CMbike
Central MeetBike

Fact Sheet H-06 – Rural Cycling (daily and leisure routes)

Necessity of rural cycle facilities

Cycle connections through green or rural areas should be included in the planning of a bicycle network (see Fact Sheet H-01). Consideration should be given to the type of network (national, regional or local) and the importance for bicycle tourism. However cycling facilities should always be provided when cycling-specific trip attractors and trip generators are present or the distance between built-up areas is less than 10 km.

The choice of cycle facility is largely dependent on the design class of the accompanying street. The main factors to be considered when selecting facility type are the same as those discussed in Fact Sheet H-02 – Cycling Facilities on the Road:

- volume and speed of motor vehicle traffic,
- volume of heavy goods vehicles (HGV) and
- bicycle traffic volumes

Similarly, other considerations include: presence of pupils or other vulnerable users, blind curves and street gradients

An additional consideration for rural cycle facilities is the purpose of a route. Routes that are important for leisure cyclists are more likely to be along cycle facilities independent of any street alignment due to the recreational value of the surrounding landscape (e.g. along rivers or through nature preserves). Routes for daily cycling, however, should provide direct connections and are traditionally, in rural areas, parallel to roads. Direct, stand-alone connections can make daily cycling more attractive

Types of rural cycle facilities

Allowing cyclists to ride in mixed traffic on the carriageway is only recommended for rural roads with a maximum daily motor vehicle volume of 4000 vehicles per 24 hours (veh/24h) and motor vehicle speeds not exceeding 70 km/h. It is also particularly important to consider the width of the carriageway. Narrow carriageways below 6 m ensure that drivers stay behind cyclists in case of oncmoing traffic before overtaking. Here, lower speed limits can be considered. Though paved shoulders on the carriageway can be suitable for riding on, they do not sufficiently meet the safety needs of cyclists. Current pilot projects in Germany are testing the use of advisory lanes on rural roads (see right).

In all other cases cycle traffic should be provided infrastructure separated from the carriageway. Off-carriageway facilities can be divided into two categories: cycle paths parallel to the carriageway and stand-alone greenways or multi-purpose recreational paths.

Cycle paths running **parallel to the carriageway** are generally built on one side of the carriageway but for two-way cycle traffic. Depending on pedestrian and cyclist volumes, it may be advisable to plan infrastructure for integrated use under specific design standards.

Providing cycle paths on both sides of the carriageway can increase access to and connectivity between destinations by eliminating the need to cross the road. These can accommodate two-way cycle traffic where appropriate. Two-way cycle paths on both sides of the road can be useful in certain situations, e.g. scattered developments on both sides of the road, access to popular, individual destinations.

Greenways, multi-purpose paths for non-motorised users independent of a road alignment, can be constructed to provide direct connections for bicycle traffic between residential areas, busi-

Advisory lanes on rural roads

Currently, the German Highway Code does not allow advisory lanes on rural roads due to insufficient experience. A pilot project covering 15 test segments in five German states is expected to provide insight into the effects of advisory lanes on safety, acceptance and behaviour through a before and after analysis. The project runs through the end of September 2014.

ness districts in towns or other popular destinations where infrastructure for motor vehicles does not exist, thus increasing cycling's attractiveness, in particular for daily use (bicycle highways). Greenways can also be used for touristic or recreational purposes, such as a long distance bicycle touring route along a river or the repurposing of a rail right-of-way for cyclists and other non-motorised uses (see rails-to-trails).

Design elements

The safety aspects of designing bicycle facilities along rural roads and outside of built-up areas are similar to safety requirements in built-up areas: The two major considerations are visibility and clearance distances. Because motor vehicle speeds on rural roads can reach in excess of 70 km/h, it is important to provide sufficient distance to the carriageway due to

- Vehicles veering from the road
- Vehicle noise and exhaust
- Spray of dirt and water from vehicles

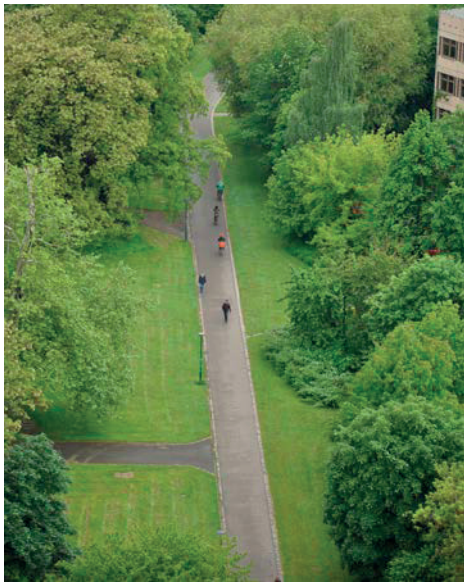
At the same time, cycle paths running parallel to the carriageway should not be too far removed so that visual contact between motorists and cyclists is maintained and social control of the path through other road users is possible. A separation width of 1,75 m is recommended in German design guidelines. At this distance it is also easier to bring the cycle path alongside the carriageway at intersections (see Fact Sheet H-04 – Intersections). It is likewise important to maintain a high level of visibility amongst cyclists by avoiding greenery which obstructs sight lines in curves and maintaining a relatively flat curvature of hills.

In general, cycle facilities outside of built-up areas are regional connectors. As such, facilities should be designed to allow cyclist speeds of up to 30 km/h, particularly for routes with few intersections. Cycle paths parallel to the carriageway should, in most cases, follow its alignment. It may be necessary to raise or sink the cycle path relative to the carriageway in order to reduce the incline for cyclists. If cyclists are at eye level with vehicle headlights, care should be taken to provide protection against glare. According to German design guidance, cycle paths outside of built-up areas should have a width of at least 2,50 m.

The alignment of greenways is independent of a carriageway and should generally be designed to fit the local terrain. This adaptive form of alignment is less environmentally invasive and generally less cost-intensive than an alignment with a lot of cut and fill.

The two main alignment elements are curve radii and slope. With a design speed of 30 km/h, German guidelines recommend a radius of at least 20 m for paved surfaces. Unpaved surfaces are not as resistant to skidding and should have a radius of at least 35 m. While changes in elevation may be unavoidable, the slope should be kept gradual.

Where large numbers of touring and/or daily cyclists are to be expected (touristic routes or bicycle highways), it may be advisable to provide individual cycle and foot paths separated through a physical barrier (planted median) or surface marking.


Greenway connection in Leipzig (source: Radka Žaková)

Rails-to-trails

The discontinued use of rail rights-of-way provides an opportunity to convert disused land into attractive cycle (and multi-use) paths with relatively little effort. A major advantage of repurposing old rail lines is that they provide unbroken, long-distance connections free of conflicts with motor vehicles. Because trains can only overcome low gradients, the terrain is optimal for cyclists. Likewise, adapting old rail lines prevents the land from falling into a state of disrepair.

Lessons learned: Rural cycle facilities increase connectivity for daily cyclists and provide opportunities for leisure cycling. Separation from the carriageway is often necessary due to high vehicle speeds. Cycle paths should be far enough from the carriageway to minimize conflict with swerving vehicles and exposure to noise, exhaust and vehicle spray, yet close enough to ensure visual contact between cyclists and drivers. Greenways increase connectivity for cyclists where road infrastructure does not exist.

For further resources, links and best practice examples visit the Sustainable Urban Transport Project website: http://www.sutp.org/

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Contact: Jan Schubert / Dr. Frank Ließke (after September 2014)
Tel.: +49 351 463-390 44 / +49 351 465-366 68
Email: jan.schubert1@tu-dresden.de / frank.liesske@tu-dresden.de
Contributing authors: Prof. Dr.-Ing. Gerd-Axel Ahrens, Jan Schubert, Kevin Vincent
Photo: Jan Schubert (TUD)

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