THE TOWN AND COUNTRY PLANNING ACT 1990

Proof of Evidence – Highways Matters

Site: Land north of Shaw Lane, Carlton, Barnsley, S71 3HJ

Appellant: Network Space Developments Limited

Application: Residential development of up to 215 dwellings with associated car parking/garages, landscaping, public open space including both equipped and non-equipped areas of play, SUDS and drainage, with details of a new vehicular access onto Shaw Lane (Outline with all matters reserved apart from means of access).

Planning reference: 2022/0115

Appeal Reference: APP/R4408/W/24/3341097

Name of Witness: Wayne Lake MSc MCIHT

1 Introduction

1.1 My name is Wayne Lake and I hold a Master of Science Degree in Transport Planning Practice from the University of Leeds. I am employed by Barnsley Metropolitan Borough Council as Highways Development Control Group Leader.

1.2 I have been employed by Barnsley Council since 2nd December 2019, having previously been employed by Doncaster Metropolitan Borough Council for some 28 years.

1.3 I have been a practitioner within the field of Road Safety Engineering, Transport Planning and Highways Development Control for over 19 years. During employment with Doncaster Council, I held the post of Senior Highways Development Control Officer from 2011 specialising in the assessment of planning applications for a range of development types from a highways and transportation perspective.

1.4 I was the Highways officer who reviewed the planning application from a highways perspective and provided comments on the submission. As such, have been involved with the application since being consulted by the planning officer on 22nd February 2022.

1.5 I can confirm that my evidence which I have prepared and provided for this appeal is true and has been prepared and given in accordance with my professional institution (Chartered Institution of Highways & Transportation). I can confirm that the evidence

and opinions expressed are my true and professional opinions.

1.6 My evidence is provided on behalf of the Local Planning Authority in respect of the appeal submitted by Network Space Development Limited against the refusal of an outline planning application (reference (2022/0115) at Land North of Shaw Lane, Carlton.

2 Main Issues

2.1 The main issues as set out in the Case Management Conference, that my proof of evidence will address are:

i) Whether the proposal would accord with the Carlton Masterplan Framework and Delivery Strategy (background and evidence base for the site to accessed via the northern access road).

ii) The effect of the proposal on highway safety and whether the development would be designed to encourage sustainable modes of transport.

2.2 Further detail in respect of (i) is provided in the proof of evidence by the Councils Spatial Planning Project Manager James Hyde.

3 Scope of Evidence

3.1 In this proof of evidence, I shall:

i) Provide the background and evidence base in support of the Carlton Masterplan Framework and Delivery Strategy requirement for the site to accessed via the Northern Access Road.

ii) Review the proposed means of access identifying the deficiencies with the design and highway safety concerns.

iii) Review the proposed offsite highways works identifying deficiencies within the design and highway safety concerns.

iv) Demonstrate how the proposal fails to adequately provide for sustainable modes of transport.

4 Updated information

4.1 Revised plans were submitted to the Inspectorate on 12th June 2024 with the request that these be included as a Wheatcroft amendment. These were reviewed and it was agreed that the submission was accepted as part of the appeal application by the Local Planning Authority.

4.2 The revised plans being:

- Site Access Layout ref: IPD-22-580-100a

- Site Access Visibility Splay ref: IPD-22-580-101a

- Signalised Junction Layout ref: IPD-22-580-103a

- Pedestrian Footway Improvements 1 – ref: IPD-22-580-105a

4.3 In addition, eight plans were provided as "illustrative only" showing swept paths. Two of these plans are revisions to the "Signalised Junction Layout" and "Site Access Autotrack" plans submitted in June 2023.

5 Evidence

5.1 Carlton Masterplan Framework and Delivery Strategy – Northern Access Road

5.1.1 The site is subject to the Carlton masterplan framework and delivery strategy. The delivery strategy sets out that it is expected that development will come forward in a series of phases and that the delivery of certain phases will be dependent upon the availability of infrastructure works including highways to serve respective parts of the site. Section 6 of the masterplan framework sets out the relative phasing of development parcels within the allocated sites MU2 and MU3. For Phase 3, this reads "The delivery of Phase 3 is dependent on the delivery of the northerly access road, which will be delivered by BMBC using S106 contributions from developers in Phases 3 and 4".

5.1.2 The development parcel is identified as L11 and contained within Phase 3 of the phasing strategy. The strategy for Phase 3 states "Due to congestion on the existing highway network, access needs to be secured from Royston Lane via the northern access road". This access road fits with BMBC's wider strategic aspirations as it will connect with the Carlton – Royston Relief Road which is a critical piece of infrastructure necessary to serve developments within the Local

Plan whilst reducing congestion and providing sustainable travel links. However, to secure access to Royston Lane, phased development of the parcels will require to be brought forward in advance of L11. Nonetheless, the appellants are seeking to secure access solely from Shaw Lane without the requisite northern access road and as such this application does not accord with the masterplan framework and delivery strategy.

5.1.3 In order to inform the Carlton masterplan framework and phasing strategy, Arup were commissioned by Barnsley Metropolitan Borough Council (BMBC) in 2021 to carry out assessment of the Church Street / Shaw Lane / Fish Dam Lane junction, where it was understood that the existing infrastructure could not accommodate the additional traffic that will result from the development. Analysis was undertaken to test the understanding, provide an evidence base to support any proposals and inform the phasing strategy of the masterplan framework. The junction assessment report is included in Core Document CD 5.3

5.1.4 The operation of the existing priority junction at Church Street / Shaw Lane / Fish Dam Lane was assessed through junction modelling using the PICADY programme within the software Junctions 9.

5.1.5 The report summarised the performance of the existing (current) layout stating that the existing priority-controlled junction is already congested with queuing observed during the traffic surveys. The modelling results predicted that the junctions would operate over capacity in the 2033 Do-Minimum (without Carlton development traffic) scenario. The addition of Carlton development traffic resulted in the junction to operate significantly over capacity (Do-Something) scenario.

5.1.6 Options were explored in terms of reconfiguring the junction, by the introduction of a mini roundabout or through signalisation. However, the mini roundabout option did not provide capacity improvements and the signal-controlled junction was deemed unacceptable due to highway safety and operational issues together with harm associated with the conservation area. The design considerations at that time are included in paragraph 5.6 of the junction assessment report (CD 5.3).

5.1.7 The report concluded that alternative access(es) to the Carlton site were required and that this should provide access both for the Carlton development parcels as well as opportunities for existing traffic to divert away from the Church Street / Shaw Lane / Fish Dam Lane junction.

5.1.8 To address the issues identified in the report, the need for the northern access road and associated development parcel phasing was included within the Carlton Masterplan Framework and Delivery Strategy.

5.2 **Means of Access**

5.2.1 The proposed site access junction is contrary to the requirements of the Carlton Masterplan Framework and Delivery Strategy.

5.2.2 The junction proposal is shown on plan ref: IPD-22-580-100a with visibility splays shown on plan ref: IPD-22-580-101a. These are included in Core Documents CD 7.1 and CD 7.2 respectively.

5.2.3 The proposed access layout does not conform to the technical requirements specified in paragraph 4B.3.3.12 of the South Yorkshire Residential Design Guide. The track tests for junctions with 30mph streets states that “Where average peak hour 2-way traffic flow on the major arm exceeds 500 vph, the design vehicle should be able to turn without crossing into the opposing lane on the major arm”. The South Yorkshire Residential Design guide is included in Core document CD 5.17.

5.2.4 The average peak hour two-way traffic flow on Shaw Lane (major arm) without development is shown to exceed 500 vehicles in 2028. Please refer to pages 181 and 182 of the Updated Transport Assessment included as Core document 6.40.

5.2.5 The refuse vehicle undertaking a left-out manoeuvre is shown to cross into the opposing lane on plan ref IPD-22-580-102a (CD 8.8) creating a conflict point on the highway. Thereby in the event that the refuse vehicle undertakes a left turn out of the proposed access onto Shaw Lane at the same time as a vehicle is passing the junction in the opposite direction there is a risk of collision occurring between the two vehicles, giving rise to road safety concerns which is not acceptable and contrary to Local Plan Policy T4.

5.2.6 Visibility splays are shown on plan ref IPD-22-580-101a are agreed and this is confirmed in the Statement of Common Ground.

5.3 **Offsite Highway Works at Church Street / Shaw Lane / Fish Dam Lane junction**

5.3.1 As part of consultation on the application items of concern were raised with the appellants consultants in respect of this junction which included matters of design, junction modelling and highway safety.

5.3.2 The appellant has failed to demonstrate that the proposed offsite highway scheme for a change to traffic signal-controlled junction is compliant with design standards. The proposals are sub-standard and are not acceptable to the Local Highway Authority.

5.3.3 Failure to meet standards are summarised:

- Tactile paving is not in accordance with DfT Guidance on the Use of Tactile Paving Surfaces paragraph 2.3.2, paragraph 2.4.1 and Figures 3a and 4 in relation to the positioning of the paving and paving stems. When positioned correctly will conflict with a private driveway. Please see Appendix A.

- Signal poles are missing or incorrectly positioned as required by Traffic Signs Manual (TSM) Chapter 6 paragraph 3.1.2. Please see Appendix B.

- Some secondary signal heads do not appear to meet the requirements of TSM Chapter 6 paragraph 3.1.2. If correctly positioned, the minimum offset distance between signal equipment and edge of carriageway of 450mm may not be able to be met whilst maintaining adequate footway width.

- The stop lines are not in accordance with TSM Chapter 6 paragraph 4.2.2 which states 2.5m from stop line to primary pole is preferred (so 3.0m from studs to stop line). Reducing the distance down (particularly on the approach

to a facility with pedestrian crossing) to improve the intervisibility would not be accepted approach.

- The widths of proposed crossings are not in accordance with BMBC specification. Please see drawing in Appendix C.

- The design does not provide satisfactory visibility for the uncontrolled access within the footprint of signal-controlled junction. The primary considerations for traffic signal design are visibility and clarity as defined in TSM Chapter 6 2.1.4.

5.3.4 The signalised Junction Layout ref: IPD-22-580-103a was accepted as a Wheatcroft amendment as part of the appeal application. In addition, an amended swept path plan ref IPD-22-580-104a was submitted as “illustrative only” showing the swept paths of HGV movements. This plan was a revision to that submitted in June 2023 and is included as Core Document CD 8.7**.**

5.3.5 The swept paths are integral to the junction layout yet fail to demonstrate that the proposed geometry of the junction can satisfactorily accommodate the turning movements of the design vehicle with adequate margins of safety. Design standards specified within the South Yorkshire Residential Design Guide Section 4B.3.3.12 for “T” and “Y” junctions specifies a 0.5m clearance between the vehicle body and carriageway edge. For safety reasons, given the potential for a vehicle conflict, it is expected that the 0.5m clearance between vehicle body and carriageway edge is maintained as well as 0.5m clearance between vehicle body and road centre line at the intersection with stop line.

5.3.6 The swept paths shown, give rise to highway safety concerns due to the lack of horizontal clearance between the vehicle undertaking the manoeuvre and stationary vehicles at the opposing stop line, particularly with respect to:

- Left turn manoeuvre from Shaw Lane to Fish Dam Lane
- Right turn manoeuvre from Shaw Lane to Church Street
- Left turn manoeuvre from Church Street to Shaw Lane.

5.3.7 Furthermore, plan ref IPD-22-580-104a submitted does not indicate the forward speed of the vehicles undertaking the manoeuvre or whether dynamic effects have been used in the vehicle tracking undertaken. The vehicle speed is a determining factor in the swept path analysis and could notably alter the paths from an optimum paths shown thereby requiring changes to the proposed design. For context, the vehicle tracking elements (formerly AutoTrack) of the AutoCad software are used to determine the appropriateness of highway link and junction design based on a suite of industry standard vehicle and driver settings. Use of vehicle tracking is standard on all applications and by all design teams. The Autodesk software user manual advises that if you are modelling turns at speeds above 9mph (or 15 kph) dynamic effects become significant and when you make a turn at higher speed the limiting criteria may be driver comfort rather than Autodesk Vehicle Tracking geometry. In these circumstances, the setting Limit Turning for Dynamic Effects is recommended. Please see extract from the online Autodesk Tracking 2024 wizard at Appendix D.

5.3.8 The revised junction layout accepted as a Wheatcroft amendment has not been accompanied by an independent Road Safety Audit in accordance with DMRB GG119. Whilst a Stage 1 Road Safety Audit was undertaken for the previous design, this was not in accordance with the procedure specified within GG119 and the audit team were not provided with all relevant information including the swept path plans. The requirement for a Stage 1 Road Safety Audit is specified within paragraph 3.75 of the Section 278 Agreement SPD (CD 4.10) which reads *"A Stage 1 RSA must be commissioned by the Developer as soon as possible after completion of the preliminary design. The design should be sufficiently progressed so that all significant features are clearly shown. This is likely to have been undertaken prior to defining the scope of the S278 works. The Developer will provide the Council with the Stage 1 report prior to the start of detailed design".* The lack of audit is contrary to Section 3.75 of the SPD and therefore not acceptable to the Local Highway Authority as overseeing organisation.

5.3.9 Given the above, the appellant has failed to demonstrate that the proposed offsite highway scheme provides a safe junction arrangement. It is considered that the proposed changes to the junction will result in an unacceptable change to the local highway network that is likely to result in an unacceptable impact on highway safety contrary to Local Plan Policy T4.

5.4 **Offsite Highway Works – Changes to footway on Shaw Lane**

5.4.1 Whilst it is acknowledged that the alterations to footway widths along Shaw Lane shown on plans IPD-22-580-105a, 106 and 107 do provide some benefit to pedestrians along this length of Shaw Lane, the proposed changes reduce the

width of carriageway to the detriment of highway safety.

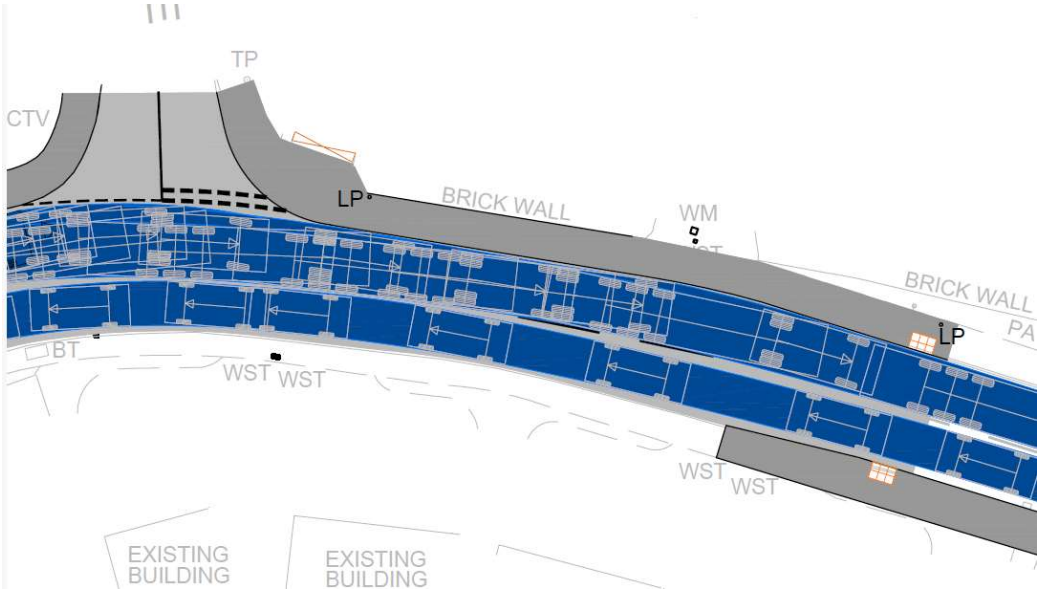
5.4.2 The proposed alterations to the footway along Shaw Lane were not accompanied by an independent Road Safety Audit in accordance with DMRB GG119. The lack of safety audit was referred to in the highway consultation response to the planning officer on 12th September 2023. The requirement for a Stage 1 Road Safety Audit also referenced in 5.3.9 above is specified within paragraph 3.75 of the Section 278 Agreement SPD (CD 4.10).

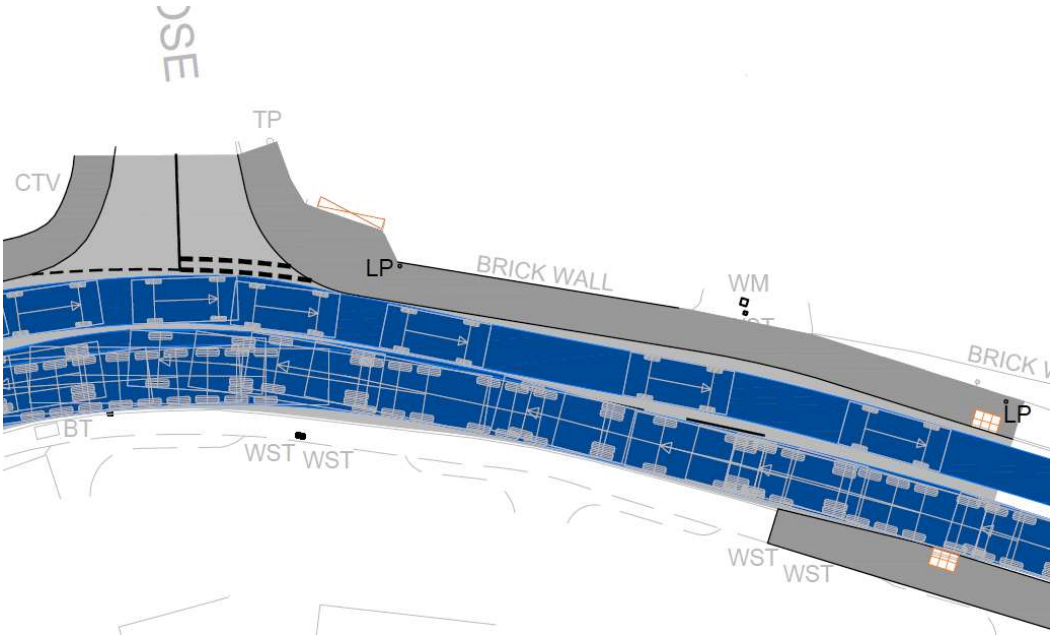
5.4.3 The swept path plans ref IPD-22-580-108 to 113 illustrate the relative paths of an articulated HGV and a car travelling in opposite directions along the length of altered highway affected by proposed footway widening. However, no information has been submitted to demonstrate the relative paths of two articulated HGV's passing in opposing directions or HGV passing a bus.

5.4.4 Whilst the lack of appropriate swept path analysis identified above fails to demonstrate the full impact of the proposed footway widening and respective carriageway narrowing, plan references IPD-22-580-108 and IPD-22-580-111 clearly demonstrate that opposing movements between a car and HGV cannot be satisfactorily accommodated with adequate margins of safety due to the corresponding reduction in carriageway width. The paths shown indicate a distinct lack of clearance between vehicle body and carriageway edge as well as lack of clearance between vehicles travelling in opposing directions. This is a potential safety hazard for all road users and could result in vehicles colliding or overhanging / overrunning of the footway potentially conflicting with pedestrians which is unacceptable to the Local Authority who have a statutory duty under Section 39 of the Road Traffic Act 1988 to take steps to reduce and prevent

accidents.

5.4.5 Screenshots from these plans are included below to assist in demonstrating this:





5.4.6 The proposed changes to the footway include the introduction of an uncontrolled crossing point between the northern and southern footways on Shaw Lane approximately 35 metres to the east of Ivy Farm Close without justification. No details were provided to demonstrate that the location is appropriate or that adequate visibility can be achieved in accordance with stopping sight distances specified within Table 15-1 of the Traffic Signs Manual Chapter 6 (See extract below). Furthermore, the unacceptable impact to highway safety identified above is exacerbated at the proposed location for the uncontrolled crossing point.by the lack of any horizontal clearance between the HGV and kerb edge.

Table 15-1 Recommended visibility distances for pedestrian crossings

85th percentile speed (mph)	20	25	30	35	40
Recommended Stopping Sight Distance (m)	22	31	40	51	80

5.5 Sustainable Modes of Transport

5.5.1 The Masterplan Framework and Delivery Strategy has been developed being cognisant of the policies within NPPF with regards the need to promote sustainable transport. NPPF 108 a-e clearly identify the need for transport issues to be considered at the earliest stages of plan making and development proposals so that opportunities to promote walking, cycling and public transport are pursued and realised. Moreover NPPF 114 requires applications to be assessed to ensure appropriate opportunities to promote sustainable transport modes can be or have been taken up and that safe and sustainable access to the site can be achieved for all users and that (NPPF 116) applications for development should give priority first to pedestrian and cycle movements both within the scheme and with neighbouring areas and to facilitate access to high

quality public transport.

5.5.2 However, the application has not demonstrated that pedestrian and cycle links provide satisfactory levels of sustainable access to and from the site. Whilst footway widths are to be increased along shaw Lane as referenced in 5.4 above, the application has not demonstrated that this can be implemented without being detrimental to highway safety.

5.5.3 The indicative active travel route shown on site access plan IPD-22-580-100a, can only be delivered within the site and does not provide a continuous route to destinations beyond such as the Trans Pennine Trail to the West. Furthermore, the 3 direct cycle links referenced within Section 2.4.7 of the Updated Transport Assessment cannot be completed or secured without land outside the applicant's control. This is because the site is not being developed in accordance with the Masterplan Framework and Delivery Strategy.

5.5.4 The development proposals include for the provision of a toucan crossing on Shaw Lane approximately 40 metres to the west of the site access. This is unacceptable as the crossing does not provide a link to cycling facilities on the southern side of Shaw Lane. The DfT Cycle Infrastructure Design document LTN 1/20 reads at paragraph 10.4.17, Toucan crossings should be used where it is necessary to provide a shared facility for example when there are space restrictions or where there is a shared use path or areas leading to the crossing. Please see extract from LTN 1/20 at Appendix E.

5.5.5 Whilst it is acknowledged that Statement of Common Ground references existing bus stops on Fish Dam Lane, Royston Lane / Church Street and B6132 / Carlton Road, without the provision of the Northern Access Road and connection

through the site to provide a comprehensive cohesive development, the site is not integrated into public transport infrastructure and will be an isolated pocket of residential development.

5.5.6 Notwithstanding the points raised in respect of the proposed offsite footway works, walk distances to existing bus stops far exceed the 400m walk distance guidelines. Inclusive Mobility A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure (DfT 2021) Section 9.1 states “In residential areas, bus stops should ideally be located so that nobody in the neighbourhood is required to walk more than 400 metres from their home”. The 400m accessibility standard is reinforced in Sustrans (2022) document Walkable neighbourhoods Building in the right places to reduce car dependency: which recommends accessibility standards of 400m to bus stops. As such, accessibility to public transport is not acceptable.

6 Local Plan Policy

6.1.1 Policy T3 states that:

New development will be expected to be located and designed to reduce the need to travel, be accessible to public transport and meet the needs of pedestrians and cyclists.

Clearly an important indicator of a site’s sustainability is its access to public transport in that dwellings should be located within a 400m walk distance of a bus stop. The Northern Access Road would provide a bus corridor through the site to enable bus stops to be located at regular intervals to meet the 400m criteria. Without the Northern Access Road, dwellings will be considerably further from bus stops and services and as such residents would likely rely on car-based journeys in preference to bus based journeys contrary to the sustainable

transport objectives contained within Policy T3.

6.1.2 Policy T4 states that:

New development will be expected to be designed and built to provide all transport users within and surrounding the development with safe, secure and convenient access and movement.

The development is contrary to the Masterplan Framework and Delivery Strategy in that it is premature and would not be accessed from the Northern Access Road. The sole access from Shaw Lane would create or add problems of safety or the efficiency of the highway as identified in sections 5.2, 5.3 and 5.4 above and as such the proposals are contrary to the interests of highway safety as required by Policy T4.

7 Summary

- The application is not in accordance with the Carlton masterplan framework / delivery strategy which expects that development will come forward in a series of phases and that the delivery of certain phases will be dependent upon the availability of infrastructure works including highways to serve respective parts of the site. This application site sits within Phase 3 which the masterplan identifies as being dependent on the delivery of the northerly access road, which will be delivered by BMBC using S106 contributions from developers in Phases 3 and 4.

- The site access junction from Shaw Lane has not been designed in accordance with the design requirements of the South Yorkshire Residential Design Guide and gives rise to road safety concerns contrary to Local Plan Policy T4 and NPPF 114(b).

- The application has not demonstrated that foot and cycle links provide appropriate levels of sustainable access to and from the site. The links shown to the TPT cannot be fully achieved without land outside the applicant's control. Walk distances to public transport far exceed the 400m walk distance guidelines. The proposed footway widening along Shaw Lane gives rise to road safety concerns and has not been the subject of an independent Road Safety Audit. The proposed Toucan crossing is not acceptable as the site does not have cycle/footway provision on both sides of the road to facilitate a continuous route and as such the application does not provide satisfactory levels of sustainable access contrary to NPPF 114, 116 and Local Plan Policies T3 and T4.

- Offsite highway works do not meet design standards, have not been subject to independent Road Safety Audit and are considered will result in an unacceptable impact on highway safety contrary to Local Plan Policy T4 and NPPF 114(b).

Appendices

Appendix A – DfT Guidance on the Use of Tactile Paving Surfaces (Extract)

Appendix B – Traffic Signs Manual Chapter 6 (Extract)

Appendix C – Layout of Blister Tactile Surfacing at (in-line) Controlled Crossing Point

Appendix D – Autodesk vehicle tracking 2024 Wizard

Appendix E – DfT Cycle Infrastructure Design LTN 1/20 (Extract)

2.3.2 Crossings at junctions

The importance of applying the principle of inclusive design is exemplified in the case of crossings at junctions. To make walking more attractive and easier for pedestrians including vision impaired people, crossings should be on the desire line as far as possible, i.e. in line with the natural direction of travel for people walking. However, it is important to avoid having flush crossing points on the radius kerb because a raised radius kerb gives positive guidance for drivers turning through the junction, minimising the risk of vehicles over-running the footway. In addition, a straight section of kerb upstand (900mm-1000mm long) beyond the radius helps pedestrians including vision impaired people to align themselves correctly before crossing the road.

Making junction radii smaller enables crossing points to be more in-line with the desire line, while still being away from the radius. Smaller junction radii generally also have the safety benefit of reducing the speed of turning traffic. (See also Manual for Streets, 2007, e.g. page 66.) Additionally, applying the inclusive design principle helps ensure that crossings are located where people waiting to cross are clearly visible to approaching drivers, and less likely to be blocked by parked cars.

At controlled crossings, where the back edge of the blister surface is not parallel to the kerb, the depth of the blister surface should be no less than 800mm at any point (see Section 2.4.1 and Figure 4). However, this requirement only applies to situations where the crossing direction is not perpendicular to the kerb. It is not to be used as an accommodation for placing crossings on the radius kerb. In addition to putting vision impaired people at risk, applying the minimum 800mm depth requirement to crossings on radius kerbs typically results in the creation of large wedges of the blister surface that can be confusing.

2.4 General layout

2.4.1 Controlled crossings

Figure 3A shows the layout at an inset controlled crossing and Figure 3B shows an in-line controlled crossing.

Where the dropped kerb at a controlled crossing is in the direct line of travel for people walking, e.g. at crossing points on junctions, the tactile surface should be laid to a depth of 1200mm. At all other controlled crossings, a depth of 800mm

should be provided. This will ensure that vision impaired people detect the surface.

The back edge of the section of tactile surface that extends across the dropped kerb should be at right angles to the direction of crossing (and therefore will sometimes not be parallel to the kerb). This is because some vision impaired people use the back edge of the tactile surface to align themselves correctly in the direction of crossing. Some may use the direction of the rows of blisters to provide that guidance.

Where the back edge is not parallel to the kerb and, as a result, the depth of the tactile surface varies, it should be no less than **800mm** at any point (Figure 4).

At controlled crossings only, a stem of the surface **1200mm** wide, should extend from the flush dropped kerb to the back of the footway, and preferably back to the building line or property boundary, where possible. Because the orientation of the stem may be used by some vision impaired people to align themselves correctly before crossing the road, the stem should be installed so that it is in line with the direction of travel across the road. It will be encountered by vision impaired people walking along the footway and followed to the push button box on a post adjacent to the right-hand side of the crossing point. Accordingly, the stem will form an L-shape arrangement with the blister surface at the crossing itself. It is recognised that, in some cases, this could result in a very long stem. If this is considered undesirable, local authorities should engage and consult, as described in Section 1.6, to establish whether a shorter stem is acceptable. In most cases a 5 metre long stem should be sufficient.

In one-way streets, and on staggered crossings, where the traffic is approaching from the left, the stem should lead to a push button on the right hand side. A second push button should also be provided on the left hand side.

Figure 3A: Layout of the blister surface at an inset controlled crossing point

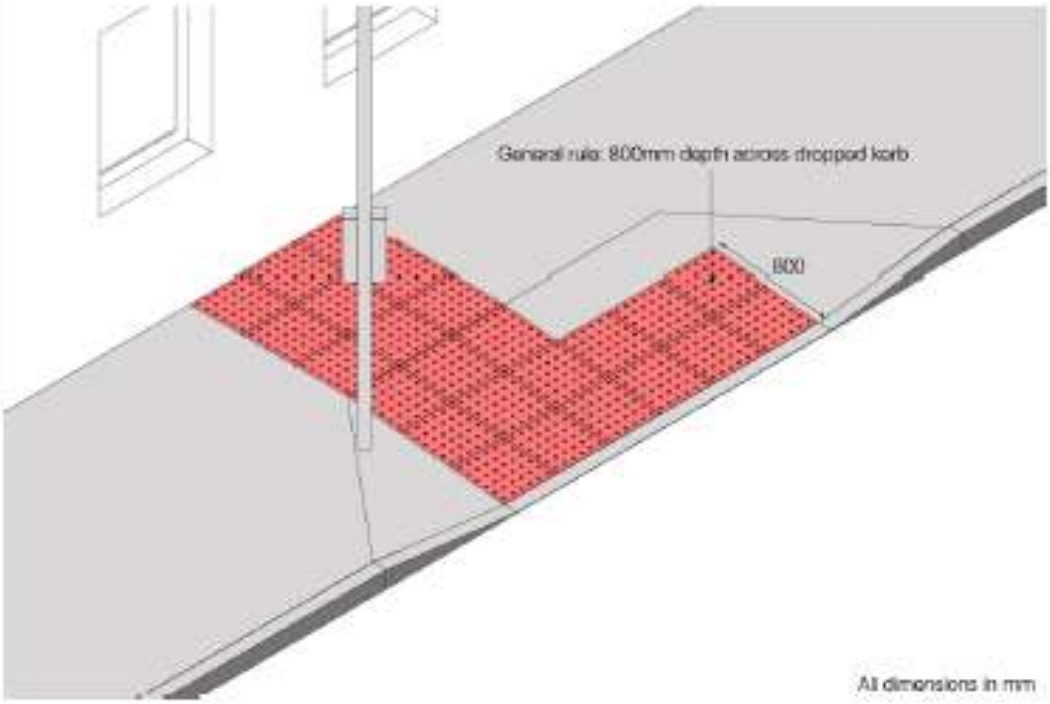
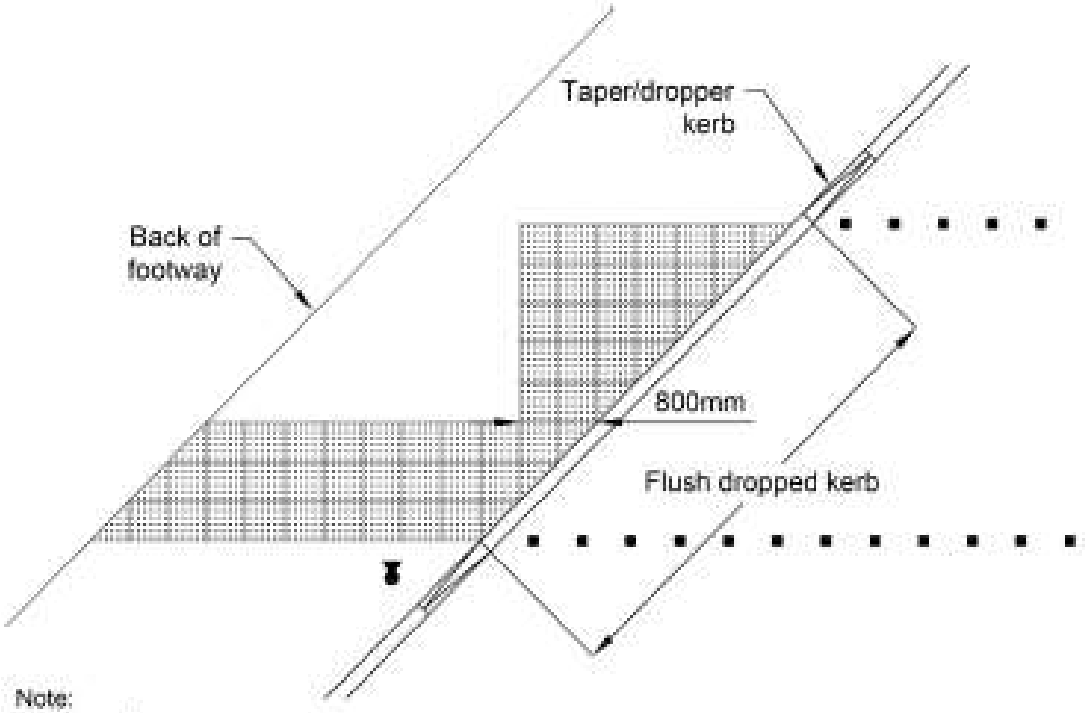


Figure 4: Layout of the blister surface at controlled crossing where the back of the edge of the surface is not parallel to the kerb



Note:
Not to scale
Crossing shown is signalised

3 LOCATION OF SIGNALS

3.1 General

3.1.1. The Regulations state that there must be a minimum of two signal heads visible per approach, at least one of which must be a primary signal (S14-6), unless the approach is for traffic consisting only of pedal cycles, in which case a minimum of one signal head is permitted. This is to allow drivers to see one signal head while approaching the junction, and one while waiting at the stop line. It also allows for a degree of redundancy if one signal head fails, which is particularly important in the event of red lamp failures.

3.1.2. The primary signal is placed beyond the stop line, or second stop line if an advanced stop line is provided, normally on the near side, and in front of any crossing studs. It should be at least 1.5 m from the stop line, although 2.5 m is preferable. 1.2 m may be appropriate where ASLs are provided. Where the approach controls pedal cycle traffic only, the distance may be further reduced, particularly where low level cycle signals are used.

3.1.3. The second required signal may be of any of 3 other types. Figure 3-1 shows a primary signal plus secondary signal usually placed on the far side of the junction, for example on a small island. This must show the same information as the primary signal, but may include additional information if this does not conflict with the primary head.

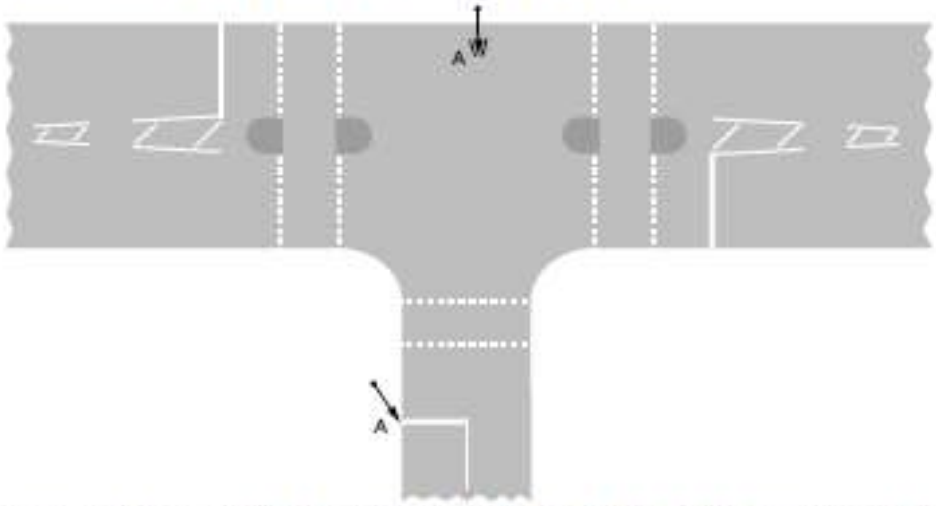


Figure 3-1 Layout diagram showing the positions of a primary signal head, plus a secondary signal head placed on the far side of the junction

3.1.4. Figure 3-2 shows a primary signal plus a double or duplicate primary: a further primary head placed on the entry side of the junction, on the off-side and sometimes on a small 'splitter' island.

4.2 Stop lines

4.2.1. The Stop line marking to diagram 1001 (S14-2-46) consists of a single continuous line 200 mm or 300 mm in width, and indicates the position beyond which a driver must not proceed when required to stop by the signals. The 200 mm width is generally for use in urban areas. The 300 mm width should be used in rural areas, or where the 85th percentile speed exceeds 35 mph. The greater width may also be used in urban areas at difficult locations, or where heavy traffic results in rapid erosion of the marking.

4.2.2. The Stop line will normally be at right angles to the centre line of the road to which it applies, even at skew junctions. It should be at least 1.5 m in advance of the near side primary signal, although 2.5 m is preferable. Site conditions may necessitate a greater distance.

4.2.3. It may be necessary to set back the Stop line to allow for positioning of the primary traffic signal and any pedestrian crossing facility (see 2.4.4). At some junctions, Stop lines and near side primary signals need to be located sufficiently far back from the junction to enable long vehicles to turn into that road without being blocked by vehicles waiting at the Stop line. In setting back the Stop line, the requirement for crossing studs to diagram 1055.1 to be no more than 10 m from their associated traffic signals should be borne in mind.

4.2.4. Guidance on the use of advanced stop lines for cyclists is given in 12.14.

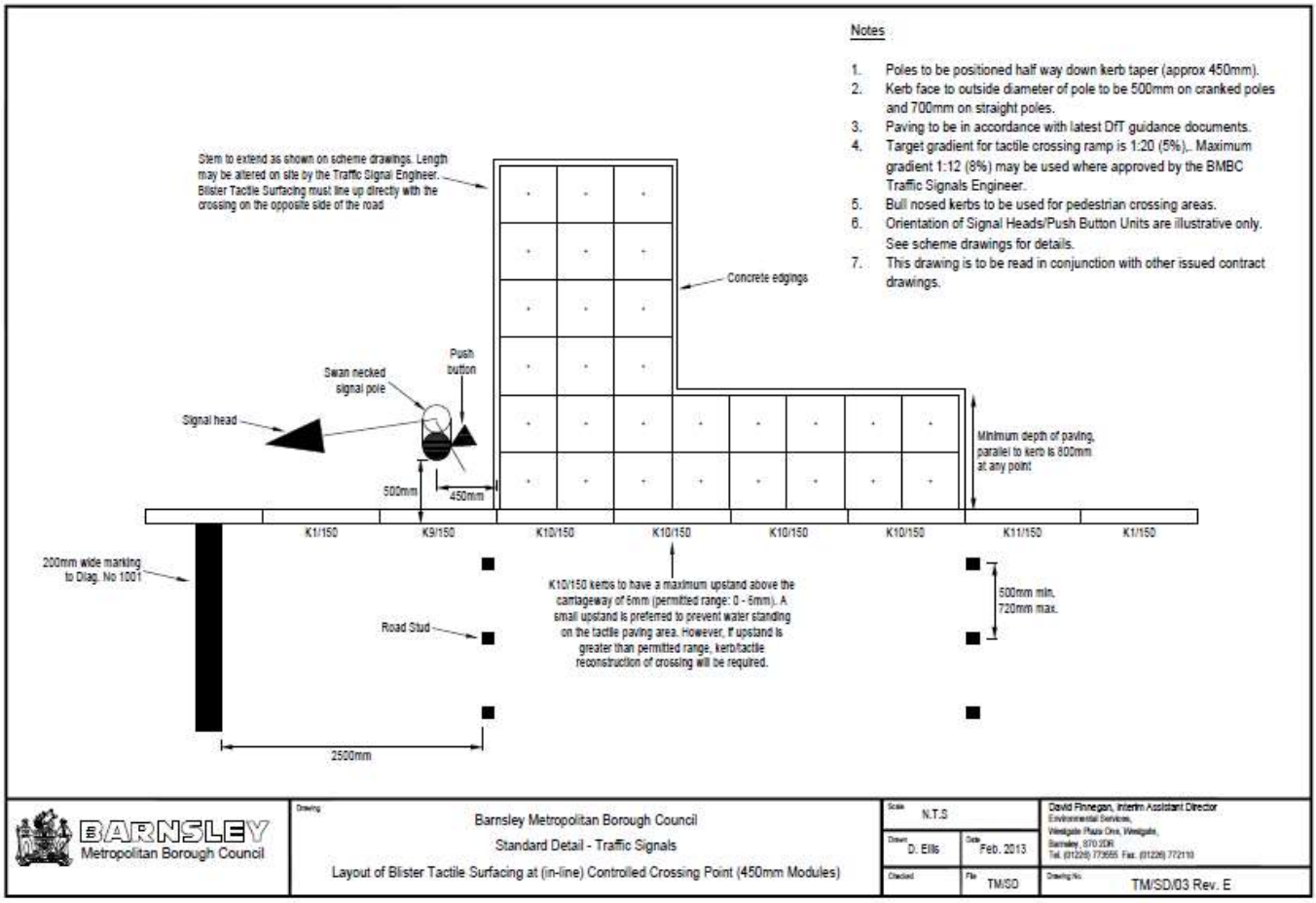
4.3 Longitudinal markings

4.3.1. On the immediate approach to the signals, the normal lane marking to diagram 1005 (S11-4-4) or 1005.1 (S11-4-5) and the centre of carriageway marking to diagram 1008 (S11-4-6) or 1008.1 (S11-4-7) should change to the warning line versions to diagram 1004 (S11-4-2) or 1004.1(S11-4-3). Chapter 5 Table 2-3 gives details of the size and minimum number of marks recommended.

4.3.2. Lane markings may be laid within the junction where some guidance for drivers would be helpful, although care should be taken that the meaning is clear to drivers on all approaches. There should be no risk of giving the impression of a Stop or Give Way line to transverse movements. The arrow to diagram 1038.1 (S11-4-21) may be used to indicate a route through a junction.

4.3.3. Figure 4-2 shows the use of a pair of arrows to diagram 1038.1 at a signal-controlled junction. Where a signal phase permits opposing right turns but no ahead movements from the right turn lanes, and there are no opposing dedicated lanes, use of the arrows to indicate that vehicles should pass near side to near side (non-hooking) may help prevent conflict. If the number of right turning vehicles is high, it may be of benefit to provide a dedicated right turn lane even if a separate signal stage is not provided.

APPENDIX C - Layout of Blister Tactile Surfacing at (in-line) Controlled Crossing Point



APPENDIX D - Autodesk vehicle tracking 2024 Wizard

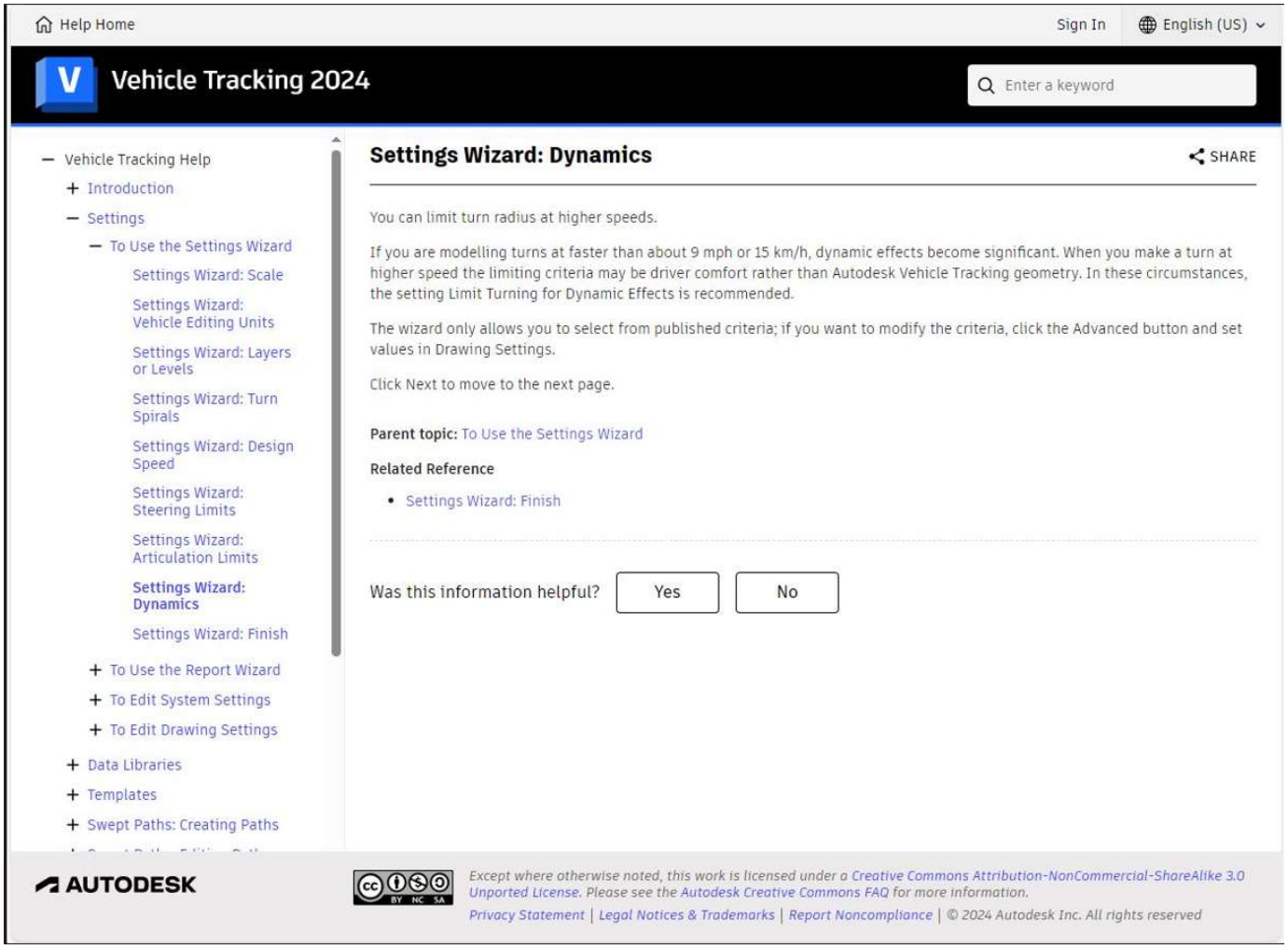


Figure 10.6: Cycle priority crossing

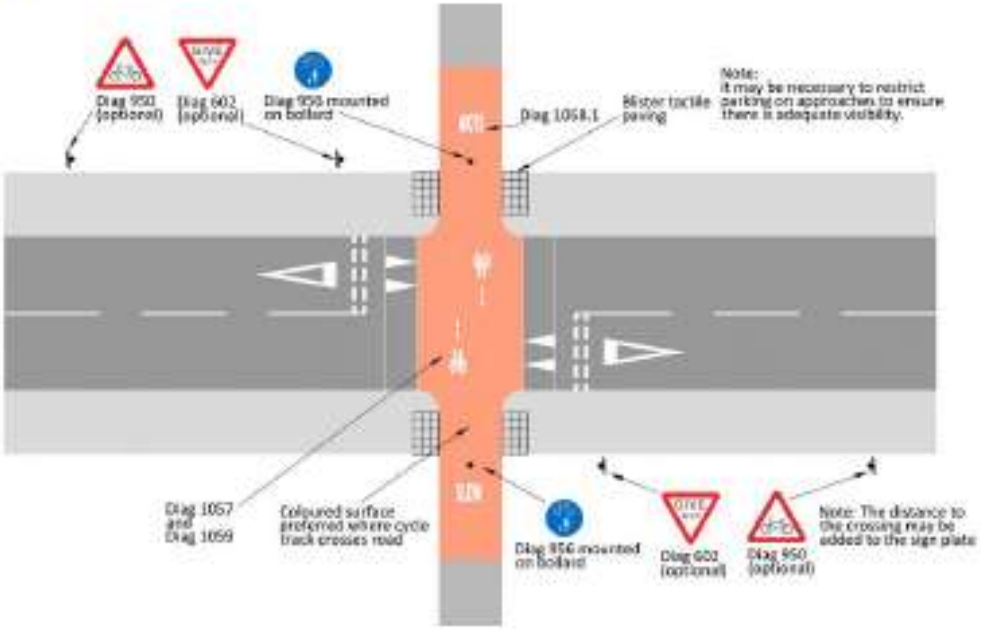


Figure 10.7: Parallel crossing, Hackney

Toucan crossings

10.4.15 Toucan crossings are signal-controlled crossings shared between pedestrians and cyclists, with no separation between the two types of user. They may be installed at junctions or as stand-alone crossings. Zig-zag markings must not be placed at toucan facilities at junctions.

10.4.16 Toucan crossings can use nearside or farside pedestrian/cyclist signals, but not a combination of both. Farside pedestrian and cycle signal heads are prescribed in TSRGD diagrams 4003.5 and 4003.6, nearside toucan signal heads are prescribed in TSRGD diagram 4003.7. High level repeater signals to TSRGD diagram 4003.7A may also be used with nearside signal heads. Farside signals may be fitted with countdown timers.

10.4.17 Toucan crossings should be used where it is necessary to provide a shared facility, for example when there are space restrictions or where there is a shared use path or area leading to the crossing. As they incorporate shared use facilities, where such a crossing is being considered, early engagement with relevant interested parties should be undertaken, including those representing disabled people, and pedestrians and cyclists generally. Engaging with such groups is an important step towards meeting the local authority's Public Sector Equality Duty.

10.4.18 Minimum crossing times at toucans are defined by walking speeds. Advice on timings is given in Chapter 6 of the Traffic Signs Manual.

10.4.19 On wider roads and at busier junctions, a staggered toucan crossing is often used to combine pedestrian and cycle movements and minimise delay to motor traffic. However, negotiating a staggered refuge