

# Roadworks

It is often assumed – consciously or unconsciously – that traffic finds out on its own how to get around roadworks. At roadworks it is a good idea to pay special regard to cyclists who are more sensitive to uneven pavements and diversions than motorists. Clear marking and barriers can prevent bicycle accidents. At times car traffic must be controlled out of regard for the safety, comfort and passage of cyclists. 2-3% of single bicycle accidents is due to roadworks.

The road administration can make more stringent requirements of the way roadworks in cyclists' traffic areas are carried out, and not least to improve supervision and control. It must be assumed to be in the interest of the road administration that the traffic area is restored to at least as good a condition as it was in before being dug up.



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## General

Roadworks are often a nuisance and risk for road users. Cyclists need an even road pavement, so that for them the nuisance is often especially great. Regardless of whether it is a road administration or a cable owner or others who decided to have the work performed, and no matter whether it is carried out by themselves or by a contractor, the safety, ease of passage and comfort of cyclists should be ensured.

Roadworks are often of short duration and will not cause inconvenience to cyclists. However, the needs of cyclists can be taken into account in various ways. In some cases it is necessary to exclude road users from the work area. If so, the best possible alternative route must be offered.

In connection with many excavations, cyclists may share the area with pedestrians instead of with motorists. Depending on the space and number of pedestrians, it may in certain cases be safer to let cyclists and pedestrians use the same area.

Cyclists should not have to force high kerbs and the like or get off the bicycle because of roadworks. In exceptional cases, high kerbs and wheeling one's bicycle may be acceptable, but only in the case of roadworks lasting for less than one day and outside rush hours.

## Information to the public

Not all excavations are announced in advance as there are many of them. Only in the case of roadworks where passage is wholly or partially obstructed, and where road users face considerable delays is prior announcement required.

The announcements can typically be made through the local paper or



PHOTO: Linda Hansen

*Short-term roadwork – cyclists ride on footway or carriageway.*



PHOTO: Municipality of Odense

*Poster about resurfacing in Odense.*

a weekly paper distributed to all households or as news in the local radio. In addition, large signs at the roadworks can inform road users about the roadworks and their duration. This can with advantage be turned into positive information for cyclists, for instance, when resurfacing is being carried out.

### Guidance at roadworks

Signing and marking must be easily understandable. It may be necessary to give a warning well ahead, so that cyclists become more aware and so that they have time to choose another route.

It is often difficult for cyclists to adapt their speed to conditions at roadworks as there is seldom warning of, for instance, sharp curves and high kerbs and edges. In the case of roadworks where the cyclist has to reduce speed, this should appear from the signing. Sometimes clear marking on the path or road can direct the cyclist to the right track.

As certain roadworks are initiated at short notice, incorrect or unneces-



*A warning about these holes is necessary.*

PHOTO: Road Directorate



*The yellow snake – a good longitudinal guiding barrier.*

sarily restrictive signing may occur. Typically, no entry signs are seen where a prohibition against motor traffic would be sufficient. Prohibition against cycling should be avoided when it is possible and safe.

In the case of roadworks extending from one house wall to another or from hedge to hedge it may be necessary to redirect cyclists. It is important that cyclists are warned about the diversion early enough and that they respect it. Diversions cause more inconvenience for cyclists than for motorists. The longer the duration of the roadworks the greater the impact of the inconvenience.

One often sees unfortunate examples of the placing of temporary signs. Traffic signs are typically put up on a low post with a rubber base, often standing at the edge of the road or on the cycle track. Cyclists cannot pass under the low post, and with a certain safety margin the sign occupies at least 1 meter of the cyclists' area. In bad weather this is especially problematic as cyclists tend to lower their heads more. And in the dark a normal bicycle lamp will cast very little light on the sign.

### Barrier devices

It is very important that roadworks are provided with correct barrier devices, especially in the case of deeper excavations that may constitute a serious risk to cyclists. Precautions must be taken that the



PHOTO: Road Directorate



PHOTO: Road Directorate

*Signs may make the cycle track useless.*



PHOTO: Lais Bahi

*Thick wooden plates, wire fences and the like are better than strings.*

saddle or reduce speed. In the case of excavations over longer periods, asphalt ramps should be established for all plates with a high edge.

Where mains, cables etc. run across the road, a board is often placed on either side of them. In these cases there is also an edge of several centimetres, which may inconvenience cyclists and in certain cases make them fall.

### Speed reduction

A considerable problem for the safety of cyclists in connection with roadworks is when motorists try to overtake cyclists on road sections with narrow lanes in mixed traffic<sup>25</sup>. Where there is little space, possibly combined with the risk of running into an excavation, it may be necessary to reduce the speed of cars in the interests of roadworkers and road safety.

Speed may be reduced by means of mandatory signs with a lower speed limit. In individual cases it may be expedient to mount temporary phys-

cyclist cannot fall over or under the barrier. Furthermore, cyclists must not be pressed too close to the barrier by other traffic.

Traffic closure across cycle tracks can be established by means of a bar, wire fence etc, and must be provided with not less than two yellow danger lamps unless the marking is sufficiently lighted, which is rarely the case<sup>120</sup>.

Wire fences in full height instead of just a bar can prevent the cyclist from falling into an excavation. Regardless of the type of barrier, it should be continuously checked as in the worst case a defect may be fatal to the cyclist.

### Guidance with blinkers

Normally, guidance with blinkers is only required where skips or similar objects are placed on the road. As a bicycle lamp rarely provides sufficient light on roads and paths, the establishment of blinkers in dark spots and close to dangerous excavations should be considered for the protection of cyclists.

On traffic closures across cycle paths there must not be more than 2

m between each blinker and on longitudinal barriers not more than 10 m.

### Cover plates and the like

When excavations are covered with plates or the like, this is done in order to enable traffic to pass. Such covers are normally thick iron plates with a high vertical edge. If possible, rounded edges should be used to protect cyclists' tyres and rims. It is difficult for cyclists to see whether the edge is a serious obstacle, and they therefore execute a "jump", raise themselves from the

*A good asphalt ramp is unfortunately a rarity.*



PHOTO: Road Directorate

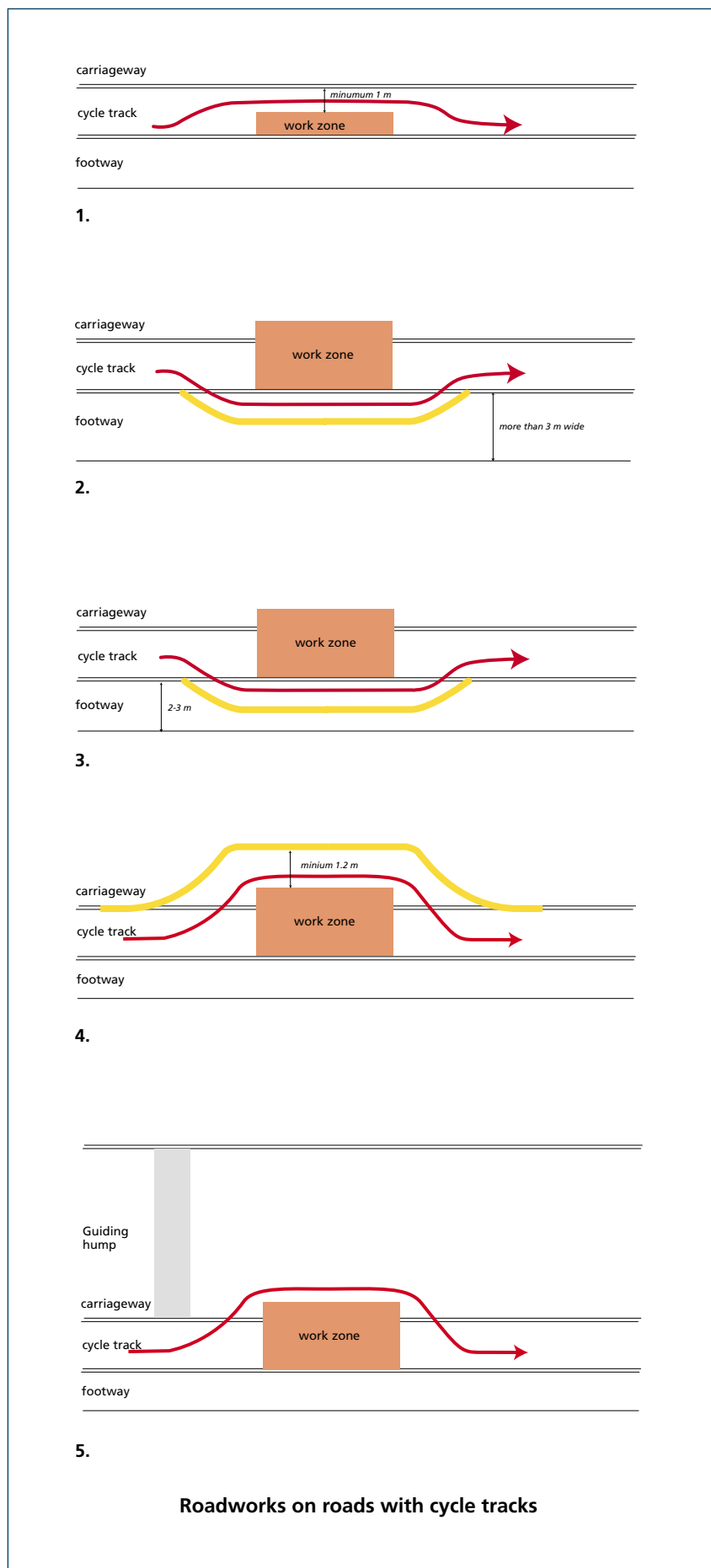
ical speed-reducing measures in the form of staggering, guiding humps of loose asphalt or of rubber modules that are screwed into the pavement. In a few cases it should be considered whether a reduction of cyclist speed will be necessary. This can be achieved by, for example, establishing staggering for cyclists.

### Placing of cyclists

The following is a short, illustrated instruction on placing of cyclists at stationary work zones.

#### Roadworks on roads with cycle tracks

1. If 1 m of the cycle track is still free of the work zone, then cyclists ride on the cycle track.
2. If the footway is 3 m or wider outside the work zone, then cyclists must ride on a temporary cycle track on the footway by using longitudinal barriers.
3. If the footway is 2-3 m wide outside the work zone, then consider cyclists to ride on the footway maybe by using longitudinal barriers.
4. If cyclists are not placed on footway, then establish a temporary cycle track of at least 1.2 m width on the carriageway by using longitudinal barriers.
5. If a temporary cycle track on the carriageway is not wanted, then consider speed reduction of motor vehicles.
6. Establish a good alternative route for cyclists or good asphalt ramps from the cycle track to the carriageway.



## Roadworks on roads with mixed traffic, paved shoulders or cycle lanes

1. Consider to establish a at least 1.2 m wide temporary cycle track on the carriageway by using longitudinal barriers.
2. If the footway is more then 2 m wide, then consider temporary cycling on the footway maybe by using longitudinal barriers.
3. Consider temporary speed reduction on the carriageway.
4. Establish a good alternative route for cyclists.

### Accident risk

More than 70% of the injured cyclists have been involved in single accidents. The Accident Analysis Group at Odense University Hospital has studied cyclists' single accidents. A questionnaire survey showed that roadworks were in progress at 2.4% of accidents. The cyclists reported that work zone barriers caused 1.8% of the single accidents. Bars and barriers were mentioned in 2.7% of cyclists' collision with fixed objects. Adult cyclists were more often involved in roadwork single accidents than child cyclists<sup>69</sup>.

Generally speaking, roadworks are not a major factor in single bicycle accidents. The reason is that roadworks do not occur that often after all and that cyclists normally are more careful at roadworks.

There has not been found studies of bicycle accident frequency at roadworks. However, there is reason to believe that a good design of work zones will prevent bicycle accidents.

