

5 Cycle Lanes

Design Objectives

- Create a 2.0m wide space for cyclists to travel in one direction at up to 25mph.
- Provide sufficient width in a cycle lane to overtake other cyclists without leaving the cycle lane.
- Reduce the speed /flow / mix of motor traffic to a level where cyclists feel safe using the carriageway by introducing speed limits and weight/height/width restrictions to exclude larger vehicles.
- Minimise stopping and starting to smooth the flow of cyclists along the route.
- Enable two-way cycling on most streets by providing for contraflow on one-way traffic systems.
- Eliminate unlawful footway cycling by making the carriageway the most attractive and convenient place to cycle.
- Create attractive high quality public realm areas/streets where all modes can share a common surface at low speeds.

Design Principles

Greater separation of cyclists from other modes is required with greater speed and volume of motor traffic, and on gradients where cycle speeds can be unusually fast or slow.

Speed/flow criteria for provision of cycle lanes

Cycle lanes offer a sense of route continuity and can be used on all roads with speed limits up to 40mph and flows up to 10,000 vpd. They help to define space for cyclists within roads. They do not however offer any sort of protection from passing vehicles and are generally preferred on roads with average speeds of 30mph or less, and without significant HGV traffic. Where space is restricted and there are fewer than 5,000 vpd, advisory cycle lanes may be provided by removing the centre lane to give a single two-way carriageway. This does not work on higher flow roads because opposing vehicles have to move into the cycle lanes to pass.

Common hazards

The main hazards for cyclists along link sections of a route are:

- Overtaking vehicles passing too close.
- Being struck from behind due to poor visibility or driver inattention (this is the only common collision on links, but usually results in serious injuries or death). This type of collision often happens on rural and unlit roads.
- Conflicts with motor traffic when passing occupied bus stops and loading bays.
- Insufficient space to overtake other cyclists within a cycle lane
- Unlawful stopping/parking of motor vehicles within cycle lanes.

Protected Cycle Lane

Protected Cycle Lanes (Light Segregation) use a separating feature to help provide an augmentation to the painted white line, while still enabling cyclists to leave the lane and enter the carriageway if necessary. This type of facility appeals to experienced cyclists used to riding on road and not losing priority at side roads, while still offering less confident cyclists some separation from other traffic. The presence of the protective features also has the effect of 'tightening up' side road entrances to help reduce turning speeds, reducing the likelihood of a cyclist being cut-up by a left turning vehicle.

The protection may range from lightweight bollards to pre-formed concrete kerbs laid at intervals and including 'armadillos' (pre-formed rounded plastic dividers) and reflective 'wands' (thin plastic bollards). Because they are permeable, there is usually no need to alter drainage unless the footway kerb is being moved. Parking bays may be provided alongside the protected lane to create an additional buffer to the live traffic lane.

Protected lanes can offer a way to try out using road space to create a cycle facility. In New York city, planters, traffic cones and temporary bollards were used to trial the impact of cycle lanes prior to installation of more permanent facilities bounded by kerbs.

The separation features should be discontinued at side road junctions where the cycle route will need to cross as an advisory lane. On busier roads a protective island and bollard may be required at the start of the protected lane to ensure that approaching drivers see the separation features in good time.

The separation features have no legal status so should be used in conjunction with continuous mandatory cycle lane markings (Diag 1041) and generally require about 0.3m width. Protected cycle lanes should ideally be 2.0m wide to allow for overtaking within the facility.

On busier roads a protective island and bollard may be required at the start of the protected lane to ensure that approaching drivers see the separation features in good time. Even on quieter roads the start points will usually require a vertical feature such as a bollard, and therefore an additional width (0.5m buffer) to accommodate. The spacing of the 'wands' and 'armadillos' is typically at about 2.5m centres (there are no regulations relating to the use of these features,).



Consultation Draft

Protected cycle lanes, Royal College Street, Camden



TRL test site for separation using Zicla Zebra, Wand bollards, and kerb separation for a cycle track.



Lane protected by bollards at factory entrance, Nottingham

Mandatory Cycle Lane

Mandatory Cycle Lanes are bounded by a solid white line which has the effect of excluding other types of vehicles from entering them. Mandatory cycle lanes should ideally be 2.0m wide to allow for overtaking within the facility.

Legal Issues: The lane must (until the 2016 revision of TSRGD) be backed up by a Traffic Regulation Order, which will prohibit vehicles from entering, proceeding or waiting in the cycle lane. Exemptions are provided for various purposes, including access to premises and loading.

Where a mandatory cycle lane is used, there is no legal requirement for double yellow lines as the cycle lane has the effect of prohibiting vehicular access to the kerbside, although the double yellow lines may be used to ensure compliance because they are widely understood and therefore more easily enforced.



Mandatory cycle lane

Advisory Cycle Lane

Advisory Cycle Lanes can be entered by other vehicles and always need additional markings to indicate any loading and parking restrictions. Cycle lanes should be 2.0m wide where traffic speeds and volumes are high, although a width of 1.5m is sufficient within most 30mph areas. Where carriageway width is restricted a 1.25m advisory lane on 'uphill' sections and on the approach to an advance stop line may be preferable to no lane at all. Removing surface gulleys and replacing them with kerb face gulleys can help to create a smoother area at the edge of carriageway when space is restricted.

Advisory or mandatory lanes can be provided in contraflow to the general traffic lane (see Chapter 7).

Cycle lanes may be installed to the nearside of parked vehicles, thereby using the vehicles as a protective barrier between cyclists and the lane of moving traffic (a buffer strip at least 0.5m wide to protect cyclists from car doors may be required if there is frequent parking activity).

On a 7.3m dual carriageway it may be possible to reallocate the lane markings to provide a 1.3m cycle lane and two 3.0m traffic lanes in each direction. This solution is appropriate within 30mph speed limits but a wider cycle lane or segregated track is required where actual speeds are nearer to 40mph or above.



Cycle lanes (or carriageway edge markings where the width is inadequate for lanes) may be used on low-flow suburban roads (<4000 vehicles per day) to change the 'feel' of the road to help reduce speeds. The residential parking on the left has been inset into bays in the footway to give a clear straight line to the cycle lane.

Coloured surfacing should generally be restricted to areas of potential conflict such as side road junctions and contraflow lanes or where lane markings are not permitted such as at zig-zag and bus stop markings.

Where a cycle track merges into an on-carriageway cycle lane the merge should be smooth and protected, not entering the carriageway from the side.



Cycle track joining carriageway at a protected merge, joining a mandatory cycle lane after the crossing, Northfield.

Cycle Lanes at Side Road Junctions

Cycle lanes should generally be continued (as advisory lanes) at side roads. Coloured surfacing can be used to highlight that this is a potentially hazardous location. It is important that the cycle lane is of adequate width on the approach to the junction. A narrow cycle lane may result in cyclists being more exposed to conflict with left turning vehicles.



This narrow cycle lane with drainage gully is uncomfortable and hazardous, placing cyclists too close to the kerb and potentially misleading drivers who will be turning left into the side road.

Where a 1.25 or 1.5m cycle lane is installed on the approach to a junction, it may be feasible to widen the lane to 2.0m at the junction mouth, to emphasise to drivers that cyclists on their nearside may be going ahead, and to encourage cyclists going ahead to move out from the most vulnerable position by the nearside kerb. This would reflect the instructions about road position that are given in Bikeability training.

Additional Diag 1057 cycle symbol markings may be installed across the junction mouth to further highlight the cycle lane.

Edge Markings, Hard Strips and Central Hatching

There are many roads where it is not possible to provide a cycle lane of adequate width, and where the lane widths (usually between 3.2 to 3.9m) may create hazards for cyclists due to close overtaking. The width of these roads often varies along a given length. It may be possible in such cases to use either central hatching or edge of carriageway markings to create a more consistent carriageway width and to effectively create a 'buffer' zone which motorists can use to overtake (central hatching) or that cyclists can move into in the event of feeling threatened by an overtaking vehicle (edge of carriageway). These have the effect of creating virtual cycle lanes and the visual narrowing of the carriageway can help in reducing vehicle speeds.