

## 4 Cycle Tracks within Highways

### Design Objectives

- Create a 2.0m wide space for cyclists to travel in one direction at up to 25mph.
- Provide adequate width for cyclists to overtake other cyclists without leaving the facility.
- The cycle track should generally be one-way adjacent to the flow of traffic on each side of the road.
- Two-way cycle tracks on one side of the road should generally be restricted to places where there are few side roads and there is a good set-back to enable priority at side road crossings, and where there is not much requirement to cross the road (i.e. infrequent side roads and attractors on opposite side). They are also valuable where they form logical links between other facilities such as a section leading to a toucan crossing, or where a cycle track crosses a road as a staggered junction arrangement.
- Minimise stopping and starting (at side roads, crossings and transitions to and from carriageways) to smooth the flow of cyclists along the route.
- Provide separate space for cyclists and pedestrians where their movements are likely to conflict.
- Shared footways alongside the carriageway are not generally acceptable over long distances unless there are very few pedestrians.
- Separate cyclists from pedestrians due to high speed differential.
- Manage conflicting movements around parking, loading and bus stop areas to minimise stopping.

### Design Principles

- Greater separation (increased spatial separation and/or separation by level difference) 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.
- Cycle tracks can be provided alongside any road where there is space and where they would offer a safe and convenient facility for cyclists.
- Cycle tracks usually require changes to junction geometry at side road crossings to help to slow down the turning movements of vehicles, or to provide the necessary set-back to enable the cycle track to have priority.
- There is no statistical evidence that cycle tracks alongside a carriageway are 'safer' than on carriageway cycling (because tracks alone do not eliminate conflicts at junctions where most collisions occur) but they contribute to 'perceived' safety by offering physical separation from motor traffic, and therefore help to encourage more people to cycle. Some Nordic design manuals recommend returning cyclists to the carriageway about 20m before side road junctions so that they can integrate back into the traffic flow, while the Dutch advocate segregation, but with clearly marked priority of either the cycle track or carriageway at every location.

## Speed/flow criteria for provision of cycle tracks

LTN 2/08 suggests cycle tracks or shared-use should definitely be considered where traffic flows exceed 10,000vpd and traffic speeds are above 30mph, and should be the first choice on roads in excess of 40mph and with more than 3,000-8,000vpd or 300-800vph.

This does not of course mean that they cannot be provided alongside less busy roads. There is an increasing public expectation that segregated facilities are required to encourage more cycling, particularly among children and the elderly. It is important that cycle tracks are suitable for existing experienced riders and the least competent and slow cyclists, and that requires adequate widths, surfacing of similar standard to the carriageway, and priority at side road crossings where this can be done safely.

## Common hazards

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

- Side road crossing collisions. A cycle track does not eliminate the common hazard of being struck by a left-turning vehicle unless the cyclist or the turning vehicle is forced to yield priority.
- Side road congestion. Even where the cycle track has priority, it may be blocked by cars waiting to exit a side road, which may lead to cyclists making risky manoeuvres of swerving into the main carriageway or crossing between slowly moving vehicles.
- Surface defects due to inadequate maintenance or poor quality construction such as potholes, loose slabs, poor drainage, fallen leaves.
- Insufficient space to overtake slower cyclists / pedestrians.
- Street furniture or trees causing a width restriction.
- Vehicle crossovers (often with poor visibility) where residential property is immediately alongside a transport corridor.
- Conflicts with pedestrians or with motor traffic when passing occupied bus stops and loading bays.
- Unlawful stopping/parking of motor vehicles within cycle tracks.

## Design

In general cycle tracks within the highway should be distinct and separate from pedestrians so that each mode has its own defined space because cyclists will typically be travelling up to seven times faster than pedestrians within a relatively confined strip along the edges of the road.

Cycle track separation from other modes-

- a level difference between cycle track and pedestrian and motor vehicle space is preferred. However a large kerb upstand can be hazardous, especially where width is restricted. A diagonal chamfered (K9) kerb can help cyclists to move between adjacent carriageway and footway space if necessary, reducing the chances of conflict and falling off due to catching a wheel or pedal on a right angled kerb. Depending on the circumstances, space for the cycle track may be taken from a lightly used footway, a verge, or from the carriageway. Where the kerb is being moved, there will often be a requirement to modify the drainage arrangements. Other factors that may add significantly to construction costs are services or tree roots close to the surface and these need to be

identified at an early stage in preliminary design. In some circumstances it may be possible to build up the level of an adjacent footway as a more cost effective alternative to excavation in order to create a level difference.



*Brighton's Old Shoreham Road with-flow hybrid (half-height) cycle track (Alex Sully). Manchester's Oxford Road (right) has a higher demand for parking and an adjacent bus lane, therefore more signing and lining is required.*

- A cycle track at the same level as the carriageway can be separated by a continuous kerb. The separation usually needs to be 0.5m wide to accommodate bollards at the start and end points, and to offer adequate separation of a 'buffer zone' where there are parked cars to the offside, but can be narrower by simply laying two adjacent kerbs on link sections (e.g. Hill St contraflow). This arrangement may require additional drainage or new connections to existing services. Kerb-face gulleys can be used to avoid metal gulleys within the limited space of the cycle track. Using chamfered kerbs can help to avoid cycle crashes due to wheels or pedals catching the kerb edge and also reduce the chance of injury in the event of a fall onto a kerb. This arrangement does cause additional trip hazards for pedestrians and formal crossing points are required for blind and wheelchair users.



*Kerb separated cycle track width should be 2.0m to allow for sweeping and overtaking, chamfered kerbs would be more forgiving than right angled kerbs.*

- Segregation from a pedestrian path using a raised white line (Diag 1041.1) or painted line (Diag 1041) where a cycle track runs alongside a footway. This is the least desirable but may be acceptable over short

distances or in low use areas. It is unlikely to be observed by users which can lead to conflict between pedestrians and cyclists in busier areas. Where the overall available width is less than 3.0m, it is usually better not to separate pedestrians and cycle parts of the path.



*Use of Diag 1041.1 raised white line to separate space within a footway level cycle facility*

- Segregation within shared footways and pedestrianized areas of highways using 'urban design' features to indicate preferred routes (different surfacing materials, small changes in levels, placement of benches, planters and other street furniture). These techniques are useful in core areas and heritage areas to help minimise street clutter and signs.



*Different colour and texture separates pedestrian and cycle sides of footway helping to minimise signing and lining.*

Street furniture (sign poles, lamp columns, letter boxes, telephone boxes, planters) must not be placed within the cycle track, and must be moved if an existing area is being converted into a cycle track.





Where a cycle lane or track passes a bus stop, a bypass may help to improve cyclists safety by removing the requirement to move into the traffic lane to the offside of the bus. This will be less satisfactory at busy bus stops due to more risk of pedestrian conflict. Two potential arrangements are illustrated here with shelters in different places. A flat topped speed hump is used where the pedestrians cross the track and in both cases cyclists are expected to give way to pedestrians. In the example on the right, the cycle lane continues on a straight line within the highway and the bypass is only used when a bus is present.



Car parking can be used as a 'buffer' between the cycle facility and the live traffic as in the examples above. Ideally 0.5m gap should be left to protect cyclists from car doors. This arrangement is useful for contraflow facilities where cyclists are facing the drivers and so are at less risk from car doors.

### Cycle Tracks at Side Road Junctions

The aim should be to develop a design that gives priority to the cycle traffic along the main road, as would be the case for on-carriageway cycling. This can be achieved by:

- Returning cyclists to the carriageway in advance of the junction;
- Cycle track crosses the junction at carriageway level;
- Cycle track crosses on a flat top hump at junction mouth (or set back from junction mouth)

- Cycle track and footway continue across junction and carriageway crosses them on a vehicle crossover (similar to residential drive arrangement).

It is important that the design and placement of Give Way lines and signs makes the priorities clear to all users.



*Cyclists return to carriageway ahead of left turn to a cycle lane offside of the turning lane. Only works for with-flow cycle facilities. (Phil Jones Associates)*



*Cycle track crosses side road at carriageway level (Alex Sully). The cyclist here has the same status as if cycling along the carriageway (only works for one-way with-flow cycle tracks)*



*Cycle track crosses on a raised hump set back (at least 5.0m) from junction mouth (Phil Jones Associates). Cycle track uses 'give way' on raised flat top hump. Works for one-way or two-way cycling (can legally be done in UK using Give-Way markings, buff tactile paving and shared ped/cycle crossing area).*



*Side road is interrupted by a continuous cycle track and footway, vehicles using the side road are forced to give-way (similar to a residential driveway cross-over). Works for one-way or two-way cycling. May need yellow lining (or Diag 1026.1 marking for minor culs de sac) to prevent parking over junction mouth. (Phil Jones Associates)*

## Consultation Draft

There are some specific issues associated with designing cycle track crossings at side roads:

- Cyclists at risk from vehicles turning left into the side road;
- Cyclists at risk from vehicles turning right into side road (particularly at two way cycle tracks and/or where cyclists are in contraflow with general traffic and also where vehicles are turning through 'gaps' in queuing traffic and their view of the cycle track is therefore obscured);
- Vehicles queuing within the line of the cycle track while waiting to leave a side road.

There is no universally correct solution to these issues as the preferred design will depend on the speed and volume of traffic, frequency of turning movements, visibility splays and the intensity of cycle and pedestrian use. Some examples of different layouts that help to give cyclists priority are shown above and in the design appendix.

On busier roads, with higher speed limits, or with high proportion of HGV traffic the cyclist would normally be required to Give-Way and wait for a safe gap in the traffic flow.

### **Legal aspects of cycle tracks within the highway (adjacent to footways and carriageways)**

#### **Converting an existing footway (adjacent to carriageway & within maintainable highway) to permit cycling**

##### *Procedure - Highways Act 1980*

To convert all or part of a footway to cycle track, all or the appropriate part of the footway must be removed under section 66(4) of the Highways Act 1980, and a cycle track 'constructed' under section 65(1) of the act. No physical construction is necessary but there needs to be clear evidence that the local highway authority has exercised these powers. This can be provided by a resolution of the appropriate committee.

Clearly there will be some 'works' if only the erection of signs to denote the change of use. It is good practice to consult with existing users and give prior notification of carrying out the necessary works. The designers should also consider any implications relating to the Equality Act for users to ensure that access for all is still possible.

#### **Widening the footway to create a Cycle Track**

*Procedure - General Permitted Development Order and Highways Act.* The highway authority has powers under the GPDO to widen the existing highway to create or widen a footway without the need to seek planning consent. It also has powers under the Highways Act 1980 62 (4) to "alter or remove any works executed by them ..."

The cycle track can then be created under the powers described above if all or part of the resulting footway requires conversion. Alternatively, it may be created just as a cycle track, if that is the sole purpose of the widening (Highways Act 1980 65[1] - a highway authority may create a cycle track "in or by the side of a highway")

#### **Greenfield site, compulsory purchase**

Sometimes there is no suitable public space within the highway boundary but the adjacent land may be vacant (i.e. not existing highway land). There is a need to acquire land from landowner [by Compulsory Purchase Order] to enable use by pedestrians and cyclists

*Procedure - Town and Country planning Act 1990 to create the cycle track as 3 above and Highways Act 1980.*

General powers to acquire land are provided by the Highways Act 1980 s239. Where local authorities find it necessary to resolve to exercise compulsory purchase powers they can do so either to improve the highway or to promote countryside access. The former is more commonly known about and better understood but the latter does provide opportunities to create facilities that have a low utility component. For more information consult appropriate staff or see The Compulsory Purchase Manual DTLR 2001.

**Greenfield site, dedication of land to the highway for the creation of a cycle track**

*Procedure - Highways Act 1980 and Town and Country Planning Act 1990:* Sections 37 and 38 of the Highways Act provide a means for land to be dedicated as public highway. Since the Act does not refer to the nature of the use, simply referring to dedicating a “way as a highway” this may be interpreted as meaning that land may be dedicated to serve any function acceptable to the highway authority e.g. footway, cycle track, carriageway etc. This is analogous to agreements between developers under s38 where the status of the highway so dedicated is confirmed by the plans accompanying the agreement and the works subsequently carried out.

It is worth noting that dedication to the highway is often confirmed by the signing of the s38 agreement not the physical completion of the carriageway, footway, cycle track etc. This enables the highway authority to exercise its various powers to do works within the highway to complete any outstanding construction works in the event of the failure of the developer to complete their obligations under the agreement. This also indicates that the dedication to the highway is not dependant on works being carried out by the landowner prior to that dedication.

Where the cycle track is to be created by the highway authority, consent under the Town and Country Planning Act 1990 will be required for the change of use and engineering works to create the cycle track.