

PROVIDING GUIDANCE TO MANUFACTURERS AND USER COMMUNITIES

GUIDANCE ON THE IMPLEMENTATION OF IN-LINE TWO STAGE CROSSINGS



Introduction

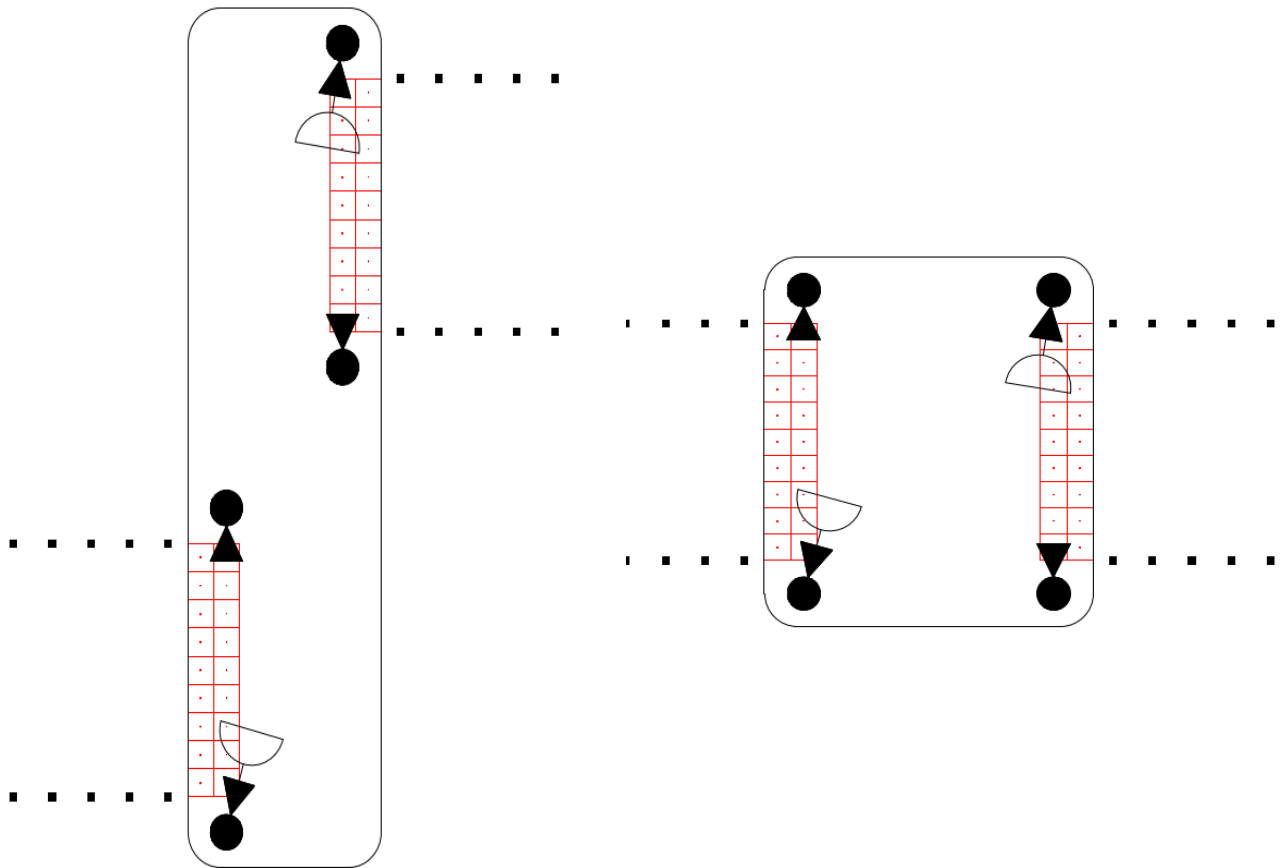
This Guidance outlines the key considerations and ARTSM recommendations for the implementation of in-line two stage crossings, providing a summary of current Department for Transport (DfT) guidance and mandatory requirements whilst highlighting potential risks and challenges.

Active Travel considerations

Active travel has become a central focus of modern transport policy, with increasing emphasis on schemes that encourage a shift toward more sustainable modes. Enhancements to the public realm and the widespread delivery of dedicated cycling infrastructure now form a routine part of highway design. As a result, designers are placing greater attention on improving user experience at junctions, where the quality of crossing facilities can significantly influence perceptions of safety, convenience, and overall journey quality.

As such, the 2019 edition of the Traffic Signs Manual, Chapter 6 (TSM CH 6) introduced the concept of the “in-line” two stage pedestrian crossing for the first time.

This layout removes the traditional stagger between the two stages of a dual crossing, instead aligning both stages directly opposite one another (in-line). The intention, supported by principles in LTN 1/20, is to provide users with a more direct and intuitive route across the carriageway (see images below).



Although offered as an option in TSM Chapter 6, in-line two stage crossings may not always be the most suitable option; and have the potential to introduce unforeseen risks.

Below we highlight the considerations required for the implementation of in-line two stage crossings.

The Risks

Alongside general risks where vehicles and people meet, there are specific risks relating to each different strategy and, in all cases, there is always a need to ensure that such designs are developed with appropriate and informed consideration and robustly risk assessed to prevent unintended consequences.

Ch 6 1.7.5 states “Where signals are justified, the aim is to maximise capacity, reduce delays to traffic as much as possible (accepting that there will be some) and to reduce the risk of accidents. Traffic flows, available road space, layout and stage sequences all affect how well the installation achieves this.

In-line two stage crossings, while seemingly straightforward, have the potential to introduce risks that may lead to confusion and potentially serious incidents.

A particularly significant concern is the likelihood that crossing users may misinterpret the layout as a single-stage crossing. This misunderstanding can be especially dangerous: if a user assumes that the green signal from the first stage continues to apply, they may step into live traffic without realising that the second

stage operates independently. This false sense of continuity creates a high-risk scenario where users believe they have priority when they do not.

The application of TSM Chapter 6 (1.1.4) design guidance typically relates to busy urban environments, where distractions, crowding, and varied user capabilities increase the likelihood of misjudgement. Consequently, the potential for conflict between pedestrians and moving vehicles is significantly heightened, making this a critical safety consideration that must be thoroughly addressed during the design process.

From an environmental perspective, in-line two stage crossings can potentially offer advantages by reducing the extent of blacktop and footway construction required compared with staggered alternatives. This reduction in materials and construction activity can lower the overall environmental impact and carbon footprint of the installation. However, in practice, many highway schemes show little difference in island size between in-line and staggered layouts, particularly where islands form part of a wider central reserve. In some cases, providing a 5 - 7 m wide island to accommodate an in-line arrangement may result in greater construction footprint than a more traditional 3 m staggered island, potentially offsetting the anticipated environmental benefits.

Current Guidance from DfT

The crossing type is briefly discussed in TSM CH 6 11.17.4 and 18.3.4, suggesting that between 5 – 7m between crossing points “can” work. This guidance is not prescriptive, and the designer should satisfy themselves that any measurements chosen are appropriate and well documented within the design risk assessment.

TSM Ch 6 highlights that removal of staggered crossings can offer clear benefits for cyclists; eliminating tight bends allows cyclists to maintain a smoother trajectory, improving comfort and reducing the likelihood of conflict with pedestrians by minimising areas of interaction. Furthermore, In-line two stage crossings may provide a more direct route across the carriageway and may be intended to reduce the perception of unnecessary detour often associated with staggered facilities. By offering a straighter, more intuitive path, it is thought that the level of service for pedestrians is improved. The increased convenience and efficiency of a direct alignment is potentially intended to lead to higher overall pedestrian uptake.

Guidance in LTN 1/20 Clause 10.4.20 recommends that ‘Where it is necessary to stagger pedestrian crossing facilities, a separate single stage crossing for cyclists **should** be provided’ ..., or alternatively an angled crossing on a wider central refuge.

And further, CD195 (1.0.2 Feb 26) clause E-4.30 states ‘parallel pedestrian and cycle traffic crossings **shall** be used where it is necessary to provide crossings which cater for both cycle traffic and pedestrians’ (mandated for trunk road and motorway networks).

Each of these strategies brings different risks, particularly around human response and behaviour.

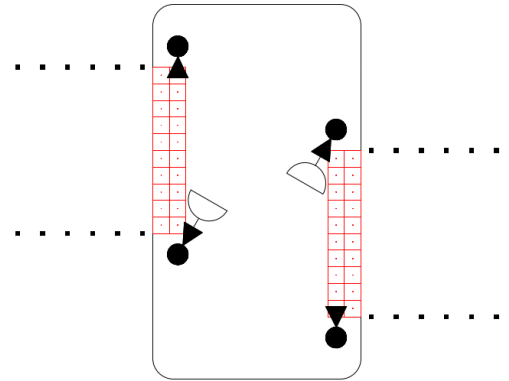
The removal of existing staggered crossings in favour of an in-line two stage crossing must be carefully considered. With a staggered crossing, users may anticipate that they would have to wait on the island, however changing to an in-line two stage crossing may change this perception. The direct route may introduce the expectation of a green man and with it the risks of misinterpretation. This is an even greater risk where a parallel cycle lane means that a cyclist may be continuing across the full width of the carriageway.

Design Considerations

Offset Crossing

TSM Ch 6 paragraph 11.17.4, states that slightly offsetting pedestrian crossings from each other can help mitigate the risk of pedestrians misinterpreting the two crossings as one continuous crossing. However, no offset is specified in the guidance, and the designer should satisfy themselves that they have provided sufficient differentiation to prevent confusion. The risk that more vulnerable users could still misinterpret an offset should also be considered.

When designing these offsets, it is crucial to evaluate whether the offset effectively addresses any safety concerns while still maintaining a high level of service for users. The offset may increase pedestrian interaction, which can complicate the crossing point for cyclists and potentially reduce the aesthetic appeal of the junction. These factors must be carefully balanced to ensure that the crossing remains functional and user-friendly. Furthermore, consideration should be given to the difficulties that reduced island width can create for users with buggies or mobility scooters, particularly where the spacing between central refuge poles becomes restrictive.

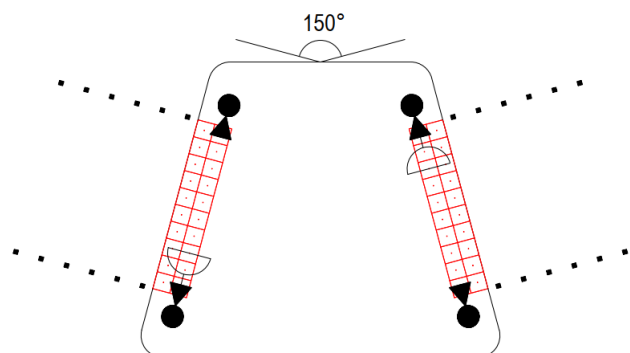


It is important to note that offsetting crossings in this manner does not eliminate the risk of read-through with far-side signals. Pedestrians may still misinterpret signals intended for a different crossing phase, leading to potential safety hazards.

Angled In-Line Crossing

A second recommendation in TSMCH 6 proposes that aligning crossings at different angles may reduce the risk of pedestrian confusion.

Angling crossings has the potential to increase the width of any refuge island. Therefore, it may be unavoidable to reduce the minimum width of the island to accommodate the angled design. Figure 3 illustrates how an intercept angle of 150° and a crossing width of 4 metres can quickly increase the width of an island if maintaining a 5-metre minimum island width.



While considering angling crossings, a designer must consider at what point the crossing no longer becomes straight-in-line and instead resembles more of a triangular island.

TSM CH 6 does not provide any guidance on the angling of crossings, therefore the designer should satisfy themselves that the measurements chosen are appropriate and well documented in the design risk assessment.

Recommended Design Considerations for In-Line Two-Stage Crossings

Undertake a Formal Risk Assessment for In-Line Layouts

- Carry out a structured risk assessment early in the design process to identify hazards associated with users misinterpreting the crossing as single-stage.
- Consider behavioural factors such as desire lines, visibility of signals, crowding, and the likelihood of users following others across the carriageway.
- Document the rationale for selecting an in-line layout and demonstrate that risks have been explicitly evaluated and mitigated.

Review Island Widths and Construction Implications

- Assess the environmental and construction impacts of the required island width, particularly where guidance recommends 5 m or more.
- Compare material quantities and construction footprint against a staggered layout to ensure the chosen design genuinely delivers environmental benefits.
- Where wider islands are required, explore opportunities to integrate planting, drainage features, or public-realm improvements to offset the increased footprint.

Apply Mitigation Measures Cautiously and Justify Their Use

- Where angling the crossing or offsetting the refuge is proposed as a mitigation, ensure the design intent is clear and supported by evidence.
- Evaluate whether the angle meaningfully improves user comprehension or simply introduces new risks, such as awkward turning movements for cyclists, reduced visibility, read through on nearsided signals etc.
- Record the reasoning behind any non-standard mitigation to demonstrate that it has been thoroughly considered.

Consult Relevant Guidance but Recognise Its Limitations

- Use TSM Chapter 6, LTN 1/20, and DMRB as reference points, but acknowledge that current guidance on in-line two-stage crossings is limited and sometimes ambiguous.
- Where guidance is unclear, apply professional judgement with a safety focus and ensure this judgment is documented.
- Consider seeking peer review or independent road safety audit input for complex or high-risk locations.

Monitor and Review Post-Implementation

- Where feasible, include a plan for post-installation monitoring to assess user behaviour and confirm that the crossing operates as intended.
- Use observed data to refine future designs and contribute to the wider evidence base, given the current lack of detailed national guidance.

Summary

Designers should remain acutely aware that straight in-line two-stage crossings may introduce significant unintended risks, particularly where users may misinterpret the layout or signal phasing. While such crossings may appear to offer environmental advantages at first glance, these benefits are not guaranteed; when minimum recommended island widths are applied, the total blacktop and construction footprint can in fact exceed that of a traditional staggered layout. Compounding these challenges is the limited and often ambiguous nature of current official guidance on mitigating measures—such as angling the crossing to reinforce the two-stage arrangement. As a result, it is essential that designers rigorously assess any proposed mitigation themselves and ensure that the chosen features demonstrably address the risks present in the specific context.

Human behaviour is a factor that must always be considered –

Does your risk assessment answer:

- How will this design be used by the pedestrians?
- What risk is there that the pedestrian will elect to follow the cycle action?
- What is the risk that the pedestrian will ignore/misunderstand the second stage?
- What will happen when the cycles continue across?

Finally

- Does this layout work for the man on the “Clapham omnibus”
- Have I applied the “Wednesbury Test”?

Remembering (as stated in Ch 6 11.1.14) 11.1.4. Pedestrians are more likely to ignore the red signal if they consider the time they have to wait is unreasonable. A frustrated, cold and wet pedestrian is more likely to take risks.

All relevant guidance should therefore be considered including TSM CH 6, LT1/20, and DMRB CD 123, CD 109, CD195. DMRB is mandated for motorways and high speed trunk roads.

References :

Traffic Signals Manual – Chapter 6, – Department for Transport, [Traffic signs manual - GOV.UK](#)

LTN1/20 – Cycle Infrastructure Design – Department for Transport, [Cycle infrastructure design \(LTN 1/20\) - GOV.UK](#)

DMRB – CD195 – Designing for Cycle Traffic, National Highways Standards for Highways, [CD 195 - Designing for cycle traffic](#)

Disclaimer

This guidance document is produced for advisory purposes to clarify current legislation, standards and best practice. It is published in good faith but without liability and should not be taken as definitive legal advice. Requirements may change, and users should always refer to the latest official legislation, standards and guidance.

Copyright © 2026