

## B.01 Connections and Links

### Key Principle

Additional off-carriageway links can offer enhanced permeability, potentially safer routes for cyclists and advantageous journey times compared to motor traffic. These need to be designed, built and maintained so that they achieve their intention of drawing cyclists away from less attractive routes on the carriageway.

The measures available to create cycle links can range from a cycle gap in a road closure to the construction of a new bridge. To be effective, cycle links should be clearly signed, direct and relevant to cyclists' needs.

### Design Guidance

#### Cycle network links and connections

Cyclists with no option other than to use the carriageway often have to travel further than is necessary and use roads that are not best suited to their needs. This situation is often made worse by the use of techniques designed to increase network capacity for motor traffic, such as the creation of one-way systems. The creation of additional cycle-specific links in the network can be used to mitigate the effects of using road systems designed for motor traffic and enhance the permeability of the cycle network. Such links should be clearly signed, direct and relevant to cyclist's needs. Those created away from the carriageway need to be designed, built and maintained so that they achieve their intention of drawing cyclists away from less attractive routes on the carriageway. The design of the facilities should also take into account the need to ensure the personal safety of its users.

#### Adding cycle links

Cycle links may be used to provide short cuts or to avoid unpleasant on-carriageway conditions. Sometimes a completely new one is required but they can often be created by adapting existing facilities. For example, roads closed to general traffic can be opened to cyclists or pedestrian-only facilities can be converted to joint pedestrian and cycle use. Care needs to be exercised when doing the latter to ensure that improvements for cyclists take proper account of the effect on pedestrians. Other measures available to create cycle links can range from linking the ends of culs de sac to the construction of a new bridge.

Special attention should be paid to overcoming difficulties posed by such things as connections between links and the wider highway network, blind corners, or the need to cross pedestrian routes.



Cycle gap in a road closure, Neville Street, York

Picture: Steve Essex

Road closures provide local residents with a more pleasant environment and hence an incentive to cycle. Where such closures are introduced, cyclists should always be exempt from the traffic regulation orders and catered for by suitable gaps in the closure (see [A05 Exemptions from TROs](#)).



Cycle gap at a signalised junction, Bootle

Picture: Steve Essex)

In urban areas, radial roads which have been closed to through-traffic can provide cyclists with ideal strategic routes, often combining the benefits of a high quality road surface with direct access, attractive surroundings, and very little traffic. Closures can be created by, bollards, gates or where necessary rising bollards. They may also be effected by appropriate signing. At signal controlled junctions cycle gaps can also be included by closing one arm of the junction to motor vehicles.



Road closure and cycle gap creating a direct and virtually traffic-free radial route into Oxford town centre

Picture: Patrick Lingwood

### Links across Parks

Introducing cycle tracks across large parks can remove significant barriers for cyclists and often create attractive alternatives to more heavily trafficked routes. Ideally such cycle tracks should follow a direct path, be wide, well lit, and accessible for as many hours of the day as there is a demand by cyclists. Natural surveillance by other users of the link and from overlooking properties enhances personal security. This can be enhanced by setting back vegetation the edge of the cycle track to provide adequate sightlines between users and around corners.



Adjacent use cycle track and footpath segregated by white line, Edinburgh

Picture:  
Steve Essex



Footpath crossing a cycle route, Stockport

Picture:  
Steve Essex

It may not always be necessary to segregate pedestrians and cyclists on such facilities - it may represent a better use of resources to widen the pathways or to highlight points where conflict can be expected, particularly at junctions or sharp corners. Consultation will help in establishing a balance between the needs of the visually impaired and the visual intrusion that may be a problem in sensitive areas. In particularly hazardous locations, bollards, vertical humps or rumble strips can be used to alert and slow down cyclists.



Junction highlighted with coloured paving

Picture:  
Steve Essex

Traffic hump for cyclists on approach to pedestrian route

Picture:  
Patrick Lingwood



The quality of access to parks and other public open spaces is critical to their success as links. Often the start and finish points of these links create the greatest hazards. Links should connect to the road network with high quality road crossings where necessary. Designers should be aware that access which is adequate for pedestrians may not be suitable for cyclists. A well designed link will satisfy the five core principles for pedestrians and cyclists, i.e. it will be [Convenient, Accessible, Safe, Comfortable and Attractive](#) (see also [C07 Cycling and New Developments](#)).

## Other locations

There are many other places in urban areas which offer the potential for creating useful cycle links. These include paths alongside rivers and canals, disused railways, existing footways, and paths and roads through residential and commercial estates.

In all cases, it is important to pay attention to how the links connect with other parts of both the cycle route network (on and off-carriageway) and the wider road network. The links should be clearly signed. Where vandalism of upright signs is a problem, signs made of steel (with a low scrap value) with a protective surface to make graffiti cleaning easier can be used. If signs are being vandalised for the sake of it (i.e. theft is not the reason), it may be acceptable to apply the sign to the cycle track surface. However, the signs will have no authority under TSRGD.



Before



After

Upgrading existing routes by removing barriers and applying a high quality bound surface can lead to an increase in cycle use: Thames river path, Wokingham

Pictures: Patrick Lingwood



Directional cycle sign applied to cycle track surface, Swindon

Picture:  
Patrick Lingwood

## Short off-road links

Where traffic flows and speeds allow, cyclists should generally be catered for on the carriageway rather than on converted footways. However, there are occasions when the conversion of a footway to shared/adjacent use may be the best way of creating a link that maintains levels of perceived safety. One such example would be where two quiet sections of a cycle network connect with a busy major cycle route on either side of the road, but not quite opposite each other. In these circumstances it may be preferable to create the link between them off-carriageway.

Ramp created to open up cycle access to a cul de sac

Picture: Alex Sully



Short off-carriageway cycle link alongside a major road, Stockport

Picture: Steve Essex

## Major links

The concepts and techniques covered so far in this chapter are all relatively small in scale. Designers of cycle networks will sometimes have to consider ways of crossing major barriers such as large roads, railways or rivers. When planning a road scheme, it is preferable to include high quality cycle and pedestrian links from the outset, rather than try to retro-fit them later. Where a bridge or a similarly expensive facility is necessary, the capital cost should be weighed against the opportunities that it might create for all of its likely users.



Cycle track under inner relief road, Taunton

Picture: Alex Sully

New bridge for cyclists and pedestrians, Exeter

Picture: Alex Sully



## Attractiveness

Cyclists will find connections and links formed by cycle tracks alongside carriageways more attractive if their route is set as far away from the roadside as possible. In urban areas this will rarely be practicable but in rural and semi-rural areas the creation of landscaped or planted margins between the road and the cycle/pedestrian route will greatly enhance the experience of users. If this margin is sufficiently wide it can also help avoid the problem of cyclists riding towards on-coming traffic being dazzled by headlamps at night. It also makes it less likely that motorists would be confused by seeing an on-coming white bicycle light on their near side.

Where new road schemes are to feature parallel cycle tracks the need to acquire additional land to achieve this should be considered as part of the project's early development. Any issues of personal security arising from this approach should also be addressed at that stage.

## References

[Manual for Streets](#) DfT, Communities & Local Government 2007

[LTN 2/08 Cycle Infrastructure Design](#) DfT 2008

[Manual for Streets](#) Various 2006

[London Cycling Design Standards – A guide to the design of a better cycling environment](#) (Sections 3.4, 3.5, and 3.6) TfL 2005

[Cycling England Gallery](#) pictorial examples

[CTC Benchmarking](#) – Best practice case studies

[National Cycle Network – Guidelines and Practical details](#), Issue 2 Sustrans 1997

## Other references

[Cycle Friendly Infrastructure - Guidelines for Planning and Design](#) Bicycle Association et al 1996