

6.0 Signal Controlled Junctions and Crossings

6.1 Difficulties for Cyclists at Signal Controlled Junctions

- Junctions and road crossings are dangerous parts of a cyclist's route
- About 8% of cycling accidents in Nottinghamshire occur at signal controlled junctions (accident data for the 3 years 2000-02)
- Major complex junctions can form a barrier to movement as cyclists can be fearful of travelling through them
- Narrow lanes at stop lines (less than 3.0m) can result in cyclists being squeezed by traffic

It is possible with careful design to make junctions safer and more appealing for cyclists

6.2 General Design Principles

- Cyclists should be within the normal field of vision for drivers. 'Designs that place the cyclist in front of and reasonably close to the driver tend to be safer' (*IHT 1997*)
- Free flowing arrangements including segregated left turn lanes and merge lanes can be particularly hazardous for cyclists. As such, they should be avoided, especially in locations where an alternative route for cyclists does not exist



Photo 6.1 Cycle-only signal control at a junction

6.3 Opportunities for Cyclists at Junctions

- When junctions are being reviewed, modified or modernised there is an opportunity to provide additional facilities for cyclists such as cycle lanes, advanced cycle stop lines and crossing points. At the very least ensure that cyclist movements are not hindered by proposals
- Development proposals also offer the opportunity to review a junction and improve it for cyclists

6.4 Cyclists and Banned Turns

When a banned turn order is created (by way of TRO), cycles should be exempted unless there are overriding safety considerations not to do so. This can be achieved by:

- Signs and lines
- Jug handled turns
- Segregated left/right turn lanes
- Remembering to include cycles in any exemptions that are made for buses

6.5 Modifications for Cyclists at Signal Controlled Junctions

- Cycle phases can be introduced at signal controlled junctions
- Cycle only stages can also be provided, when cyclists are provided with their own lane and signals. These can be triggered by detectors, but it may be useful to provide a push button as well in case of failure to detect the cycle
- Intergreens can be extended at wide junctions, to allow cyclists more time to safely clear the junction
- Cycle crossing facilities can be incorporated into a junction and combined with pedestrian phases
- Provide cycle lanes and Advanced Cycle Stoplines to help cyclists avoid queuing traffic. (see separate ASL Guide in Section 7)
- Provide cycle by-passes. Cyclists can be taken up onto a segregated shared use footway and can be provided with their own free-flow left turn or by pass for an unrestricted straight ahead movement (SEE FIGURE 6.A and photo 6.4)

6.6 Signal Controlled Cycle Crossings

- Cycle crossings facilities can be added to new and existing junctions and combined with pedestrian phases (see photo 5.6)
- Provide a cycle aspect in addition to the 'green man' aspect
- Ensure that shared use signing is provided on the approaches and that clear direction signing for cycling is included in the scheme

6.7 Exclusive Signal Controlled Cycle Crossings

- A dedicated crossing facility for cyclists crossing busy roads usually from a cycle track.
- Cyclists are generally detected (usually by loops) which then activates the signals
- Pedestrians are excluded from the design
- The signal aspects and operation are the same as for a conventional signal set, but replace the usual green and amber lights with green and amber cycle symbols
- Cycles can be detected by loops or MVD



Photo 6.2 Exclusive signal controlled cycle crossing. *Courtesy CTC*



Photo 6.3 Cycle priority at signal controlled junction. *Courtesy CTC*

Fig 6.A

Examples of Cycle Bypasses at Signalised Junction

Bypass Arrangement
Cycles to be segregated from pedestrians.
This may also be used at an unsignalled junction and at a junction where a left turn is prohibited.
(TRO required to exempt cyclists)

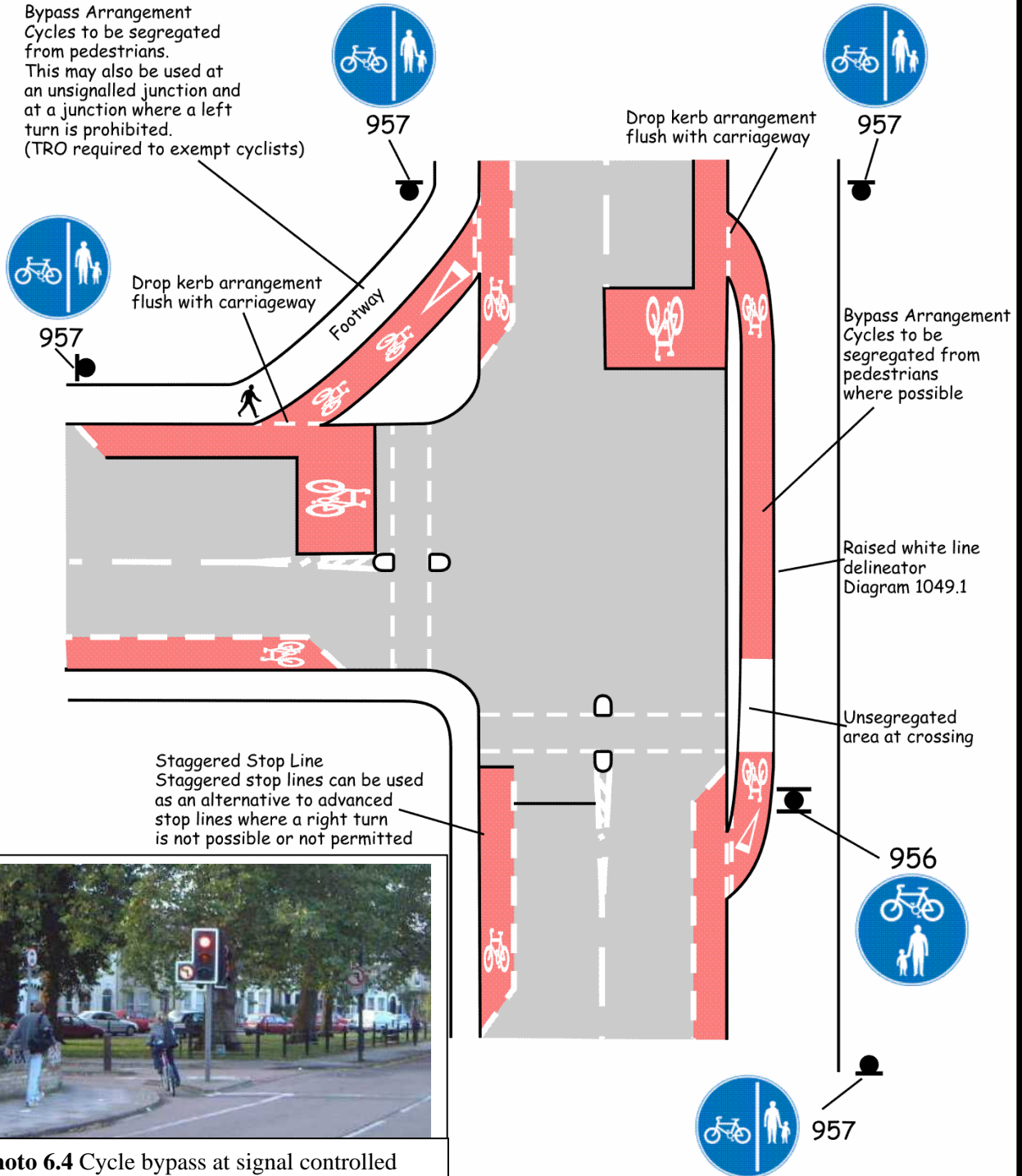


Photo 6.4 Cycle bypass at signal controlled junction. *Courtesy CTC*

6.8

Parallel Cycle and Pedestrian Crossings



Photo 6.5

A segregated cycle track crossing a side road at a parallel crossing. Note: the pedestrians cross on the right hand side.

Courtesy CTC

- Both cyclists and pedestrians have their own set of lights (photo 6.5). The pedestrian has 'Red/Green Man' signals with a standard 3-aspect signal head to control traffic. The cyclist has 3 aspect but with cycle green and amber symbols. (DoT 1986 LTN 1/86)
- The cycle crossing can be marked on the carriageway with 400x400 white squares (with 400 gap) but these require authorisation from DfT
- Cyclists can only proceed ahead as turning right would bring them into conflict with pedestrians
- Parallel crossings can also be formed with a staggered central reservation with guard railing to separate cyclists from pedestrians. (DoT 1986 TAL 13/86)
- Consider using when there are high flows of both cyclists and pedestrians

Photo 6.6 Provision for Cyclists integrated into a signal controlled junction.

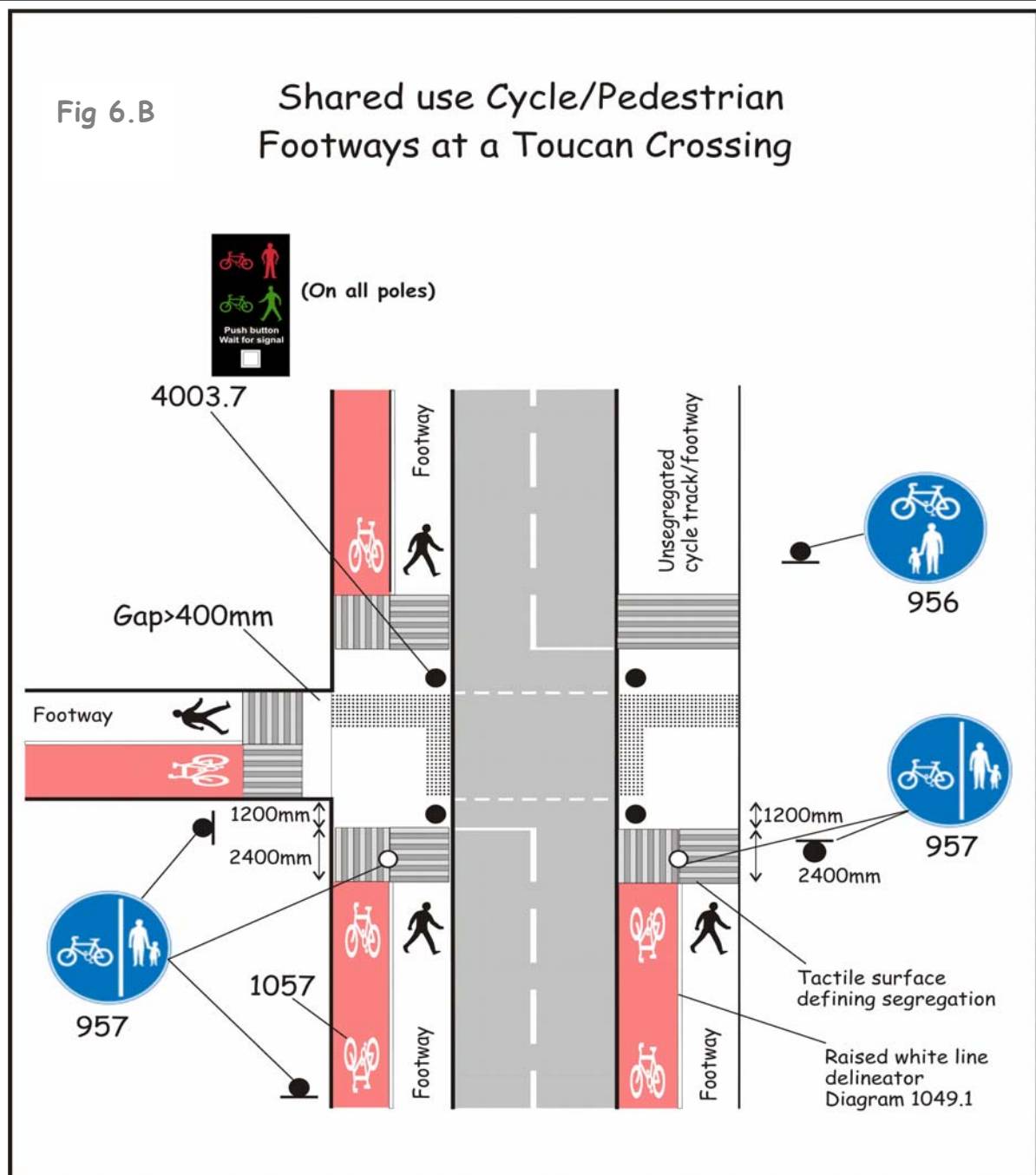
Courtesy CTC



- Parallel Crossings can be more expensive to provide than Toucans due to the requirement for extra signal equipment and additional land take
- They are best provided where the interaction between cyclists and pedestrians is problematic or the numbers of cyclists is very high. In these instances, they can be very effective
- As an alternative to a parallel crossing, consider a toucan crossing

6.9

Toucan Crossings



- This is a signal controlled crossing that allows cyclists and pedestrians to cross the road at the same time, sharing the same space (Fig 6.B)
- Signals activated by push button (loops can additionally be used to detect cycles and trigger the signals)
- In addition to the 'Green Man' there is a 'Green Cycle', these are now being placed on the nearside of the signal rather than on far side poles
- If an island is provided as part of a staggered arrangement, ensure that the width on the island is sufficient to cater for both pedestrians and cycles (2.0m min)

See Also: TAL 04/98 Toucan Crossing Developments
http://www.dft.gov.uk/stellent/groups/dft_roads/documents/page/dft_roads_504715.hcsp
 LTN 2/95 The Design of Pedestrian Crossings