

Providing for cycling and the public realm

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Overarching design considerations

- A cycle is a ‘vehicle’
- On-road design speed 15mph, off-road 10mph
- Ideally, there should be no need for ‘special’ facilities for cyclists
- A people-orientated environment will be a cycle-friendly one



- In many respects bicycles have more in common with (slower moving) motor vehicles than pedestrians in terms of issues like stopping distances and turning radii.
- However, many cyclists are capable of much higher speeds. But there will also be locations, particularly in well-used pedestrian priority areas, where lower cycling speeds (<10mph) are desirable.
- Minimising the volume and speed of traffic will facilitate this.
- An environment in which the needs of non-motorised users are generally prioritised.

The hierarchy of provision for cycling

- Traffic reduction
- Speed reduction
- Junction treatment, traffic management
- Cycle lanes, cycle tracks created by reallocation of carriageway space
- Conversion of footways/footpaths to unsegregated shared-use



Picture of an on-road cycle lane with a bold white line, illustrating that special provision for cyclists invariably requires the introduction of additional visually intrusive measures / clutter.

The five core design principles

- Convenient
- Accessible
- Safe
- Comfortable
- Attractive



- Provision should allow cyclists to go where they want, and offer an advantage in terms of directness and / or reduced delay compared with existing provision.
- Cycle routes should form a network linking trip origins and key destinations including public transport access points.
- Safe, in both real and perceived terms, from the threat of motor traffic and personal attack.
- Cyclists benefit from even, well-maintained and regularly swept surfaces with gentle gradients.
- Aesthetics, noise reduction and integration with surrounding areas are important. The cycling environment should be attractive, interesting and free from litter, dog mess and broken glass.

The design principles outlined above could also be applied to provision for pedestrians, and apply to off-road and on road facilities. Indeed, most networks will be a mixture.

Invisible infrastructure

- Road pricing / congestion charging
- Car park management
- Traffic calming
- Redistribution of the carriageway
- Land-use policies
- Travel plans (including PTP)
- Innovations like ‘Shared Space’



Cycle-specific infrastructure should not be introduced without first establishing whether cyclists' needs would be better met through demand management or traffic management measures that reduce both the volume and speed of motor traffic. A broad range of invisible infrastructure approaches is available to local authorities. These include:-

- Road pricing/congestion charging to discourage traffic from using roads within the central core area of towns and cities,
- The management of car parking through cost and availability, workplace parking charges and the creation of residents' parking areas,
- Traffic management and calming measures including vehicle exclusion, homes zones, area wide 20 mph zones etc,
- Redistribution of the carriageway such as the introduction of bus lanes or widened nearside lanes,
- Land-use and development policies that reduce the need to travel and encourage reduced reliance on private car use,
- Public transport policies, infrastructure and services that create a viable alternative to car use and facilitate multi-modal journeys such as bike and rail,
- The encouragement of workplace and school travel plans, including individualised travel marketing
- The introduction of innovative treatments such as 'Shared Space' urban areas.

Signs

- Size
- Mounting
- Position
- Necessity
- Local distinctiveness



On this, and subsequent slides, illustrations that relate to the bullet points - showing good and bad practice.



Although obviously not an urban scene, the problem illustrated is often replicated in towns and cities.



While neither is particularly pretty, the signing arrangement bottom right does at least look 'logical' / visually coherent.



The variable message sign lights up each time a cyclist approaches it during the core shopping period when cycling is prohibited. Is the treatment reaction proportionate to the seriousness of the 'offence'? What would a better design solution have been?



A neat solution to the issue of advising cyclists where their route progresses through a busy part of inner London. Note that the roundels are sized to fit the top of the metal bollard, and thus look in proportion.



Part of a riverside route through central Lancaster. Here, the signage / interpretative material informs users (which include both cyclists and pedestrians) not only where the route goes, but its history and things of interest to look out for as you travel along it.



Some of the most durable and vandal-proof 'signage' for cyclists, particularly in urban areas, is embedded in the riding surface. The example here, from College Green in Bristol, has obviously been designed to take account of the wider architectural / aesthetic setting.

Lining and surface markings

- How much is necessary?
- Size of markings
- Thickness of lines



More often than not, however, surface markings containing information relevant to cyclists comprises intrusive white lining.



I found this example near central Norwich, on what appeared to be a relatively quiet back-street route. The treatment may be in response to a speeding and / or rat-running problem among motorists, but has little to visually recommend it. Double yellow lines shouldn't be needed in a mandatory cycle lane. They increase the adverse visual impact of the facility.



Another example of where provision for cyclists has introduced the potential for conflict, here with turning motor traffic, resulting in an ugly design response to warn of that potential.



Then there are the locations where the intentions of the scheme designer are not entirely clear, leading to confusion among all road users.

Surface treatment

- Application
- Use of different colours
- Use of different textures



The illustration here, from Germany, might not be to everyone's liking, but does at least try to differentiate the area for cycling from the area for walking with contrasting paving, rather than the ubiquitous white-lining common in the UK.



The rule of thumb is to use coloured surfacing on cycle routes only at potential conflict points, but there are many examples of ‘over-kill’.



Another use of coloured surfacing is to highlight a 'way through' for cyclists where restrictions have been placed on other motor traffic.



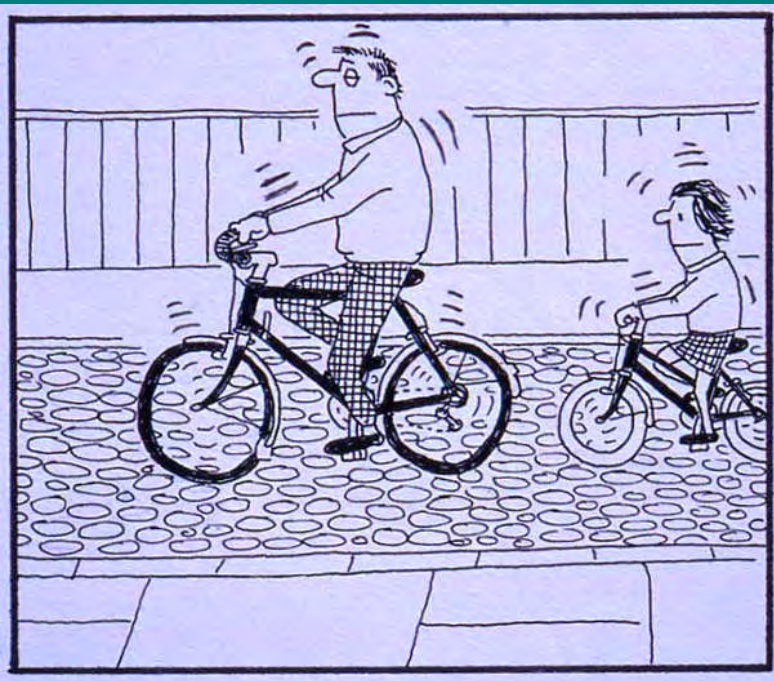
A better balance needs to be struck, particularly in historic areas, between the requirements of confirming and safeguarding a route for cyclists and the visual integrity of the streets scene. Historic villages, towns and cities were not designed to accommodate the volume of motor vehicles they now endure. Encouraging people to make more local trips by bike, as well as on foot, would help alleviate the adverse effects of vehicle dominated areas. Cycling should be part of the solution, but the way it is being shoe-horned in, is often seen as accentuating the problem for placing even more demands on / introducing more clutter into already overburdened areas.



Poorly-designed cycle facilities will often result in visually obtrusive mitigating measures.



A two-way cycle track created by taking space from a two-way carriageway. The potential for conflict with vehicles turning at the side road junction, and pedestrians crossing at the zebra, not expecting cyclists from the left, is dealt with by the introduction of coloured surfacing and white lining. In many northern continental countries, where cycling is much more common in most areas among all sections of the population, such design solutions are less necessary as cyclists are anticipated almost everywhere.



As a general rule, cyclists do not relish the uneven surfaces created by heritage features such as cobbles and setts. Where these exist, a smoother alternative route should be explored, and signed, for cyclists.



Example of Queens Square, Bristol, which allows cyclists to avoid the cobbled section of the carriageway.

Necessary evils

- Contra-flow cycle lanes
- No-entry 'plugs'
- Side-road crossings
- Access controls



'Necessary evils' refers to those cycle facilities that local authorities must, or think they must, use to deal with a specific situation – constrained by what the DfT considers appropriate or permissible. But how many of them are really necessary? There is certainly a growing body of support for a relaxation of DfT requirements for measures at locations that results in awkward to use, difficult to maintain and visually unattractive infrastructure.

The illustration here, in Stricklandgate, Kendal, is actually a relatively neat solution to enable cyclists to use the one-way street in both directions. (Also allowing buses to swing out to their right to make a tight left turn). I'm not sure how well it conforms to DfT guidelines though!



Good example of a contra-flow cycle lane in central Sheffield.



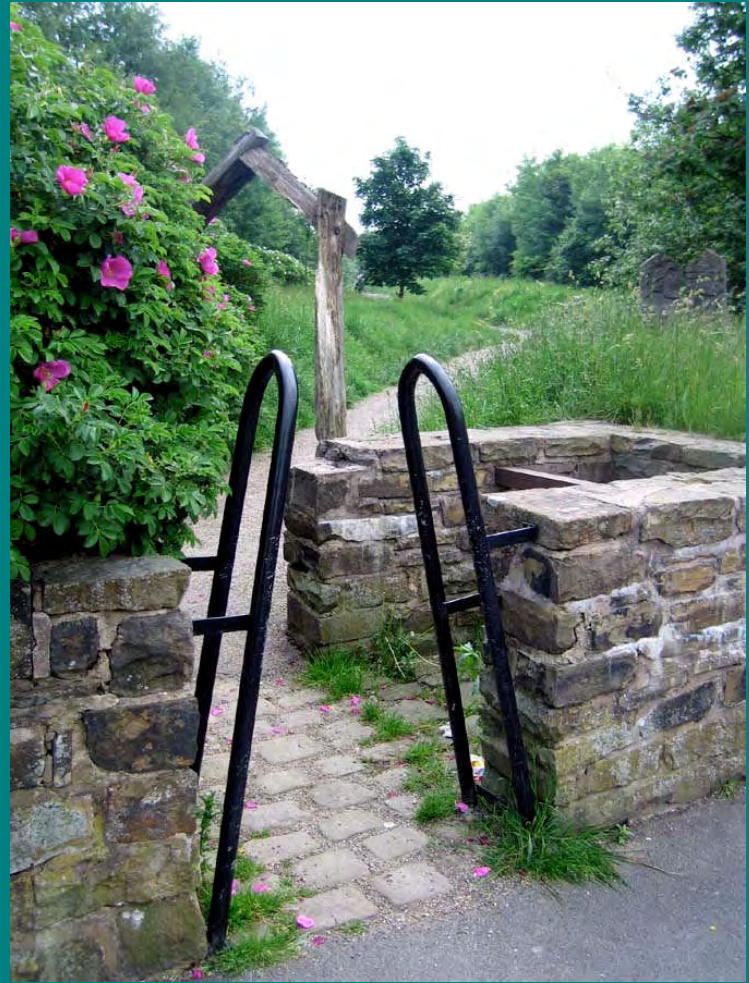
The usual response to enable cyclists to avoid a No Entry sign, in line with DfT regulations (which do not permit an 'Except Cycles' exemption plate on a No Entry sign), is to construct a cycle 'plug', which can be awkward to use and difficult to maintain.



Contrast this with the standard practice in Holland, where cyclists are generally permitted to use all streets in both directions, granted permission to 'ignore' the No Entry sign by no other means than a discrete sign.



Another example of where poorly designed cycle 'facilities' have generated visual clutter, here within the highway layout of a new residential development. Not to mention the unhelpfulness of all those closely spaced Cyclists Dismount signs! Why not keep cyclist on the adjacent quiet access road where they would maintain priority across side turnings and obviate the need for the succession of (likely to be ignored) 'Cyclists Dismount' bollards



Contrasting examples of access control barriers on cycle routes, to deter their use by unauthorised users, like motorcyclists. In general, however, it is preferable to avoid the use of barriers altogether. Not only do most of the designs look ugly, but they also often deter / prevent access to the route by some legitimate users. The DDA also recommends barrier-free routes wherever possible.

Cycle parking

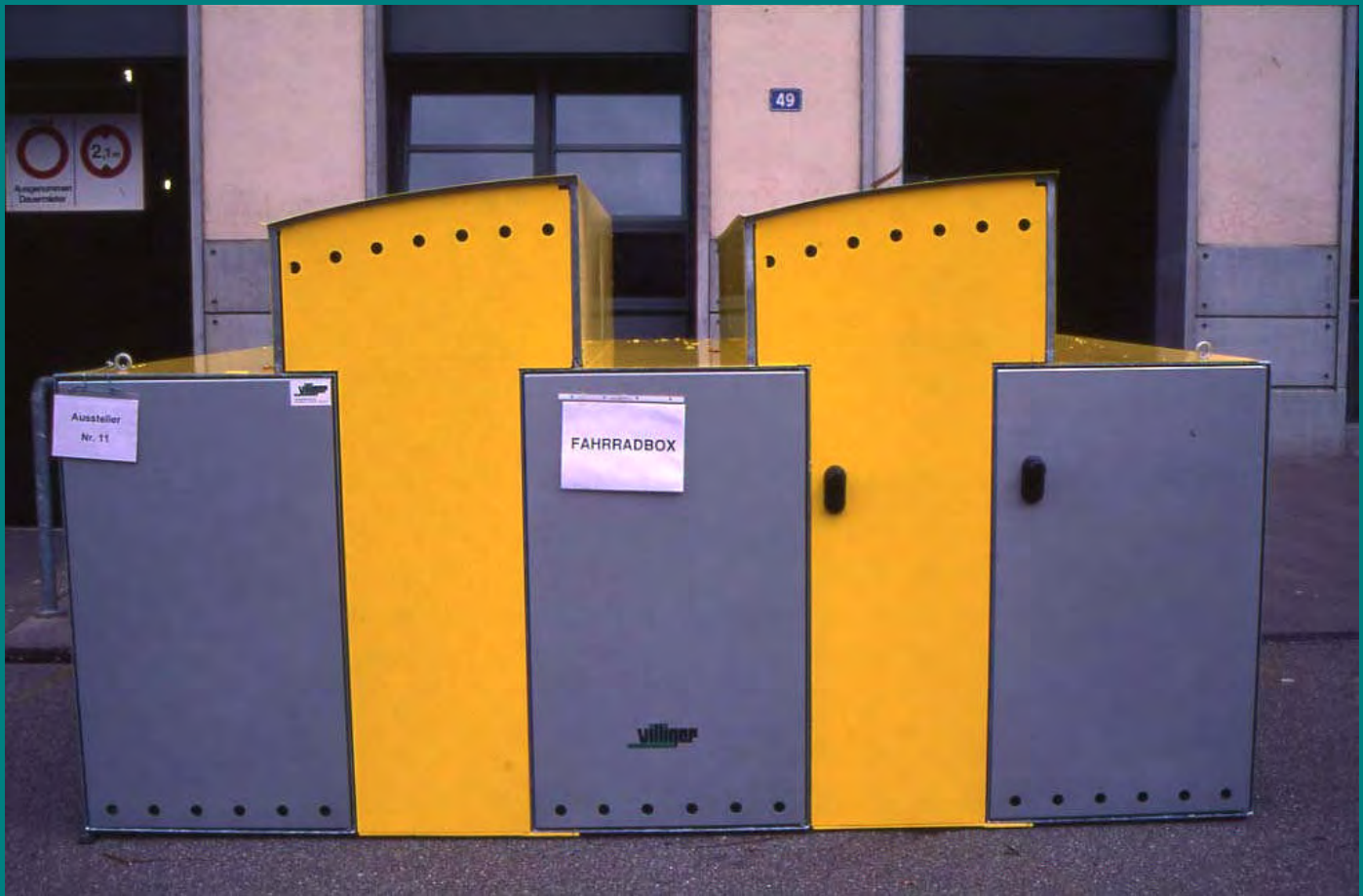
- Design
- Quantity
- Location
- Signage



The principles of good cycle parking design include having it sufficiently visible to deter theft and vandalism of unattended bikes, yet sited where it does not impeded pedestrian access / flow, nor dominate the visual scene.



Nicely designed cycle parking adjacent to the central shopping area in Horsham. Soft landscaping adds the visual appeal of this facility, whether or not it is in use.



Cycle lockers offer good security for those wishing to leave their bikes and accessories for longer periods, and for those with high value equipment. This rather avant-garde design wouldn't look right in every location, but is visually more entertaining than the more common rectilinear grey metal box.



Cycle parking at a rail station in Holland.



Cycle parking at Cambridge station.



Outside one of the Cambridge University colleges. In places where cycling is popular, to be expected, or to be encouraged, well-designed cycle parking provision needs to be built into the broader design vision.



Otherwise you'll end up with this....



...or this.



While the standard Sheffield stand style rack is the default design for short-stay cycle parking, the quantity and colour scheme should take some account of the setting. These racks are adjacent to a children's urban play park, with lots of brightly coloured equipment.



Coin operated cycle parking facilities are particularly prone to vandalism, and should be avoided.

Invisible infrastructure



The remaining 10 picture slides relate to providing for cycling in visually more subtle ways, without the need for specially constructed facilities. For example, by exempting them from restrictions on motor traffic, and recycling redundant infrastructure built for other modes.

The illustration here is of a road now closed to motor traffic, but where a way through has been maintained for cyclists (and pedestrians), affording them access to a traffic-free riverside path.



Another road closure, with a through route maintained for cyclists – denoted by a relatively simple and unobtrusive sign.



More road closure treatment, although the sharp upstand through the cycle gap is likely to cause discomfort. Although it is unfortunate that it has been deemed necessary to have double yellow lines to keep the way through clear for cyclists. Note the important of paying attention to detail, which can make the difference between a poor and a good cycle 'facility'.



A home zone style treatment, this illustration from the Netherlands. The limited road width, interrupted forward visibility and soft landscaping create an obvious impression that low vehicle speeds are appropriate, creating an attractive environment for walking and cycling. Note the almost complete absence of signing and lining.



Here, again, the impression is of an area where walking and cycling would be the norm is generated through subtle, visually attractive, clues.



A not untypical Dutch residential street, enabling normal people to make normal trips by bike, wearing normal clothes. No particularly special equipment or facilities in sight.



A relatively rare example of an attractive motor-traffic free space near a city centre in Britain (in this case Worcester), where cycling is permitted but not overtly provided for.



An unobtrusive mini roundabout in Bath, which serves to slow motor traffic and thus aid vulnerable road users.

And not quite invisible...



Back to the UK. The non-standard sign reads 'Cyclists please cycle with care through this area'. While not completely 'invisible', the provision for cyclists here is relatively subtle. Note the lack of Give-Way markings where the cycle route rejoins the carriageway, acknowledging that the vast majority of riders do possess a modicum of common sense and self-preservation.



Visually unobtrusive cycle route across College Green, Bristol.



An uncontrolled priority cycle crossing where a shared-use route traverses a quiet residential road. These are relatively rare, owing to safety concerns relating to changes in conventional priorities. However, it is a useful tool for helping to turn the tide of public opinion in favour of giving greater priority to non-motorised road users. Moreover a controlled crossing, with the attendant signage and road markings, would have looked intrusive in this location.

With some bold statements



A disused railway viaduct has been remodeled to create a traffic-free route into the centre of Hyndburn. Note the absence of segregation for cyclists and pedestrians, which would have involved additional signage and lining, and the minimalist unauthorised user access controls.



A former railway, the road, bridge across the River Trent in Nottingham, now closed to trains and traffic, but retained as a valued NMU crossing. Cyclists are, fairly subtly, guided towards taking the central line over the bridge, minimising the risk of conflict with pedestrians who naturally gravitate towards the parapets.

UK design guidance

- Cycling England Design Checklist and photo gallery
www.cyclingengland.co.uk/engineering.php
- Cycle-friendly infrastructure (forthcoming)
- London Cycling Design Standards
www.tfl.gov.uk/businessandpartners/publications
- Lancashire - the cyclists' county
www.lancashire.gov.uk/environment/cycling/pdf/Lancashire.pdf

This time a purpose built river crossing for pedestrians and cyclists, across the River Severn in Worcester. Who says that providing for non-motorised users has to be lost cost / low key?

Further inspiration...

- Cambridge Cycle Campaign Netherlands study tour
www.camcycle.org.uk/events/visits/netherlands
- CTC Benchmarking Project photo library
www.ctc.org.uk

The list above relates to the most recent design guidance available on providing for cycling. However, it would be fair to admit that the emphasis is on provision that works to encourage cycle use, rather than on the aesthetics of the end result.

Thank you for your attention

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professional support service

www.cyclingengland.co.uk/engineering.php

For some ideas about what is possible, with a little imagination and creative interpretation of the guidelines, the above sources are worth browsing.

However, it should be noted that Cycling England can only endorse design solutions that accord with current DfT regulations.

Need some more suggestions...