

Cycle Streets

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Summary

Key Characteristics

- A main cycle route which is open to motorised local access traffic.
- Carries low levels of motor traffic, with potentially high levels of cycling
- Provides cyclists with a level of service comparable to that provided by a high quality traffic free route
- Differs from a quiet street in that through its design and high level of cycle use, cyclists are encouraged to assume priority over motor vehicles.

Benefits

- Empowerment of cyclists through a design that sends clear messages to all users that cyclists are being given priority
- Attractive for all types of cyclist
- Improved cyclist safety
- Improved route legibility
- In addition there are benefits to drivers, pedestrians, local residents and businesses.

Essential Criteria

- Street should carry at least as many cyclists as motor vehicles, with the potential for cyclists to outnumber drivers by a factor of at least two to one.
- Street should carry no more than 2000 motor vehicles per day, accessing local destinations, with minimal use by large vehicles.
- Street design should encourage cyclists to assume priority and drivers of motor vehicles to behave as 'guests'
- Convenient and direct route between key destinations
- Cyclists should have priority on the road itself but also right of way at junctions to increase convenience; the street must be physically recognisable, including from side roads
- The length over which a car has to follow a cyclist should be limited to 400m.

Typical Cost

- Between £100k and £200k per km for basic provision
- Cost could reach £500k or more if expensive materials are specified

Expected Outcomes

- More and safer cycling
- Reduced traffic volumes and speeds

What is a Cycle Street

A Cycle Street is a street which is a main cycle route but which is open to motorised local access traffic. It is part of a longer main cycle route, other sections of which may typically comprise quiet streets, traffic free paths or segregated / hybrid provision alongside busy roads. It should carry low levels of motor traffic, high levels of cycling, and provide cyclists with a level of service comparable to that provided by a high quality traffic free route.

A Cycle Street differs from a quiet street in that through its design and high level of cycle use, cyclists are encouraged to assume priority over motor vehicles.

Compared to a traffic free route, a Cycle Street can provide a high quality of provision for cyclists whilst offering improved accessibility, better personal security and less use of space.

The objectives of a Cycle Street are to:

- Present a legible design recognisable to all types of user as a main cycle route
- Influence behaviour so that cyclists assume priority with drivers of motor vehicles behaving as 'guests'
- Maintain priority and safety for cyclists
- Attract experienced cyclists as well as less confident cyclists

These objectives are largely achieved through the design features of the street rather than regulation. Typical features that may be encountered on a Cycle Street include:

- Cyclists sharing the same road space as motor vehicles
- Use of surface markings to encourage cyclists to position themselves in the primary position
- Redesign of junctions to reinforce this behaviour
- Cyclist priority at junctions
- Speeds of 20mph or below
- Narrow street profile
- High level of cycle use
- More cyclists than drivers
- Psychological and physical traffic calming
- Contraflow cycling on one-way streets
- Road closures /banned turns with exemption for cyclists

Benefits of a Cycle Street

A Cycle Street will differ from simply signing cyclists through quiet residential streets in a number of key respects, including:

- Empowerment of cyclists through a design that sends clear messages to all users that cyclists are being given priority

- Attractive for all types of cyclist (experienced and less confident) due to the directness and convenience of the route
- Improved cyclist safety through greater prominence and visibility of cyclists and reduced dominance and speed of cars
- Improved route legibility that avoids reliance on signing

In addition to the benefits for cyclists, there are potential wider benefits:

- Benefits to drivers through clarity of the status of the route
- Improved environment for local residents and pedestrians through reduced speeds and urban design features
- Potential economic benefits to businesses through an enhanced street environment

Outcomes

There is little information available evaluating the outcomes of Cycle Streets in other countries. However, before and after counts on the (longest Dutch) Cycle Street in Oss in 2004 saw a cycling increase of 11% and reduction in motor traffic of around 30%.

Practice in other Countries

Over the past decade, Cycle Streets have become common in Germany and Holland, and more recently in Denmark and Belgium. Similar concepts also exist as “Bicycle Boulevards” in the US; Berkeley has been developing these since the 1980s.

There is no universal agreement on criteria for a Cycle Street, with each country having different standards, some with legal status others not, however there is some published guidance:

- *CROW Design Manual for Bicycle Traffic*
- *CROW Cycle Streets on Main Cycle Routes (in Dutch)*
- *Presto Cycling Policy Guide – Cycling Infrastructure*
- *Cycle Streets with mixed use - Utrecht*
- *Cycle Roads*
- *Bicycle Boulevard Guidebook*

As user behaviour in a Cycle Street is largely governed by the design, having a legal status that affords cyclists priority is not essential to the development of a scheme. However, the use of a specific Cycle Street sign is recommended to inform drivers that this is different from other minor roads (see below).

UK Experience

The first UK trial is being conducted on Jack Straw Lane in north Oxford. This scheme was implemented in 2013 and has received a [mixed reaction](#) from cyclists. The scheme cost around £70k for a length of some 400m. Before traffic counts on Jack Straw Lane showed about 1400vpd with around 50% cyclists; after data is not yet available.

Initial indications are that the design may not be encouraging cyclists to adopt the primary riding position, which might in part be due to the street being on a hill such that cyclists in the uphill direction are travelling relatively slowly.



Key Design Principles

The guidance available from other countries (largely The Netherlands) points to a number of key principles for the design of a successful Cycle Street:

- Must be a main cycling route through residential areas where car traffic is low and cycle traffic is high (see below).
- Convenient and direct route between key destinations
- Cyclists should have priority on the road itself but also right of way at junctions to increase convenience; the street must be physically recognisable, including from side roads
- Addresses real and perceived conflict issues between cycles and motor vehicles
- Design should encourage cyclists to adopt the primary riding position or ride two abreast, with drivers of motor vehicles behaving as 'guests'
- Available width should discourage drivers from overtaking
- The street can be one or two way for motor traffic
- Traffic speeds to be low – generally below 20mph
- Minimise nuisance caused by parked vehicles
- Where parking / loading is permitted, the design should take account of variation in use of the kerbside space throughout the day and the effect on user behaviour at times when parking / loading space is unoccupied
- Design should include public realm improvements
- Take account of any local concerns that may be addressed by the scheme

The Dutch design guidance is that a Cycle Street should carry at least 1000 cyclists per day, and recommends that cyclists should outnumber drivers by a factor of two to one. If that intensity ratio is not achieved consideration should be given to reducing the level of motor traffic and / or increasing levels of cycling.

Guidance on the level of motorised traffic that is acceptable on a Cycle Street varies between 1000vpd and 3000vpd, in The Netherlands and Germany, with minimal use by large vehicles.

Guidance for Bicycle Boulevards recommends motor vehicle flows of below 1500vpd. No minimum level of cycle use is suggested, so Bicycle Boulevards would appear to encompass a wider range of mixed use scenarios and so are more like quiet streets than Cycle Streets.

Cycle Streets do not necessarily prevent overtaking, but the design discourages it and reduces the frequency of occurrence.

There is no specific guidance on the maximum length for a Cycle Street. The Belgian fietsersbond indicates 200m would be on the short side, but 500m is too long, but it should be noted that Belgian regulations do not permit overtaking in a Cycle Street. A Cycle Street that is too long causes stress for road users (eg cyclist with car behind – even if the car isn't pushing). Longer cycle streets can be achieved if one-way for motorised vehicles and the direction of this changes at intervals so cars have to turn off but cyclists continue, or through other measures such as filtered permeability.

Dutch guidance is that where a solid central reservation (uncrossable) forces drivers to stay behind the cyclists the length is generally limited to short stretches of up to 300m.

The Fietsstraat in Oss is about 2.5km long in total, but uses different designs along the route.

For the purposes of a UK pilot, we recommend that:

- *a Cycle Street should carry at least as many cyclists as motor vehicles, with the potential for the measures introduced to increase levels of cycling and reduce traffic volumes such that cyclists to outnumber drivers by a factor of at least two to one.*
- *a Cycle Street should carry no more than 2000 motor vehicles per day with minimal use by large vehicles*
- *the length over which a car has to follow a cyclist be limited to 400m. A longer Cycle Street could be achieved by designing the street in sections between which cars have to turn off.*

Design Options

Some valuable lessons can be learnt from the guidance produced by those countries which have developed Cycle Streets / Bicycle Boulevards, and some key points are outlined below.

However, it is important to acknowledge that the situation in the UK differs from elsewhere and so it will be necessary to trial schemes that draw on this international experience but adapt it to the local context.

Where development of a Cycle Street is part of a more comprehensive improvement to a main cycle route, the potential for increased cycle use will be an important consideration.

Cycle Streets in The Netherlands

The Dutch use four basic designs:

1. Residential street
2. Cyclists on a wide advisory strip either side
3. Cyclists in the middle (either a narrower lane one way for cars, and / or darker coloured, sometimes raised, paving either side
4. Separated lanes with hump or raised paving in the middle

Type 1: Residential street



- Quiet with no specific markings.
- Tarmac surface and narrow carriageway of 4.5m width desirable.
- Traffic intensity below 500 motorised vehicles / day

Due to lack extra measures this is not very recognisable as a cycle street and so the automatic right of way needs to be enforced in a different way, eg red road surface, adjust junctions.

Type 2: Cyclists on a wide advisory strip either side of the road



- Advisory cycle lanes 2m wide.
- Width of central path for motor vehicles, 3.5m max
- Traffic intensity in case of 2 way street <500 motorised vehicles / day, 1 way 2,000 motorised vehicles / day
- The space for motor vehicles often in block paving, with tarmac in red for cyclists.

Type 3: Cyclists in the middle



- Carriageway width 4.5m
- Central cycle path (in red) 3m width
- Border strip 0.75m
- Tarmac in the middle, darker paving either side (or one side if one way for motorised vehicles). By encouraging cyclists to use the middle of the road, they automatically become much more visible for drivers.
- In one direction (with contraflow for cyclists): 2,000 motorised vehicles / day. Some guidance only recommends this design where motor traffic is one way.

The main concerns with this specific type are:

- Motorised through-traffic using the route as a normal (one way) road. Mopeds are a particular concern, using the route as a racing track.
- None of the road users really know where they're supposed to be and some drivers (and cyclists) expect the cyclists to move onto the paved strip when cars arrive, causing conflict. In some situations this was resolved by adding an interrupted line in the middle of the road (eg below).



Type 4: Separated directions



- The two directions are separated by a line, a crossable central reservation or a solid central reservation.
- A crossable central reservation would make the lanes 2m wide with a 0.6m wide paved strip on the outside (similar to type 3)
- The Netherlands' longest cycle street in Oss is this type (pic above).
- 500-1,000 motorised vehicles / day
- A solid central reservation (uncrossable) forces drivers to stay behind the cyclists. This situation is generally limited to short stretches of max 300m.

Bicycle Boulevards in the US

In the US Bicycle Boulevards tend to be of the Type 1 design above, with the nature of the route being indicated by signage (including cycle symbols on the carriageway), traffic calming, traffic reduction (e.g. point closures and banned turns for motor vehicles) and junction treatments.

Community engagement

Local engagement will be needed in the development of Cycle Street proposals to trial in the UK. This will need to include the local community and local cyclists who would use the Cycle Street.

Key messages from establishing new bicycle boulevards in the US include:

- Described as well-loved in each community, but significant opposition can be met where changes to traffic/access are likely
- Public involvement in the planning and design of the bicycle boulevard is key.

Conflict with pedestrians does not appear to be an issue for Cycle Streets, but the needs of pedestrians should be fully considered at the design stage.

Signing

There is no internationally agreed sign for a Cycle Street, and practice varies even within countries. Appendix A shows examples of signs used in other European countries. Belgium now has an official “fietsstraat – auto te gast” sign in its regulations (the term Fietsstraat was made an official concept in February 2012).

The Oxford scheme uses the standard blue rectangular advisory cycle route sign (Diag 967) at each end of the scheme. However, this does not indicate to drivers that this is anything other than a typical minor road.

For further UK pilots we recommend agreeing a new signing arrangement with DfT drawing on examples from elsewhere in Europe. This would need to consider signing the end of the Cycle Street as well as the start.

As a Cycle Street design should include features that are intended to influence the behaviour of users, signing will be a means of explaining and reinforcing those visual messages. As such signing will be an important feature of the scheme that complements the street design.

Developing signing for a Cycle Street scheme would require liaison with DfT to agree a sign design that they would authorise for a trial. This process would benefit from a prior recognition by DfT of a Cycle Street as an entity, whether formally as with a Home Zone or more loosely as in a Shared Space scheme, both of which have specific signs.

Monitoring and evaluation

As Cycle Streets are a new feature in the UK it is essential that all new schemes are monitored and evaluated. A pilot scheme is due to be implemented in Lambeth during 2014 and this will include the development of a methodology which will be included in future updates of this Note.

Costs

Broad estimates of the likely cost of implementing a Cycle Street suggest between £100k and £200k per km for basic provision. This compares to a cost per km on Jack Straw Lane of some £175k, which includes some works to junctions at either end of the scheme.

Most sophisticated schemes will be more expensive, for example the 2.5km fietsstraat project in Oss cost €2m.

APPENDIX A: SIGNING EXAMPLES

