



Best practice bicycle safety – improvement fact sheet

Roundabouts

Overview

Roundabouts have a favourable effect on **traffic safety**, at least for crashes causing injuries, when considering all road users. However, roundabouts can be an unsafe type of facility for cycling. It is therefore imperative to understand cyclists' desire lines and manoeuvres which will need to be considered, in order to provide an adequate level of safety. As a rule of thumb, **the larger the roundabout, the greater are the challenges for cyclists** [1]. If large, multi-lane roundabouts are present at cycle routes, they should be designed with additional provision for cycling safety and comfort [2]. In addition, **speed reduction** is highly recommended [1].

In numerous nations, various **design standards** have been established for cycling infrastructure at roundabouts. Even though a large gap between procedures continues to exist, some basic design categories of cycle facilities at roundabouts can be recognised. They are aggregated into four categories: **mixed traffic, cycle lanes, separate cycle paths and grade-separated cycle paths** [3, 4].

Types of problems that the solution can solve

Multi-lane roundabouts are more likely to have **higher traffic speeds** due to their position on roads with multiple lanes and have the potential to create more **tension** as well as **high-risk conditions** between bicycles, pedestrians and motor vehicles. This type of a roundabout can present a **significant issue to cyclists**, given these higher speeds and AADT volumes. In this sort of situation, cycle lanes need to be **discontinued** when leading to roundabouts, to enable bicycles to merge with the flow of traffic [6]. Moreover, larger and multi-lane roundabouts can be made cycle-friendly by adding **physically separated cycle tracks** [2].

At small roundabouts, it is also better not to continue cycle lanes. Instead, it is more advised to **bring cyclists and vehicles** together into a **narrow lane** when they approach the roundabout in order to have them before or after each other, rather than approaching parallel to each other and risking side swipe and right hook crashes when exiting/entering the roundabout [7].

According to research made in Great Britain, the involvement of bicyclists in crashes at roundabouts was discovered to be **10 to 15 times higher** than the involvement of vehicle occupants, when accounting for rates of exposure. Research states that it is **not recommended** to build roundabouts with cycle lanes, as they are more unsafe for bicyclists when compared with other 3 design types (mixed traffic, separate cycle paths, grade-separated cycle paths) [3].



Roundabouts are **safer for cyclists** when they [5]:

- » have a **low volume of motor vehicle traffic**;
- » encourage **low traffic speeds**;
- » only have **one lane**;
- » are **smaller** in total size, with larger and higher central islands.




Characteristics

Measure	Costs	Treatment life	Effectiveness
Bicycle friendly design [5, 6]	€€€	⌚⌚⌚	🚲🚲🚲

Implementation benefits

	More efficient traffic flow
	Reduced vehicle speeds

Implementation issues

	<p>Costs may be high depending on size and site conditions</p>
	<p>Choosing the right type of bicyclist treatment</p>
	<p>Roundabouts with bicycle tracks are safer than roundabouts with bicycle lanes or without any bicycle facility [8]</p>

Examples:



***Dutch styled roundabouts** where the geometry is arranged in a way that motor vehicles leaving the roundabout approach the crossings at an angle close to 90 degrees to **maximise inter-visibility** [1].*



***Separated cycling path** intersecting vehicle flow on a roundabout, Slovenia [9]*

Related fact sheets

RISKS

- » Narrow infrastructure
- » Junctions and crossings: blind spot
- » Junctions and crossings: left turn issues
- » Junctions and crossings: roundabout issues

References and links

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