



Best practice bicycle safety – improvement fact sheet

# Objects on or aside infrastructure

## Overview

Objects on or aside the bicycle infrastructure and roadway, e.g., **bollards, railings, traffic signs, trees, bushes or parked cars**, often impose safety risks for cyclists as they either represent **obstacles** that cyclists could possibly **collide** with or **limit visibility**. Cyclists get injured when hitting such objects and falling, or the limited visibility caused by these objects lead to collisions. This is particularly problematic on **narrow roads** and bicycle infrastructure, **in curves or at junctions**. Studies indicate that a considerable share of cyclists' accidents are collisions with a stationary object.



## What is the problem and where does it occur?

Objects like bollards, railings, traffic signs, trees, bushes or parked cars which are often apparent on or aside the bicycle infrastructure and roadway can lead to safety risks for cyclists [3, 6]. On the one hand, such objects represent obstacles that cyclists can collide with. This is particularly problematic on **narrow roads and bicycle infrastructure**, in **curves** with a **limited sight distance** and with **high volumes of cyclists**, when **other cyclists restrict the view on objects** located on the bicycle tracks, as well as with a high density of obstacles within two meters of the bicycle track pavement [1, 3, 10]. On the other hand, especially objects aside the bicycle infrastructure and roadway can **limit visibility**, which can lead to collisions with other road users and motor vehicles in particular. This issue typically arises at **junctions** or in **curves** where objects like trees, bushes or other vegetation but also parked cars **limit sight distances** [9].

## What causes the problem?

Safety risks for cyclists due to objects on or aside the bicycle infrastructure and roadway mainly arise because objects on the infrastructure represent obstacles that cyclists can possibly collide with and because objects aside the infrastructure can limit visibility, especially at junctions and in curves.

Bollards, poles or other road equipment are often placed on the road to prevent cars from entering a cycle track, but as they are **often positioned in the middle of the track**, they also present obstacles for cyclists and **decrease the width of the facility** at these locations [7]. Such objects as well as parked cars or garbage cans that are unintentionally placed on the cycle track are **problematic** because of the risk of the cyclists hitting the objects and falling [6, 7]. In addition, sometimes bicycles, but especially cargo bikes or bicycles with trailers, are **not able to pass** (e.g., bollards) or must **enter the path of**

**oncoming traffic** in order to be able to pass (e.g., parked cars) which can lead to **conflicts and collisions**. These issues are especially problematic at narrow bicycle facilities and a high volume of cyclists, e.g., when objects on the infrastructure are **occluded by cyclists** in front and are **not or too late visible** [1, 8]. Moreover, problems can also arise at **road works** due to objects and devices put out to warn and protect road users, e.g., when cyclists get stuck in fences with their handlebars [5].

In addition, safety risks also arise from objects aside the cycling infrastructure as they can **restrict the field of vision and limit sight distances** for cyclists and other road users. This is in particular the case for **fixed objects at the corners of junctions** or for **trees, bushes or other vegetation in curves** [9].

## What is the size of the problem?

[2] conducted an in-depth study of 100 cyclists injured in on-road crashes resulting in hospitalisation in Western Australia and reported that **18% of crashes** involved **hitting an object**. In a national survey on bicyclists' attitudes and behaviours with 7,509 participants, [4] – for the USA – indicated that a crash or collision with a fixed object was the **fifth most frequent reported source of injury** by respondents that experienced a bicycling injury, as 7% of the participants who had experienced a bicycling injury reported that this was because of a collision with a fixed object. For Denmark, [6] analysed 349 single-bicycle crashes and report that **objects on the road** were a **contributory factor** in 3% of the accidents and **objects next to the road** (including road equipment) were a contributory factor in 4% of the accidents. Overall, studies show that a **considerable share of cyclists' accidents** can be attributed to **objects on or aside the bicycle infrastructure** and roadway.

Examples:



*Bollard in the middle of the cycle path at EuroVelo 6 in Austria [11]*



*Railing as obstacle at EuroVelo 14 in Austria [12]*

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## References and links

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11. SABRINA. Picture by FPZ
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