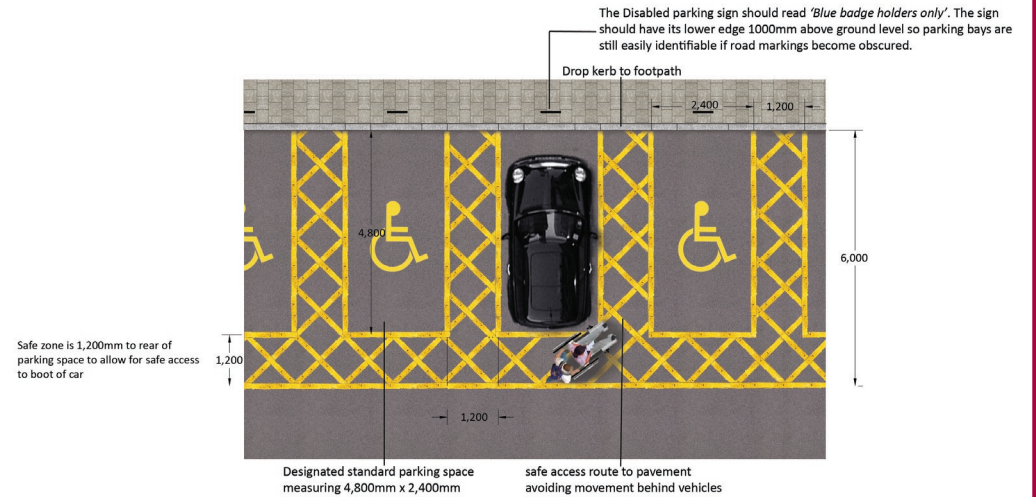
Example of a designated on-street parking bay



Designated parking spaces - Granite Setts Option for use in city centre core/prestigious locations



Designated parking spaces - Yellow Hatched Option for use in other locations

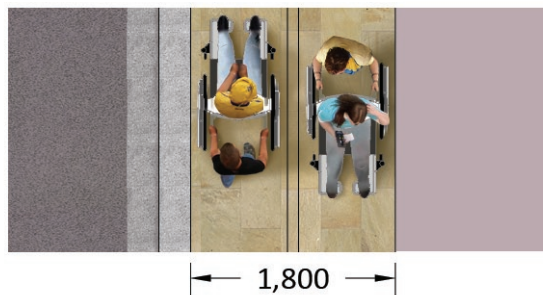


Width of Access Routes

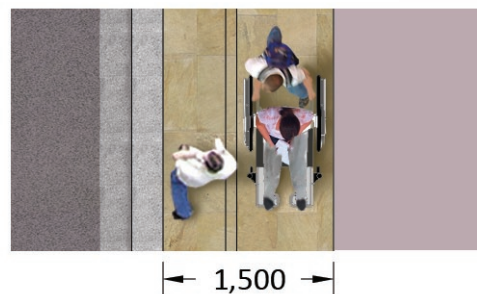
- For pedestrian routes to be accessible, the minimum surface width (i.e. between path edges) must be:
- at least 1800mm for general routes (this is the minimum space required for wheelchairs and people to pass each other, a width of 2000mm is preferable).
- at least 1500mm, if passing places are provided;
- These widths should be maintained up to a height of at least 2100mm above ground level.
- Where the surface width of an access route is less than 1800mm, passing places should be provided to allow two wheelchair users to pass each other. Passing places should also be provided at junctions (e.g. corners) along an access route. A passing place should be 2000mm long and 1800mm wide and located within direct sight of another passing place, or at a maximum distance of 25m from each other, whichever is the closer.
- Where it is necessary to introduce occasional narrowing of the access route, the restricted width should be at least 1200 mm and should extend for not more than 2000mm in length.

Figure 7.18 – Width of access routes

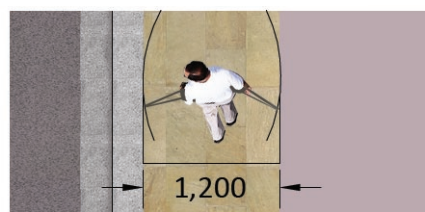
Two wheelchair users



Wheelchair user and pedestrian



Person on crutches



Removing Barriers, Hazards and Clutter

- As a rule, street furniture, such as signposts, litter bins and seats, and free-standing posts (e.g. lighting columns) should be located at or beyond the boundaries of an access route.
- If it is absolutely necessary to locate items within an access route, their presence should be clearly apparent by ensuring that they contrast visually with the background against which they will be seen. With each free-standing post it is recommended that a 150mm deep contrasting strip should be incorporated at 1500mm above ground level.
- Bollards should not be located within an access route. They must be a minimum of 1000mm high and should contrast visually with the background against which they are seen (it is desirable also to incorporate a 150 mm deep contrasting strip at the top). They should not be linked with chains and should not taper towards the ground.
- The impact of temporary obstructions, such as 'A' frame signs and refuse bags should be minimised through careful controls and enforcement to ensure logical and clear pedestrian routes are maintained (see detail on arrangements for temporary seating at the start of section 7.3).

- For blind and partially sighted pedestrians, the presence of warnings that can be detected with the sweep of a cane, and the absence of projections and overhangs, is essential to prevent risk of collisions. If items of street furniture do create a projection/overhang of more than 100mm into an access route and their lower front edge is more than 300mm above the ground then hazard protection should be provided in the form of a visually contrasting tapping rail, no higher than 150 mm above floor level.
- Access routes should not contain steps, stairs, turnstiles, revolving doors, escalators or other features which constitute a barrier to people with disabilities unless a suitable means for bypassing the barrier has been provided close by and is always available for use.
- Uneven surfaces, loose materials (e.g. unbonded gravel) and large gaps between paving materials should be eliminated from pedestrian access routes.



Level change along an access route in Chevasse Park, Liverpool

Seating

- There should be a variety of seat heights, ranging from 380 mm to 580 mm (a height of 480 mm is suitable for wheelchair users).
- Armrests should be provided to help people lower themselves onto the seat and stand up.
- Where the seat is set at a height suitable for wheelchair users, armrests should not always be at the extreme end of the seat, but set in so as not to restrict the lateral transfer from a wheelchair to the seating.
- A supportive back-rest should be incorporated on seats.

Surfacing

- As specified in the design guidance on paving and surfacing, it is imperative that all surfaces are designed and constructed to be even. This is a challenge in an historic city centre such as Chester where traditionally tumbled cobble arrangements have been used in streets. A balance must be achieved through the use of design techniques that enable the look of traditional cobbles to be maintained whilst creating a smooth surface. For this reason, all setts should be sawn cut on the facing side. The options set out in section 7.1 on surfacing provide details as to paving construction and the types of jointing particularly suitable for pedestrian routes.

- As highlighted in Part 3 of this document, the consistent use of kerb edges (on all street types) to define pavement edges is important not only for aesthetic reasons, but also to assist blind and partially sighted users in navigating their way around the city.
- With the exception of recognised tactile paving surfaces, undulations in the surface of paving, (whether paving slabs, split yorkstone, blocks, bricks or formless materials such as concrete or asphalt), should not exceed 3 mm under a 1 m straight edge.
- If feasible, drainage gratings should be positioned beyond the boundaries of the access route. Gratings within an access route should be set flush with the surrounding surface.
- Slots in gully gratings and tree grilles (and any other surface finishes) should be not more than 13 mm wide and should be set perpendicular to the dominant direction of travel. The diameter of circular holes in gratings should be not more than 18 mm.



Steps, Chevasse Park, Liverpool

- Dished channels should not be incorporated within an access route as they increase the risk of tripping.
- An access route should have a firm, slip-resistant and reasonably smooth surface. Cobbles, bare earth, sand and unbonded gravel should not be used.
- See BS 8300:2009 for more details of permissible level differences across different types of paving joints.

Level changes

- Where an access route has a gradient steeper than 1:60, but not as steep as 1:20, it should have a level landing for each 500mm rise of the access route. A level landing should also be provided wherever a change of direction occurs. The crossfall gradient across a level access route should not exceed 1:50, except when associated with a dropped kerb. Access routes on level ground should have resting places not more than 50m apart for people with limited mobility.
- Level changes within the public realm should be at a maximum gradient of 1 in 20. Any steeper gradients should be designed as ramps and steps with handrails. Within new development, discrepancies in level between internal and external spaces should be made up inside the building, wherever possible.

Ramps

- A ramp should have the lowest practical gradient within the range 1:20 to 1:12. No individual flight of a ramp should have a going (length) of more than 10m, or a rise of more than 500mm. The cross-fall gradient of a ramp and any landings should be not more than 1:50.
- The width of ramp and landings should be consistent throughout and should not be less than 1500mm. Where the width of a ramp exceeds 2500mm, the ramp should be divided into two or more channels with a width of between 1000mm-2000mm. At least one of these channels should be a width of 1500mm.
- Landings should be provided at the foot and head of a ramp and should be at least the width of the ramp and not less than 1500mm long. Any intermediate landings along a series of ramps in a straight line should be at least 1500mm long (1800mm is ideal to allow for passing).

Steps

- Dimensions for steps should be between 150-180 mm for the rise and 300-450mm for the going (tread). This should be consistent throughout the flight or series of flights.
- Preferably, a step should not overlap the one below. If there is an overlap, the nosing should not project over the tread below by more than 25 mm. The riser should not be open.

- No flight on an external stepped access route should contain more than 20 risers.
- A stair should always be provided in addition to a ramp, unless the change in level is less than 300mm and it would result in a single step (which is not recommended and should be dealt with using a ramp alone).
- The width of a stair should be not less than 1200mm (and the width between handrails should be not less than 1000mm). Where the width between handrails exceeds 2000mm, the stair should be divided into two or more channels with a distance between handrails of between 1000-2000mm.
- Each step nosing should incorporate a permanently contrasting continuous material for the full width of the stair on both the tread and the riser. The material should be 50 mm to 65 mm wide on the tread and 30 mm to 55 mm on the riser.
- A level landing should be provided at the top and bottom of each flight of steps. Its length, clear of any door or gate swing, should not be less than the surface width of the flight.
- To give advance warning of a step, tactile paving with a corduroy hazard warning surface should be provided at the top and bottom of each flight. For details on the use of hazard warning paving please see the section on tactile paving which follows.

Handrails

- A handrail should be provided on each side of a ramp or stair flight throughout its length (including intermediate landings).
 - The top of the handrail should be between 900-1000mm from the surface of the ramp or line of the stair and between 900-1100mm from the landing.
 - Consideration should be given to the use of a second handrail installed with its top surface 600 mm from the ramp surface or pitch line to assist children and those with a short stature. Where necessary, structural guarding should be provided of sufficient height to prevent a child falling if they climb on the handrail.
 - The handrail must be easy and comfortable to grip and provide adequate resistance to hand slippage. Suitable profiles include circular or oval. A handrail with an oval profile should have dimensions of 50 mm wide and 38 mm deep. The profile should have rounded edges with a radius of at least 15 mm. Any circular handrail should have a diameter of between 32 mm and 45 mm.
 - Handrails should be finished so as to provide visual contrast with the surroundings against which it is seen.
 - The material selection for handrails should bear in mind the likelihood of extremes of temperature, as well as the need for robustness and resistance to vandalism.
- There should be a clearance of between 60 mm and 75 mm between a handrail and any adjacent wall surface, and any handrail support should meet the handrail, centrally, on its underside. The inside edge of the handrail (the edge nearest to the walking line) should be not more than 50 mm outside the surface width of the stair.
 - Handrails should be terminated horizontally at least 300 mm beyond the start and finish of the ramp/ stair and designed so that they do not catch clothing.
 - Handrails and their fixings must be strong enough to support users. Handrail fixings should be designed to meet the loading recommendations of BS 6399-1.

Tactile paving

The DfT has published guidance on the use of tactile surfaces and the following information provides a summary of this. Designers should consult this publication as it contains information on a wide range of different scenarios. Tactile paving must be well designed and implemented to ensure seamless integration with the surrounding public realm.

Colour/Materials

Signal controlled pedestrian crossing points utilise red blister paving. All other types of tactile paving (including blister paving at uncontrolled crossing points) should avoid red and provide a sufficient contrast with surrounding materials (in accordance with BS8300: 2009 and Building Regulations, Part M). Within Chester's city centre tactile paving

should reflect the qualities of the street, allowing for natural stone finishes. It is possible to deviate from the typical red colour outlined in the DfT if the tactile has undergone illuminance testing with a rating of 30% or above.

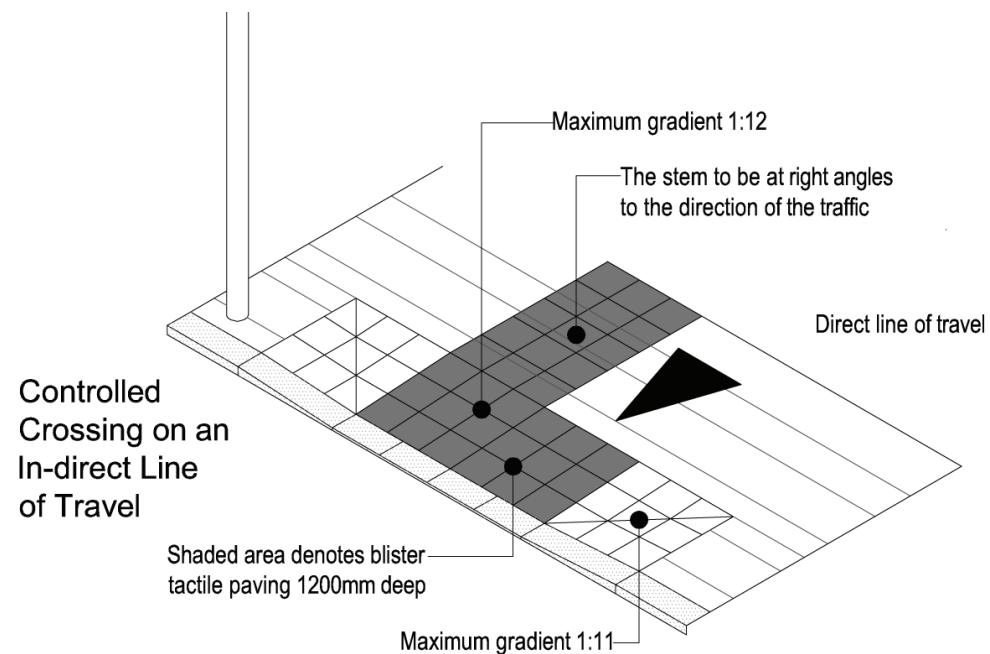
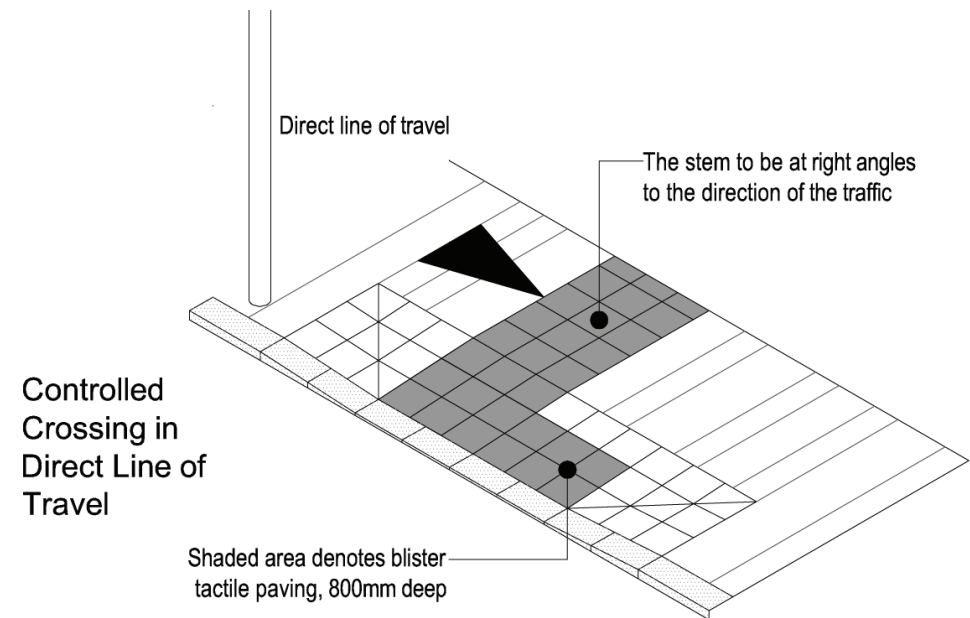


Existing natural stone tactile paving in Chester

Controlled pedestrian crossing points

- The depth of blister surface should be 1200mm where the crossing forms part of the direct line of travel and 800mm on other controlled crossings (see Figure 7.19).

Figure 7.19 – Controlled pedestrian crossing arrangements



- The tactile surface should be laid to the full width of the dropped kerb.
- The tactile paving should generally always be laid at right angles to the direction of the crossing. Where the tactile crossings are not at right angles to the kerb, the tactile surface should be no less than 800mm in depth at any point (see Figure 7.20 below)
- A stem of the surface (1200mm wide) should extend back from the tactile surface (adjacent to the controlled crossing control) in line with the direction of travel across the road. In circumstances where the pavements are extensively wide, long tactile stems can detract from the aesthetic value of the pavement; therefore stems should be no more than 5000mm in length. The stem should be at right angles to the direction of the crossing. An example of the arrangement of tactile paving where crossings overlap is shown in Figure 7.21 below.

Figure 7.20 – Layout of blister surfacing at controlled crossing where tactile crossings are not at right angles to the kerb

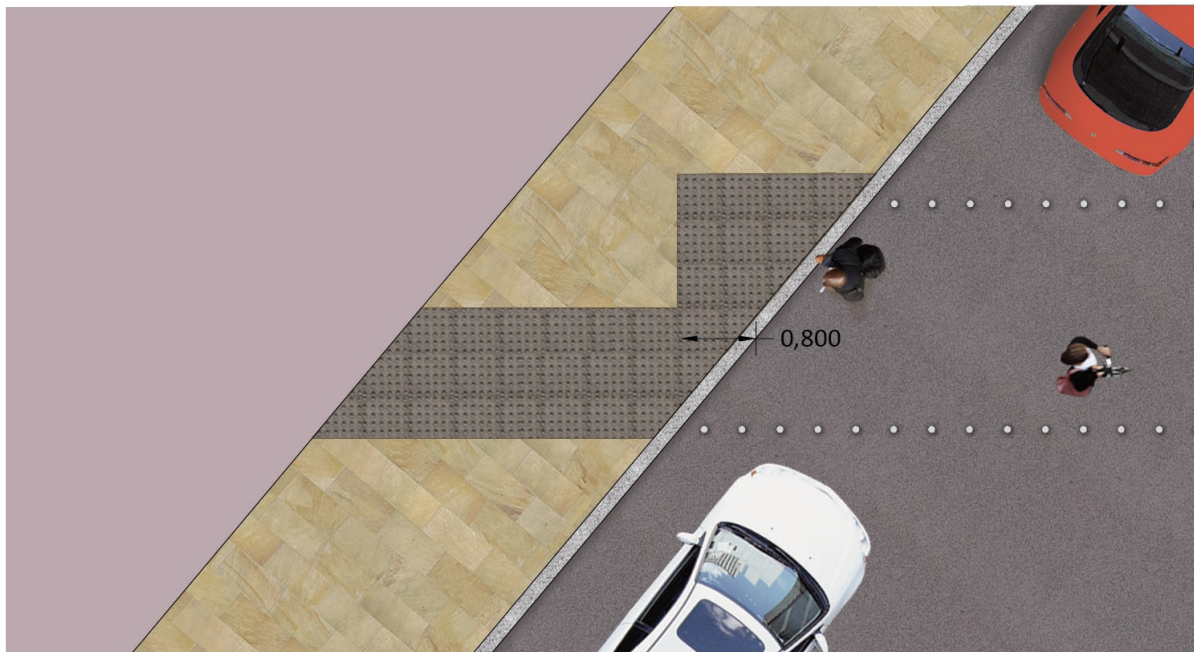
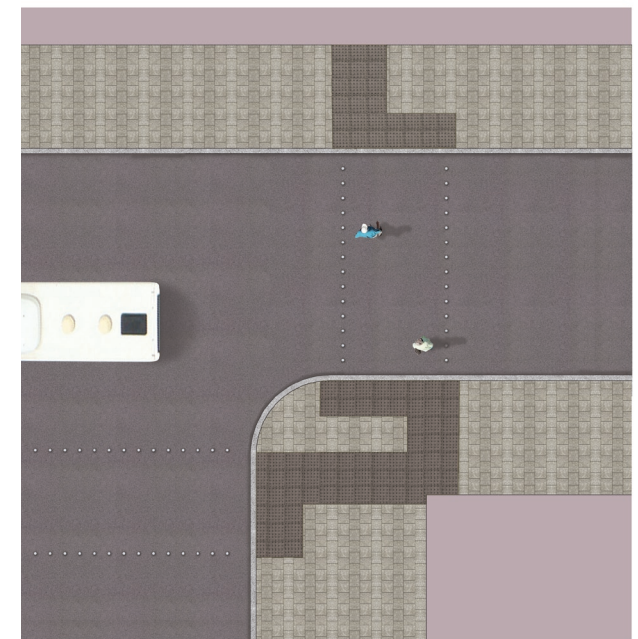


Figure 7.21 – Arrangement of tactile paving where crossings overlap



Uncontrolled pedestrian crossing points

- Where an uncontrolled crossing is at or close to a road junction, the blister paving should extend across the full width of the dropped kerb, with a depth of 1200mm where the crossing is in the direct line of pedestrian travel and only 400mm where it is not (see Figure 7.22 below).
- Where an uncontrolled crossing is located away from a junction (i.e. inset on a side road and not in the direct line of travel), the blister paving should be 800mm deep (see Figure 7.22 below).
- When the crossing is inset (and not on the direct line of travel) it should be located at approximately 1000mm from the end of the junction radius.
- As with the controlled crossings, the blister paving should always be arranged to be at right angles to the direction of crossing.
- Figure 7.23 overleaf provides a layout of tactile paving that should be used at crossings where there is a traffic island.

Figure 7.22 – Uncontrolled pedestrian crossing arrangements

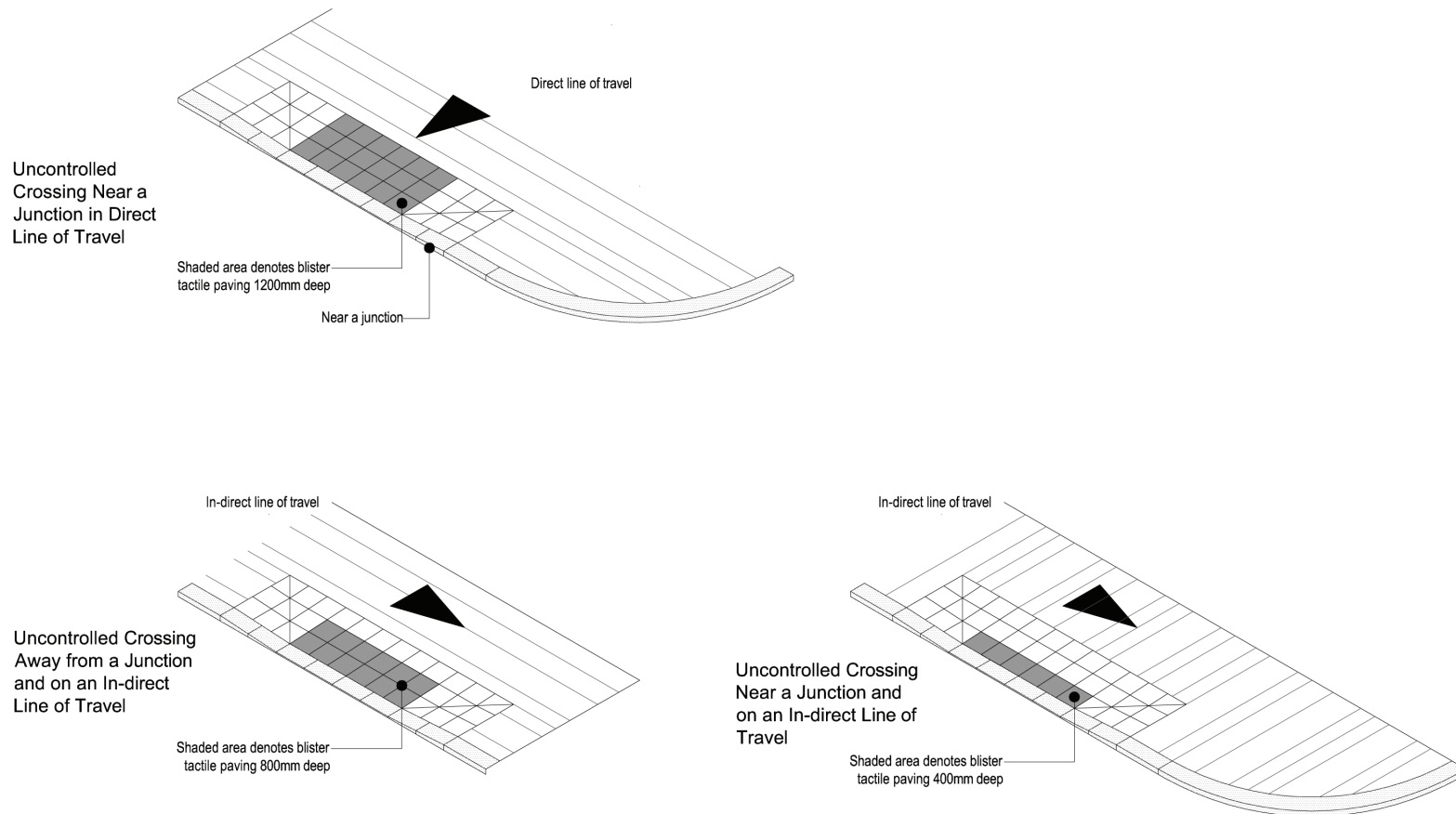
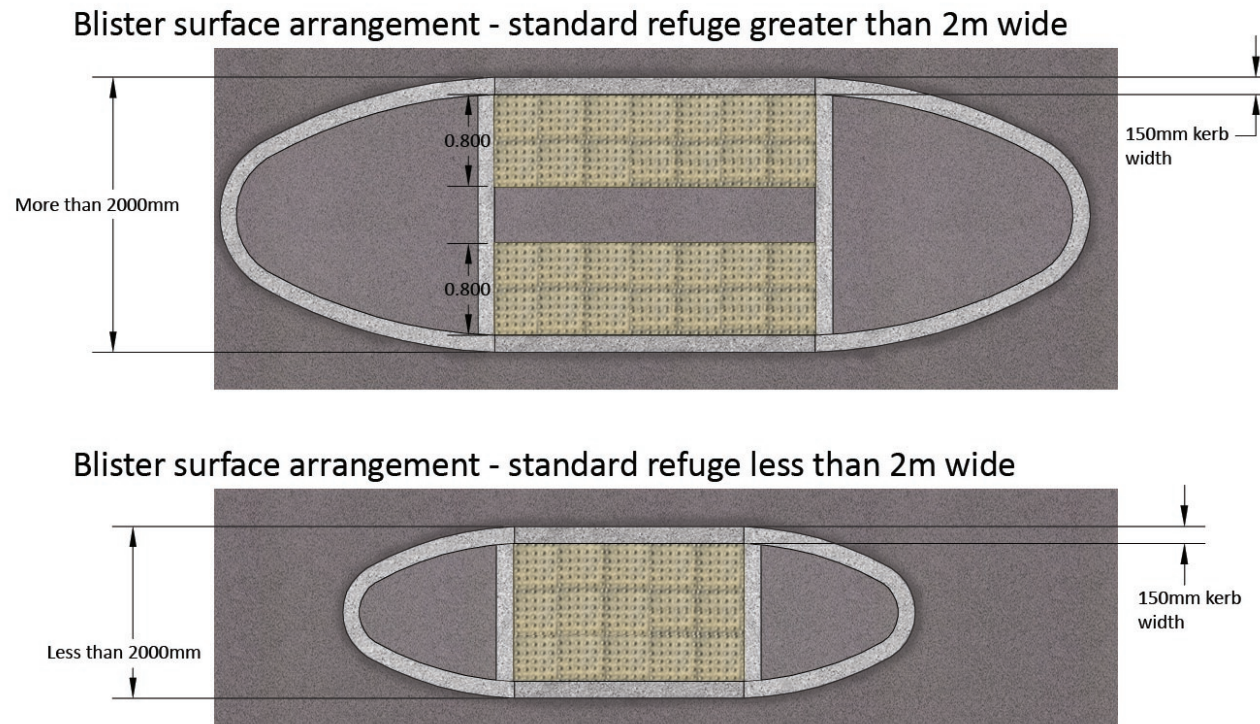


Figure 7.23 – Arrangement of tactile paving on traffic islands



Use of Hazard Warning Tactile Paving

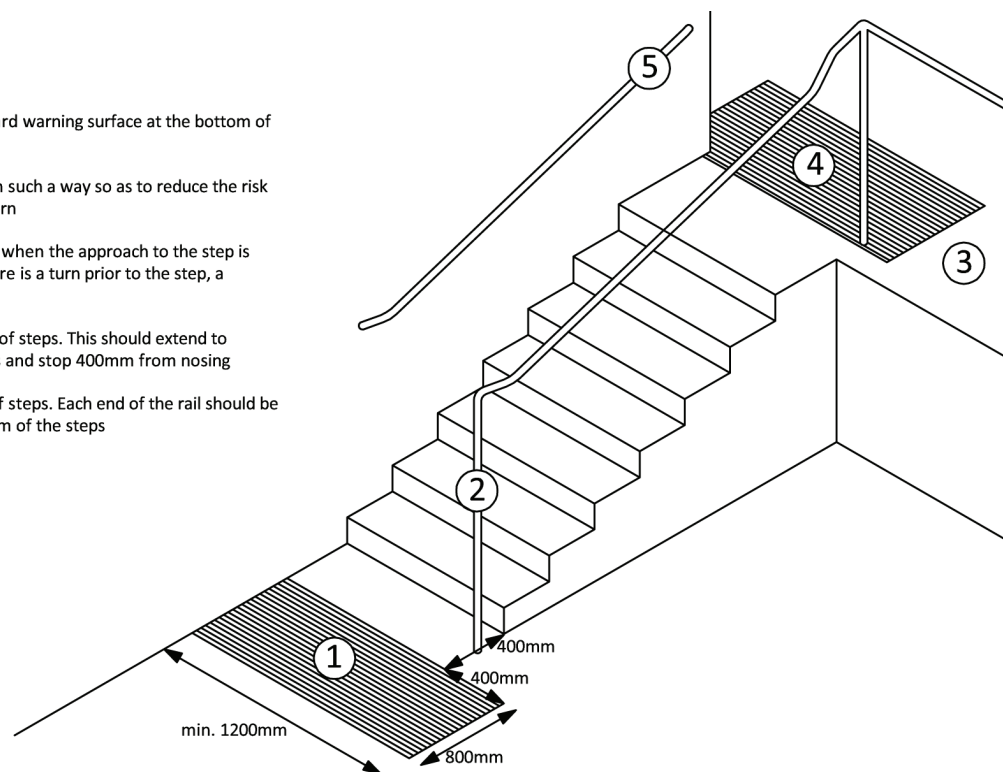
- Hazard warning tactile paving should be used at the top and bottom of steps, at level crossings and where a footway joins a shared route.
- Paving should be laid so the bars run transversely across the direction of pedestrian travel and should extend across the full width of the footway (plus 400mm each side of stairs at top and bottom).

Figure 7.24 (opposite) shows a typical arrangement in relation to steps. The recommended depths for other hazard warning situations are provided in the DfT's guidance.

Figure 7.24 – Arrangement of hazard warning paving at top and bottom of steps

Key

1. Black Granite Corduroy hazard warning surface at the bottom of the steps
2. Handrail - should be fitted in such a way so as to reduce the risk of clothing being caught and torn
3. 800mm width needed here when the approach to the step is straight. In the case where there is a turn prior to the step, a 400mm should be used
4. Hazard warning strip at top of steps. This should extend to 400mm either side of the steps and stop 400mm from nosing
5. Handrail fixed to side wall of steps. Each end of the rail should be closed off at the top and bottom of the steps



DDA Audits and Maintenance

It is recommended that a DDA assessment should be undertaken, prior to the implementation of any new public realm designs, in order to assess whether the guidance provided in this section has been adhered to. It is important that once implemented designs are maintained so that they continue to provide access for all. It is recommended that a DDA audit of every part of Chester city centre's public realm be carried out annually. In particular, the reinstatement of paving after street repairs/works must be to the original high standard to avoid the creation of trip hazards and uneven surfaces. Public realm maintenance is considered in further detail in Section 7.7.

Further Guidance

- BS 8300:2009 Design of buildings and their approaches to meet the needs of disabled people – Code of Practice.
- DfT - Guidance on the use of tactile paving surfaces, December 2005 (updated June 2007)
- Inclusive Mobility : A guide to best practice on access to pedestrian and transport infrastructure DfT 2005.
- Access to and Use of Buildings, 'Approved Document M', Building Regulations 2000, published 2006.