

DS.113 Traffic islands

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1 Introduction

1.1 Notes

- a. This standard explains requirements about the use and design of traffic islands within the carriageway (sometimes referred to as refuges) and longer reservations. This includes where such features are proposed in association with controlled crossings.

1.2 Discussion

- a. See Appendix A for a full background discussion.

2 Common requirements for all types of islands

NOTE: Further requirements that are specific to different types of islands exist in section 2.2..

2.1 Use requirements

- a. Because of their potential adverse impact on pedal cyclists, islands should not be introduced for traffic calming purposes only. Other traffic calming methods should be used instead. Islands should be used only to improve ease of pedestrian crossing or (in limited circumstances) carry traffic control equipment. Any traffic calming effect should be an ancillary and unintended consequence of these other principle functions.

NOTE: Where islands are used to assist pedestrian crossing movements, the main beneficiaries will be more vulnerable pedestrians including those with visual or mobility difficulties. Except where traffic is heavy and fast moving, other pedestrians are likely cross where they choose. In order to avoid over use of islands, other sections of this standard establish threshold criteria beyond which introduction of islands will be acceptable (subject to design requirements being met). These criteria largely relate to the peak volumes of traffic experienced at a location, residual carriageway width (after introduction of edge narrowing has been considered) and proximity to destinations likely to be visited by significant numbers of vulnerable pedestrians; but irrespective of meeting any use criteria, designers should

question carefully whether an island is truly necessary bearing in mind the various potential drawbacks discussed in Appendix A. They should also consider whether crossing requirements for pedestrians of different abilities would not be better served at another location (existing or new) where islands would not be necessary.

2.2 Design requirements

2.2.1 Pedestrian crossing facilities through islands

- a. Where located within a controlled or uncontrolled pedestrian crossing then all islands should include accessible pedestrian routes through them unless a level 1 departure is agreed. Where provided in association with a toucan crossing these routes may also accommodate pedal cyclists.
- b. Except where 'c' applies, the routes through islands for pedestrians in 'a' should include appropriate tactile surfaces at the interface with the carriageway in accordance with standard DS.207.
- c. Where an island is provided in association with a 'through' crossing then no tactile surfaces should be provided at the interface between the route through the island for pedestrians and the carriageway.

NOTE: This requirement exists in order to avoid confusing blind and partially sighted users of 'through' crossings who may be confused by the presence of tactile paving on the island and so stop rather than completing their crossing movement as intended.

2.2.2 Width of islands

NOTE: Greater widths than stated below may be required elsewhere in this and other standards for other reasons, including the need to accommodate street furniture. See also section 2.2.2.

- a. Where islands include tactile blister paving then they should be a minimum of 1.8m in width so that they can safely accommodate a waiting pedestrian with a buggy.

- b. Where islands do not contain tactile paving then they should be a minimum of 0.6m in width.

2.2.3 Clearance between street furniture on island and carriageway

- a. Where islands contain traffic signals (as will likely be the case with signal controlled crossing islands and most stand-alone crossing islands) then all apparatus associated with these (see note) should be located on the island at a minimum 450mm horizontal distance from the edge of carriageway. The same distance should generally be kept for other vertical items of street furniture, except where the feature is supported by a “width restriction” traffic order or if the furniture is adjacent to a cycle lane. However, a common sense approach should be taken and– subject to vehicle tracking assessment demonstrating reasonable clearance – lesser distances may be acceptable by agreement to a level 1 departure.

NOTE: This includes traffic signal heads, pedestrian demand call boxes and control cabinets as well as any up right posts associated with these. When items are located on posts then the distance should be measured from the nearest edge of the item. As signal head will normally overhang their posts this will generally be the edge of the signal head rather than that of the post.

2.2.4 Pavement design and overall form

- a. Islands should have a square or rectangular plan form. Use of compound or radius kerb profiles will require agreement to a level 1 departure (see note) unless vehicle tracking demonstrates that a rectangular island is unachievable.

NOTE: Use of such details is generally to be avoided on visual grounds in urban areas and because of the sense of vehicle dominance they create. However, it is accepted that this may be unavoidable in some instances else preferable to setting back islands considerably to avoid extensive vehicle strike of kerbs.

- b. 300mm or 450mm radius quadrant kerbs should be used to the ends of islands at corners. Where islands include routes through them for pedestrians then the corners of the raised areas at the interface with these should use square kerb junctions between straight sections of kerb and not quadrants.
- c. Kerbs at the ends of islands facing approaching traffic should be 300mm wide in all instances. This includes island build outs between parking bays at the carriageway edge and similar. The width of other edge kerbs should be as required in the SSDM/SER/Surfacing Material palette for the relevant SSDM/RP designation(s).

NOTE: Where islands feature a staggered crossing then careful consideration of bollards and street furniture is required. This is in order to deter pedestrians from walking straight across the island (without following the stagger) whilst at the same time avoiding the creation of a trip hazard. Pedestrian barrier railings are not generally used.

- d. See standard DS.603 about fixing of kerbs and edge restraints.
- e. All areas of island pavements (e.g. both areas with and without pedestrian facilities) should be treated as footway pavements and surfaced to visually match the footways on the street. See standard DS.130 for further information. However, where the normal footway surface course is flag or slab unit paving then, where the width of the island is less than 1200mm between the inner edge of the retaining kerbs, that area may be surfaced with small unit paving instead.
- f. For the purposes of standard DS.601, all island pavements should be constructed to a heavy overrun specification.

2.2.5 Location of trees and cycle stands on islands

- a. Trees and cycle stands may only be located on extended central reservations. Location on other types of islands will need agreement to a level 1 departure. Either way, they should be located on raised areas of the island. They should not be located within areas intended for pedestrians. The following further requirements should also be observed:
 - i. Location of cycle stands on islands is subject to:
 - Provision of adequate width: The minimum width of the island should be sufficient to accommodate the total use envelope of the stand plus a further 500mm to either side of the island from which cyclists may emerge.
 - Highway visibility. See standard DS.114 for further information.
 - ii. Location of trees on islands is subject to:
 - Provision of adequate clearance of the carriageway over the carriageway for vehicles. See standard DS.501 for further information.
 - Highway visibility. See standard DS.114 for further information.

2.2.6 Carriageway widths beside islands

NOTE: Adequate carriageway widths beside islands are essential to ensure that pedal cyclists and motor cyclists are not squeezed or overly intimidated by motor vehicles should the latter try to overtake them whilst passing the feature. However, note that provision of such widths will significantly reduce the speed reduction effect of islands. See also section 2.2.7 which will also impact upon comfort for these users.

- a. On 20mph streets, carriageway widths beside islands should be 4.0-4.25m (though see note 1). They should be 4.25m where buses or a significant number of commercial vehicles would pass. Whilst even greater widths are preferable in such circumstances these carry an increased risk of encouraging

traffic to bunch up into two lanes. This may result in pedal cyclists being squeezed. As such, use of widths greater than 4.25m will require a level 1 departure unless the island is at a junction and vehicle tracking demonstrates that lane widths have to be greater than 4.25m. Except where a carriageway to the side of an island would be for the use of pedal cyclists only (see 'c') widths less than 4.0m will need agreement to a level 1 departure (see note 2).

NOTE 1: See standard DS.102 about widths where both a cycle lane and a general traffic lane would pass together to the same side of the island (traffic lane $\geq 3m$ but $\leq 4.25m$ generally).

NOTE 2: Use of widths $< 4.0m$ will generally only be appropriate where other measures are provided in the vicinity of the feature to substantially limit speeds and so reduce possible intimidation of cyclists should motorists attempt to pass at the island. The possible effect that such measures might have in encouraging inappropriate overtaking in advance of the feature to avoid delay shall need to be taken into account, as will the street clutter generated. Where proposed widths are $< 3.5m$ then the views of the emergency services will generally also need to be taken into consideration.

- b. On 30mph streets, carriageway widths beside islands should be 4.25m where traffic moves in a single lane (though see note 1). Widths of 4.5m may be agreed with a level 1 departure. This will be subject to approving officers being satisfied that the nature of the arrangement would not lead to traffic forming into two lanes passing the feature (which might serve to squeeze pedal cyclists). Except where a carriageway to the side of an island would be for the use of cyclists only (see 'c'), widths less than 4.25m will need agreement to a level 1 departure.

NOTE 1: See standard DS.102 about widths where both a cycle lane and a general traffic lane would pass together to the same side of the island.

- c. Where a cycle lane (or a prohibited 'route for use by pedal cycles only') exists to one side of a island and no other lane then carriageway widths should be as described in standard DS.102.

2.2.7 Consideration of comfort for pedal cyclists when passing islands

- a. Introduction of any island is subject to provision of satisfactory comfort in the road layout for pedal cyclists - both when passing a feature and in the vicinity of it. In addition to requirements related to appropriate carriageway widths in section 2.2.6., designers should demonstrate regard to the need to avoid pedal cyclists being squeezed and intimidated by other road users both on the approach to and after the feature because of the need to negotiate around other obstructions in these areas (see note 1). The appropriateness of proposals in these respects will be considered on a case specific basis by approving officers (see note 2 for general guidance). In the event that it is not possible to agree acceptable arrangements by consensus with designers then this should be raised as a Point Of Enquiry within an Audit Brief for a Road Safety Audit (RSA). The proposals should be reviewed in light of the findings of the Audit Report. Normally this will take place within a following Quality Audit.

NOTE 1: Such obstructions could include footway build outs or parked cars at the edge of the carriageway.

NOTE 2: In general, a suitable distance should be maintained between the start or end of the island and any preceding or following obstructions introduction of the feature so that cyclists can take a smooth racing line around the latter. This should provide cyclists with enough time and space to gradually move across the carriageway to position themselves to pass in advance of features. On 20mph streets a distance based on a 1:5 gradient taper (the taper being the assumed gradual movement across the carriageway of a cyclist) is likely to be sufficient. On 30mph streets then a 12.5m gradient taper is likely to be appropriate. In applying this guidance,

designers should allow for tolerances accounting for opening of doors of parked vehicles and have regard to the likely positioning of cyclists when passing the island. In many instances cyclists are likely to position themselves closer to the edge of carriageway than usual in passing islands in order to avoid being squeezed by any vehicle that may attempt to overtake them alongside the feature.

Introduction of 'cycle symbol' road markings on the carriageway should also be considered just in advance of the feature to alert other road users to the potential for conflict with cyclists.

2.2.8 Visibility of pedestrians likely to use islands for crossing purposes

- a. Where islands are provided it is likely that pedestrians will be attracted to use them to help them cross the street – regardless of whether crossing facilities are provided within them. Adequate visibility for approaching road users of both the island and nearside and far side areas of the footway from which pedestrians may begin their crossing movements should therefore be provided as per standard DS.114.

NOTE: The above is an important consideration. The majority of islands are likely to be introduced on 30mph streets which is where the overwhelming majority of pedestrian casualties occur. Annual Greater London casualty statistics continue to show inadequate nearside and far side visibility for drivers to be significant factors contributing to pedestrian casualties.

2.2.9 Illumination of pedestrians likely to use islands for crossing purposes

- a. Central illumination columns (CICs) are columns with a white globe on top. They look similar to zebra crossing columns (only without the stripes). They are intended for placement on traffic islands where there is a concern that these may not be adequately visible to road users. This could be due to the location of the island on the brow of a hill, or in a dip in

the road or even on flat roads, heavily queuing traffic.

- b. The need for CICs should be avoided as they add to street clutter and use energy through lighting.

Introduction or retention of any CIC within a scheme area will require a level 2 departure. It will need to be demonstrated that a safety need exists that could not be otherwise be addressed in a manner that would have lesser visual impact. Removal will require a level 1 departure. It will need

to be demonstrated that no residual safety need exists for the CIC that has not been otherwise addressed.

- c. Where they are permitted, CICs should be to BS 8442:2006.

3 Specific further requirements for different types of island

NOTE: Requirements that are common to all types of island are explained in section 2.. The requirements in this section are specific to particular types of island only.

Island type	Further info	Summary of use requirements
Pedestrian island (uncontrolled crossing)	Section 3.1	Should be avoided with other methods to improve crossing used in preference (see note 1). Use may be considered where one or more of the following apply (though other alternatives remain preferred): <ul style="list-style-type: none"> • Carriageway widths would still exceed 9m after introducing narrowing measures on 30mph streets, or 10m on 20mph streets. • Certain motor vehicle trafficking thresholds are exceeded. • The proposed location is close to a school, care centre, home for older people or other place likely to attract vulnerable pedestrians (applies to 30mph streets only). • Introduction in other circumstances will require agreement to a level 2 departure.
Signalised junction island	Section 3.2	Should be avoided by designing junctions to provide adequate crossing times for pedestrians. Subject to agreement to a level 1 departure, use may be acceptable where it can be shown that: <ul style="list-style-type: none"> • An island is necessary to accommodate traffic signal heads (e.g. for a right turn lane). • The width of the carriageway would exceed 12.5m after consideration of other narrowing measures. • Introduction in other circumstances will require agreement to a level 2 departure.
Stand alone controlled crossing island	Section 3.3	Should be avoided. Subject to agreement to a level 1 departure, use may be acceptable where it can be shown that the width of the carriageway would exceed 10m after consideration of other narrowing measures. Introduction in other circumstances will require agreement to a level 2 departure.
Splitter islands	Section 3.4	Should be avoided. Subject to agreement to a level 1 departure, use may be considered to protect contra flow cycle lanes. Introduction in other circumstances will require agreement to a level 2 departure.
Central reservations	Section 3.5	Supported in the right circumstances. However, since these features are likely to constrain future changes, a level 1 departure will be required to check that this is appropriate.
<p>NOTE Examples of preferred alternatives include narrowing of carriageways through introduction of footway build outs, or introduction of controlled crossing facilities.</p>		

Table 1 - Summary of use requirements for different types of traffic island

3.1 Pedestrian islands

NOTE: Pedestrian islands are those provided only for the purpose of helping pedestrians to cross carriageways at uncontrolled crossings.

3.1.1 Use requirements for 20mph streets (threshold criteria)

- a. Where existing pedestrian islands are encountered then the need for these should be reviewed with a view towards designing them out where they do not meet the use criteria explained in '3.1.1.b'. However, conversely, such islands should not be removed without consideration where they still serve a beneficial purpose. Design teams must consider both retention and removal and approving officers may instruct either retention or removal as appropriate subject to the findings of the designer's review.
- b. Where no existing pedestrian island is present but designers wish to improve ease of crossing for pedestrians, then the introduction of footway build outs that create edge narrowings of the carriageway (and so reduce the crossing distance) is the preferred method. However, subject to design requirements being met, pedestrian islands may be introduced where either:

- i. It can be demonstrated that the residual carriageway width after introduction of edge build outs could not be reduced to $\leq 9\text{m}$.
- ii. It can be demonstrated via extrapolation from traffic counts that the part of the carriageway to which the island would be used would have vehicle traffic flows within any 15 minute period of the peak hour exceeding the figures in Table 2.

NOTE 1: Table 2 requires designers to know the split or ratio of the total number of vehicles using the street between the available lanes.

NOTE 2: Notwithstanding the above provisions, designers should note that they are not obliged to introduce islands and should question carefully in all instances whether these are justified. See section 2.1 above for further discussion.

NOTE 3: The above requirements should be applied with an awareness of what existing mean average speeds are as well as signed speed limits. Notwithstanding this assumptions for 30mph streets should not be applied to streets signed as 20mph without prior agreement.

	Ratio between traffic flows in lanes / Total no. vehicles using all lanes within 15min period (beyond which island permissible)				
	50 : 50	55 : 45	60 : 40	70 : 30	80 : 20
One-way street (with more than one lane)	128	120	114	105	100
Two-way street (see note 1)	104	98	93	86	82
<p>NOTE These figures assume a two lane carriageway. Where there are more than two lanes then introduction of an island may be considered where the figures for a 70:30 lane ratio are exceeded.</p>					

Table 2 - Peak 15 minute vehicle traffic threshold values for 20mph street

3.1.2 Use requirements for 30mph streets (threshold criteria)

- a. Where existing pedestrian islands are encountered then the need for these should be reviewed with a view towards designing them out where they do not meet the use criteria explained in 'b'. In order to ensure both that this review takes places and, conversely, that such islands are not removed without consideration where they still serve a beneficial purpose, both retention and removal will require agreement to a level 1 departure. This will be subject to the findings of the designer's review.
- b. Where no existing pedestrian island exists but designers wish to improve ease of crossing for pedestrians then, as on 20mph streets, the introduction of footway build outs that create edge narrowings of the carriageway (and so reduce the crossing distance) is the preferred method. However, subject to design requirements being met, pedestrian islands may be introduced where it can be demonstrated that one of the following threshold criteria are met:
 - i. The island is within 100m of a pedestrian entrance to a school, playground, medical centre, day care centre for vulnerable people, or communal home or retirement village for older people (or similar).
 - ii. The island is located within 225m of a school or college and it can be established through traffic counts that it would be positioned at a location used by a significant number of children or young people who are unattended by adults on their journey to or from that site.
 - iii. It can be demonstrated via extrapolation from traffic counts that the carriageway at the proposed location will have vehicle traffic flows within any 15minute period of the peak hour that would exceed the values in Table 3 (see note 1).
 - iv. It can be demonstrated that the residual carriageway width after introduction of edge build outs could not be reduced to $\leq 8m$.

NOTE 1: Notwithstanding the above provisions, designers should note that they are not obliged to introduce pedestrian islands and should question carefully in all instances whether these are justified. In particular, on 30mph streets designers should consider whether the introduction of controlled crossing facilities would not be more effective.

NOTE 2: Table 3 requires designers to know the split or ratio of the total number of vehicles using the street between the available lanes

	Ratio between traffic flows in lanes / Total no. vehicles using all lanes within 15min period (beyond which island permissible)				
	50 : 50	55 : 45	60 : 40	70 : 30	80 : 20
One-way street (with more than one lane)	114	107	102	94	89
Two-way street (see note 1)	101	95	90	83	79
<p>NOTE These figures assume a two lane carriageway. Where there are more than two lanes then introduction of an island may be considered where the figures for a 70:30 lane ratio are exceeded.</p>					

Table 3 - Peak 15 minute vehicle traffic threshold values for 30mph streets

3.2 Signalised junction islands

NOTE 1: These are islands at signalised junctions that accommodate traffic signals (which may be either signals for vehicles passing along the carriageway or for users wishing to cross) whilst also providing crossing facilities for pedestrians, cyclists or equestrian users. Islands provided as part of controlled crossing facilities that are not associated with signalised junction arrangements are considered separately in section 3.3. Islands for traffic signals can be particularly unsightly, generating substantial clutter and asset management liabilities. The use of such features is to be avoided wherever possible by designing junctions so that necessary signals are accommodated on footways within the requirements of the schedule to the Directions within the TSRGD. As ever, edge build outs narrowing the carriageway should be used to improve ease of crossing where this is considered necessary whilst crossing times should be set to allow users adequate time to complete their crossing in a single movement.

3.2.1 Use requirements

- a. Notwithstanding the above note, it is accepted that, in some circumstances, the introduction of such islands as part of signalised junction arrangements may be unavoidable (see note below). These features may therefore be used subject to agreement of a level 1 departure. This will be considered on a case specific basis by approving officers. Designers will be expected to be able to demonstrate robustly that use of islands is unavoidable.

NOTE: For instance, there may be multiple vehicle lanes that are required to undertake different movements and which thus require separately located signals. Alternatively, capacity restrictions may mean that it is not possible to set signal times such that pedestrians are able to cross the carriageway in a single movement.

- b. An exception to 'a' in which new islands accommodating traffic signals may be introduced without any need for a departure is when these are part of a central reservation as section 3.5.

3.2.2 Design requirements

- a. The width of any island accommodating traffic signals should be such that any signals are (at their widest extent above ground) set back a minimum of 300mm in the horizontal plane from the edge of adjoining carriageways. The location of any pedestrian push buttons or near side displays will also influence the necessary overall width.

NOTE: See section 2.2.2. for general width requirements.

- b. Assuming that a crossing path passes through an island then its *minimum* width should be as follows (though note that other factors may require islands to be substantial wider):
 - i. Where part of an 'in-line' crossing arrangement – a minimum of 3.0m on 20mph street and 4.0m on 30mph streets. This increased width is important to ensure that blind or partially sighted users appreciate that crossings to either side of the island are distinct entities.
 - ii. Where part of a 'staggered' crossing arrangement – a minimum of 1.8m wide between kerb checks or (where the use of such features is approved) pedestrian barrier railings in General, Docks, Village and Heritage Specification Areas and 2.5m in busier 'Town Centre and World Centre Specifications Areas. The 2.5m distance should also be provided in other areas where it is anticipated that use of the island may be significant and may be instructed by approving officers where they have such concerns.

NOTE: See section 2.2.2. for general width requirements.

- c. Where a staggered crossing arrangement is used then see standard DS.202 for details of how that stagger is to be enclosed (and see section 2.2.4. for further discussion).

3.3 Stand alone controlled crossing islands

NOTE 1: These are islands provided as part of pelican, puffin, toucan, equestrian or zebra crossing facilities that do not form part of a signalised junction arrangement (for which see section 3.2). They usually accommodate both traffic signals (or belisha beacons) and pedestrian crossing facilities. Depending upon the type of arrangement the island could serve to separate the crossings to either side of it into distinct features that are subject to separate control (e.g. in the instance of a zebra crossing so that vehicles on one side of the island do not need to stop for pedestrians using the crossing on the other).

NOTE 2: The design of most types of stand alone crossing is covered by the Pedestrian Crossing Regulations 1997 (though for toucan and equestrian crossings some provisions are made within the TSRGD). This is different to crossings forming part of a signalised junction arrangement for which all statutory requirements exist within the TSRGD. The government has signalled its intention to consolidate all requirements into the TSRGD through future revision to this statute.

3.3.1 Use requirements (threshold criteria)

- a. Where existing such islands are encountered in streets then the need for these should be reviewed with a view towards designing them out. In order to ensure both that this review takes places and, conversely, that such islands are not removed without consideration where they still serve a beneficial purpose, both retention and removal will require agreement to a level 1 departure. This will be subject to the findings of the designer's review and project funding (see note).

NOTE: Removal of signals can be very costly due. As such, even when it is determined that there is no need for an existing such island, it may not always be possible within available project budgets to remove these.

- b. Where the width of the carriageway is less than 11m then islands should not be included as part of a pelican, puffin, zebra equestrian or toucan crossing.

NOTE: There are several reasons for the above. Firstly, where islands are provided this can make it difficult for pedestrians to exert priority on the second half of the crossing as vehicle users are more likely to treat these as separate. In addition, for signalised facilities statutes require additional pedestrian signals to be provided on islands. This can be misleading for pedestrians in some instances due to potential 'see-through'. National guidance therefore advises that islands should be avoided save for where crossing distances are exceptional. Crossing times should be set to facilitate this. Finally, unlike for crossings associated with signalised junctions, there is seldom if ever a need to provide separate signals for different lanes which might then require the inclusion of a island to accommodate these.

- c. Where the width of the carriageway is > 10m then provision of an island may be agreed with a level 1 departure. This will be subject to it being demonstrated that it would not be feasible to narrow the crossing distance to $\leq 10\text{m}$ through the introduction of footway build outs at the carriageway edge. Notwithstanding this, designers are encouraged to consider carefully whether introduction of an island is really necessary.

3.3.2 Design requirements

- a. Width requirements should be as per those for signalised junction islands given in section 3.2.
- b. Requirements for other aspects of design should be as per those for signalised junction islands given in section 3.2.

3.4 Splitter islands

NOTE: These are islands that have been provided for the purpose of separating traffic lanes - a function to which the provision of any pedestrian crossing facilities is purely incidental and as a result of some obstruction to a crossing that the island causes. They include islands that may be located in a junction mouth for the purpose of separating a contra-flow traffic lane from other lanes. They

do not include islands introduced on links for the purposes of creating a central island narrowing for traffic calming reasons (these should always be treated as one of the other forms). No island provided in association with a signalised junction or stand alone controlled crossing may be treated as a splitter island.

3.4.1 Use requirements

- a. Where existing splitter islands are encountered then the need for these should be reviewed with a view towards designing them out. In order to ensure both that this review takes places and, conversely, that such islands are not removed without consideration where they still serve a beneficial purpose, both retention and removal will require agreement to a level 1 departure. An exception is where the island provides segregation for cycle facilities.
- b. New splinter islands should not be introduced (though see 'c') except where traffic signals are being implemented and the island is a requirement of TfL design standard (SQA 643: islands required in roads wider than 7m). Any departure request will need to demonstrate an evidenced safety or statutory need and show that alternative arrangements to address these have been explored to exhaustion and are not feasible.
- c. Where contra-flow cycle lanes (including unmarked routes) exist along a one-way street then introduction of occasional new splitter islands to separate the route from other vehicle lanes should still be avoided as 'a'. However, the suitability for cyclists of junction arrangements along the route should be considered in a Road Safety Audit (RSA). Further considerations of the findings of the Audit Report, the introduction of a splitter island of length not exceeding 6m may be permitted by agreement.

3.5 Central reservations

NOTE: These are islands that run for an extended length along the centre of the carriageway – so effectively separating it into two carriageways. They can be useful for

providing opportunities for informal crossing of the carriageway, particularly in town centres and other busy areas with high pedestrian and vehicle flows.

They may incorporate small gaps so that pedal cyclists may pass through them providing that the overall impression of continuity of the feature is maintained. Central reservations can have several potential draw backs. The most significant of these relate to flexibility of future reconfiguration of the street (including opportunities to widen footways), comfort for pedal cyclists when using the carriageway and access for emergency response vehicles.

3.4.2 Use requirements

- a. Introduction of central reservations is supported in the right circumstances and may be permitted by agreement to a level 1 departure. This is in order to check various things including:
 - i. That alternative preferred methods of improving ease of pedestrian crossing (such as edge narrowing of the carriageway) which are less potentially problematic for pedal cyclists and which provide greater flexibility in making further future changes to the street would not be feasible within reasonable timescales.
 - ii. That the reservation is being configured to minimise the need for associated street clutter (see '3.5.2.b' and '3.5.2.c').
 - iii. That carriageway widths are appropriate and will not result in pedal cyclists being squeezed by other road users (see '3.5.2.d').
 - iv. The views of the emergency services (see note).

NOTE: The views of the emergency services will be sought by approving officers and should not be requested or investigated by proponents. Emergency services may sometimes object to the introduction of central reservations on the basis that they may constrain the ability of traffic to move out the way to permit their passage when they are trying to reach an emergency.

3.4.3 Design requirements

- a. Such features may or may not include crossing facilities for pedestrians as section 2.2.1.

NOTE: Given their length and the requirements of other standards in respect to the frequency of crossing opportunities, the inclusion of at least some such crossing facilities is likely to be necessary.

- b. Such features should extend for a distance of $\geq 25\text{m}$. That distance may include brief breaks of a length $\leq 4.5\text{m}$ to allow passage through the island for vehicles (e.g. turning gaps) providing that the overall impression of continuity of the feature is maintained to the satisfaction of approving officers. This is in order to avoid the need for additional traffic signage that may otherwise be necessary to warn of the recommencement of the feature. Breaks should be exceptional with distances $\geq 25\text{m}$ maintained between instances. Maintaining the sense of continuity may require use of the same or similar paving materials to the carriageway within the gap to those used to the raised area. Breaks should not be considered as contributing to meeting the overall minimum length requirement for the feature.
- c. Where several instances of central reservations immediately follow one another along a street (being separated on account of junctions that require breaks of a length greater than those discussed in above) then designers should consider taking steps to maintain the impression of continuity such that the various sections appear as part of the same central reservation. This may require the use of the same or similar paving materials to the carriageway through the junction as have been used to the reservation.

NOTE: The above may not always be appropriate. For instance, it may be wished to emphasise a junction as a focal space. The sense of priority to through movement created by the reservation may undermine this. Alternatively, the nature of traffic controls and permitted movements at the

at the junction may be incompatible as the reservation may make the layout confusing.

- d. Carriageway widths to either side of central reservations will be agreed with approving officers on a case specific basis. Particular concerns should be providing sufficient widths such that pedal cyclists are not squeezed or intimidated by other vehicles (who will likely attempt to keep clear of the reservation) and maintaining means of access for emergency service vehicles should carriageways be congested.

Appendix A - Background

- a. Traffic islands in carriageways can be used to:
 - i. Assist pedestrians to cross the street by allowing them to do so in two movements rather than covering all traffic lanes in one go.
 - ii. Separate opposing flows of traffic (or traffic proceeding in the same direction) into different lanes.
 - iii. Accommodate necessary items of street furniture (for example traffic signals).
 - iv. Create carriageway narrowings for speed reduction purposes.
- b. Whilst they can be cheap to construct (as typically being positioned on or near the crown of the carriageway camber they seldom involve complicated changes to surface drainage) and can benefit less mobile pedestrians they can have a number of potential draw-backs:
 - i. They frequently require the use of significant traffic signs and road markings, so generating street clutter and asset management liabilities.
 - ii. When used at junctions they can result in the location of crossings being shifted away from the junction (off the natural desire-line) in order to provide space for turning vehicles to complete their movements.
 - iii. They do not contribute to the creation of useable pedestrian space in the same way as narrowings created by peripheral widening of footways do. Their use

may contribute to an increase in the overall width of the carriageway. This is because sufficient width then needs to be provided to fit the swept path of large vehicles to either side of the island when turning or passing. Were no island present then these vehicles may often be able to do this by partially over running the opposing lane.

- iv. Research¹ suggests that central islands can cause significant stress for pedal cyclists, appear to provoke negative attitudes about cyclists in other vehicle users (as cyclists may obstruct them at the narrowing they create) and can encourage road users to attempt inappropriate overtaking of cyclists in advance of the feature. It also suggests that the significant local speed reduction benefits of these features can reduce on repeat encounters. Whilst passing stresses can be mitigated somewhat by providing wider carriageways to either side of the feature this would reduce the local speed reduction effect. Because of these potential adverse consequences for pedal cyclists, researchers recommended that these features are not used and other means of providing improved pedestrian crossing facilities are prioritised.
- v. Research² suggests that absolute narrowing of carriageways (e.g. by widening the footways to either side) has a significant and durable speed reduction effect. Narrower carriageway widths correlate with reduced vehicle speeds. This is most pronounced on the approaches to

junctions which are where around 80% of pedal cyclist casualties in Greater London occur³. The introduction of islands significantly limits the potential to narrow the overall width of carriageways and this is exacerbated by the need to provide wider carriageways to either side of these features in order to mitigate passing conflicts with pedal cyclists (see 'iv').

- vi. Though true also of many other features in the carriageway that serve to channelise traffic, carriageway pavements beside islands tend to be at increased risk of rutting as wheel paths are concentrated into confined areas. This has both safety and maintenance implications.

Other arrangements like edge build outs of the footway are therefore likely to be preferable in many circumstances – particularly on 20mph streets (as practically all pedestrian and cycle casualties occur on streets with speed limits of 30mph or greater). On 30mph streets, controlled crossing facilities that allow users to cross the carriageway in a single movement may be preferable. This is reflected in the requirements for the use of different types of islands within the sections that follow.

¹Driver's perceptions of cyclists - TRL549 (Bastford et al, 2002), The effect of road narrowings on cyclists - TRL621 (Gibbard et al, 2004), Road safety report no.100 – Interaction between speed choice and road environment (Jamson et al, 2008)

²Manual for Streets – Evidence and Research (Department for Transport, 2007)

³ Pedestrian casualties in Greater London (Transport for London, 2011)