7.0

Advanced Stop Lines (ASLs)

7.1

What is an Advanced Cycle Stop Line?

ASLs are a low cost method of helping cyclists at signal controlled junctions (Photo 7.1). They enable cyclists to move off ahead of other vehicles and clear the junction first. They are particularly useful:

- for cyclists wishing to turn right at junctions
- for giving straight ahead cyclists a better chance of avoiding conflict with left turning general traffic
- in helping to make cyclists more visible to motorists thus reducing potential conflict
- for improving journey times for cyclists, as they help to bypass queuing traffic
- for enabling cyclists to avoid breathing in exhaust fumes from stationary traffic.



Photo 7.1 Example of an ASL, West Bridgford

Nottinghamshire CC implemented one of the first ASLs in the country (with a double signal layout), in Newark. Until 2004 only a handful of other sites were introduced in the County. Since then a series of junctions in Rushcliffe and Gedling boroughs have had ASLs installed.

7.2 Criteria for the Installation of Advanced Cycle Stop Lines and/or Cycle Lanes at Traffic Signalled Junctions

- ASLs should be considered for provision at all new (and upgraded) signal installations that lie on 30 mph roads, except on roads where cycling is specifically not to be encouraged.
- > ASLs can be installed at existing signalised junctions
- > Advanced stop lines may not be necessary:
 - 1. Where a safe and convenient alternative route is provided for cyclists away from the main carriageway and it can reasonably be expected that most cyclists will use it.
 - 2. Where numbers of cyclists can be expected to be *extremely* low
 - 3. Where the only movement is ahead or left only provide cycle lane but not ASL. A cycle lane can be provided and staggered in front of the general traffic lane.

See Also TAL 5/96 - Further Development of Advanced Stop Lines http://www.roads.dft.gov.uk/roadnetwork/ditm/tal/cycle/05_96/index.htm



Photo 7.2

- Example of a segregated cycle track feeding cyclists into an ASL
- > Especially beneficial for right turning cyclists
- Cyclists need to give-way when the signals are on green.

Courtesy CTC

7.4 The ASL Approach Lane

- Must be provided to enable cyclists to bypass the first stop line.
- Width aim to provide 1.5m. [1.0m can be provided as a minimum width.]
- Approach lanes can be either mandatory or advisory.
- Mandatory lanes require a TRO and should be signed with 958.1 and 959.1
- Advisory lanes to be signed with 967. These are open to encroachment by other vehicles, but the benefits of providing the lane and ASL outweigh the disadvantages
- Approach lanes should be as long as possible to enable cyclists to bypass queuing traffic
- Where is hasn't been possible to provide a full approach lane, short 'stub' feeders have been provided. A full feeder lane should always be investigated first, but if unfeasible a 'stub' could be considered subject to consultation with NCC's Traffic Signals team and AIU.

7.3 The ASL Reservoir

- Nottinghamshire County Council's standard is to provide reservoirs at 5.0m deep. If site constraints mean that this is not possible the 4.0m minimum will be considered on an individual junction arm basis. Reservoirs any shallower than this do not allow cyclists to position themselves correctly.
- Stop line width to be 300mm for motorists, 200mm at cyclists' stop line.
- Red surfacing is provided as standard in the reservoir and on the approach lane.
- A cycle symbol (*diagram 1057*) should be provided in the reservoir and at start of the approach lane.



Photo 6.3

Approach lane to an ASL that starts on the nearside and then crosses a left turning lane

Courtesy ERCDT

7.5

The Location of the Approach Lane - Left Turning Traffic



Photo 7.4 Central feeder lane, Bristol

Courtesy CTC

- Normally provided on the nearside, but central and even offside approach lanes can be provided [subject to discussion with AIU]
- If the nearside lane is for left-turners only (and cyclists wish to proceed ahead), then a central approach lane can be considered (Photo 7.4). Advice suggests that cyclists have few problems positioning themselves correctly
- Start the cycle lane well in advance of the start of the left turn lane
- Central or right side approach lanes must be advisory, not mandatory

7.6

Impact on Traffic Capacity

- TRL Report 585 states that by installing an ASL 'capacity of junction is not significantly affected so long as the number of general vehicle approach lanes is maintainted' and therefore capacity should not be given as a reason not to provide ASLs in most cases
- > The depth of the cycle storage reservoir is less than 1 pcu and therefore has little if any impact on traffic capacity if no lanes are removed
- > The only impact on traffic capacity stems from the introduction of the approach lane, if this reduced reduces the number of traffic lanes
- Capacity could even be increased if cycle volumes are high as they are removed from general traffic, and can bypass queues
- 'experience shows that ASLs seldom affect signal capacity but may require slight re-timing of the intergreen periods' (LCN Design Manual 1998, 3.1.27) see also TRL Report TRL585

Road markings for ASLs are contained in the Traffic Signs Regulations and General Directions 2002 (<u>http://www.opsi.gov.uk/si/si2002/</u>). Further advice on layout is given in the associated Traffic Signs Manual, Chapter 5 (Road Markings)

7.7

Case Study: West Bridgford, Nottingham

Background

A programme of ASLs was introduced at many of the signalised junctions around West Bridgford from 2004 until 2006.

At most locations there was insufficient room and capacity to fit full lead-in lanes and therefore approach 'stubs' have been used.

Red surfacing has been used as standard on all lanes/stubs and reservoirs of the ASLs.



Photo 7.5 Musters Road, West Bridgford

Findings

- TRL Report 585 states that 'if the lead-in lane removes a general vehicle lane then the junction capacity may be reduced as much as 50%'. There was only one arm of a junction in the whole programme that a lane was removed (see Photo 7.5). As a result many complaints were received regarding this modification by the public. Alterations to signal timings did mean that although queue lengths through the junction increased, similar numbers of vehicles could still pass through due to an extended green period.
- 2) Compliance has generally been good. No additional signing has been used to warn drivers of the new layouts, although some publicity was released. A TfL (2002-2004) study found a 36% ASL encroachment rate by motor vehicles in London. In West Bridgford site observations have shown levels to be much lower - this could be due to red surfacing at all reservoirs and feeders (other parts of Country may have different policies on coloured surfacing). The fact that area wide ASLs were introduced rather than just is also likely to have helped.
- 3) Stub lanes A recent TfL Behaviour at Cycle Advanced Stop Lines study suggests that most cyclists can reach ASLs whether or not there are feeder lanes. Decision taken to install stubs in many instances because capacity did not allow for full-length approach lanes to be used.
- 4) Generally positive feedback from users.
- 5) The installation of ASLs have provided benefits for cycle safety and awareness raising of cycling in the town.