04.

Intersections

"A network is as strong as the weakest link" is probably the best idiom to describe the importance of intersections in cycling planning. You can build the best bike lanes and tracks, but if they stop when cyclists approach the intersection, the entire journey becomes less safe and comfortable. Luckily, over the years, Dutch designers have developed great examples of safely dealing with intersections. Dutch Bicycle Intersections: a clever way to bring all street users together! It is applied to regular intersections, but also roundabouts and unique situations.

Photo: Gemeente Amsterdam - Edwin van Eis

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Photo: Google Earth


Photo: Google Earth

Roundabout Scheveningen

Reason for intervention

The crossing Plesmanweg-Nieuwe Parklaan in Scheveningen used to be one large chunk of asphalt. Cyclists had to take two crossings if they wanted to take a left turn and the bicycle facilities were poorly marked. Another reason for intervention was the outdated traffic signalling system which needed to be replaced.

Objective

The main objective was to improve the safety and comfort for all modes of transport, and to improve the traffic flow and comfort for cyclists and pedestrians. Furthermore, the new design should fit the surroundings, align with the central role in its bicycle route network and remain accessible for public transport and emergency services.

Chosen intervention

The intersection is redesigned as a roundabout. Cyclists have separated bicycle infrastructure, pedestrians have separated foot paths, and the curve is large enough to serve cars, busses and larger traffic. For comfortable cycling, cyclists on the roundabout have priority over cars. As many elements of the roundabout are developed with green plants to give it a natural touch, the roundabout blends into its surroundings. The roundabout more or less fits in the same space as the former four-arm junction, although the crossings for cyclists and pedestrians have become much shorter.

Lessons learned

1. Improving safety and comfort for cyclists and pedestrians can improve safety and flow for car drivers as well.
2. By redesigning the intersection into a roundabout with enough attention to green, as asphalt was replaced by green space, the location fits better in its surroundings.
3. Roundabouts, if well planned, can require the same amount of space as current junctions.
4. Roundabouts are more cost-effective having no operational costs for maintenance and management of the traffic lights.

> “ Roundabouts, if well planned, can require the same amount of space as current junctions.”

PROJECT INFO

Location:
The Hague, Plesmanweg and Nieuwe Parklaan

Duration of the project:
2008-2012

Involved organisations:
Municipality of Den Haag

Read more:
City of The Hague (NL)
Bicycle Dutch (EN)

Photo: Hans Smit - Zwolle in Beeld

Bicycle-Roundabout Zwolle

Reason for intervention

Prior to 2013, cyclists had to give way to (motorised) traffic on the Wipstrikkerallee, a busy access road. As a result, cyclists were inconvenienced by long waits that impeded their travel times. Giving cyclists priority and introducing traffic lights did not fully address or solve this issue.

Objective

The City of Zwolle decided that traffic safety and flow of bicycle traffic needed to improve. The municipality collaborated with both local interest groups (neighbourhood associations, schools, the police, traffic safety organizations, and the Cyclists' Union) and experts to work on a new intersection design to improve the situation for cyclists, which eventually resulted in the bicycle roundabout.

Chosen intervention

The City of Zwolle constructed a unique bicycle roundabout at the Philosofenallee-Vondelkade bicycle crossing: motorised traffic has only partial, or limited, access to the roundabout, cars can either go straight or turn right, but not swing around it. Cyclists, on the other hand, may take any direction they like, similar to a normal roundabout. Consequently, the flow of bicycle traffic has been greatly improved. Motorists who use the inner ring road are aware of the fact that cyclists have priority on roundabouts. This principle also applies to this smaller bicycle roundabout, which offers a safe and efficient crossing to cyclists

> " Motorised traffic has only partial, or limited, access to the roundabout, cars can either go straight or turn right, but not swing around it."

Lessons learned

1. The bicycle roundabout has no significant adverse effect on traffic flow and/or route choice.
2. Cyclists can cross the Wipstrikkerallee more quickly and efficiently.
3. The bicycle roundabout has not significantly deteriorated the flow of motorised traffic on the Vechtstraat/ Wipstrikkerallee.
4. The bicycle roundabout does not pose any challenges to road safety and may have decreased the overall number of traffic conflict situations.

PROJECT INFO

Location:
Zwolle, Wipstrikkerallee

Duration of the project:
2013

Involved organisations:
City of Zwolle, Province of Overijssel

Read more:
Verkeerskunde (NL)
Bicycle Dutch (EN)

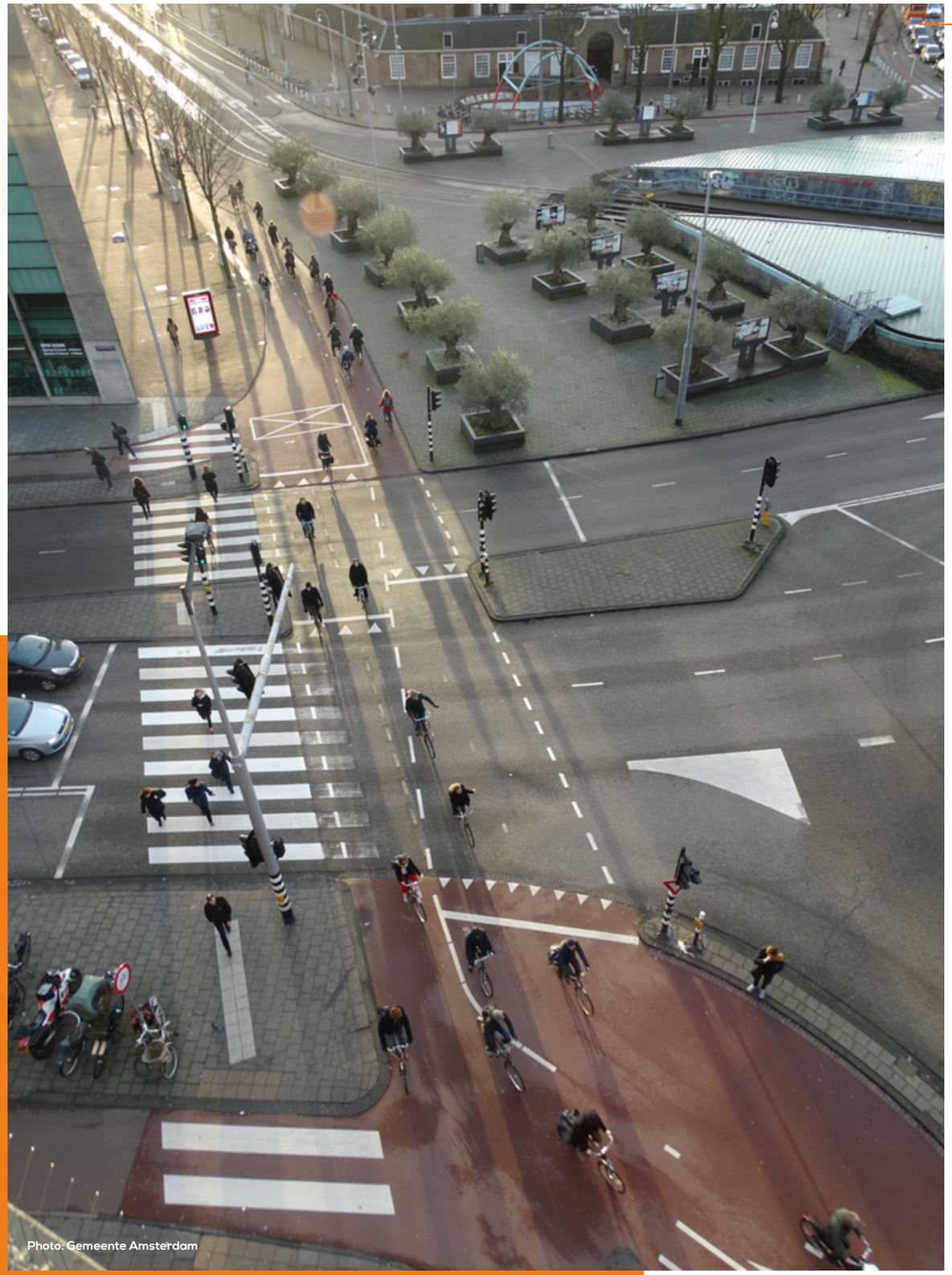

Photo: Gemeente Amsterdam

Mr. Visser Square Amsterdam

Reason for intervention

In cycling cities like Amsterdam, there is a need for more road space for cyclists. Especially at intersections, where cyclists have to wait for a red traffic light, it can become very crowded. However, two measures can be combined to create more capacity and flow at a junction without redesigning it completely. First, reducing the traffic islands in size which separate cyclists from motorized vehicles to create more space for waiting. Second, widen the crossing path for cyclists and thereby repaint the lines on the road towards the other side of the junction.

Objective

To provide more space and flow for cyclists at junctions, planners started to investigate how junctions were really being used by cyclists, a so-called desire-line study. According to this study, which shows cyclist behaviour, the design of the junction should be adjusted, where possible, in favour of that behaviour. Mr. Visser Square was the first intersection where the municipality implemented these measures to battle congestion and stimulate an easy flow of bike traffic during peak hours. Now these measures are taken on a lot more junctions all over Amsterdam.

Chosen intervention

Several traffic islands have been removed or reduced in size. This created a new traffic phenomenon: the banana. The banana is a curved traffic island which still protects the cyclists but takes up a lot less space. This provides the much-needed space for cyclists who are waiting for a traffic light. A second measure is the funnelling of cyclists, otherwise known as the frietzak ('bag of fries'). To get as many cyclists as possible at the other side of the intersection during a green light, the bike lane at the side of the traffic light is enlarged. Thus, according to the natural behaviour cyclists already showed in the studies prior to the designing process. Immediately after the traffic light, the bike lane is narrowed and reduced back to its original size.

Lessons learned

1. To make more space for cyclists (and pedestrians) the city needs to make some fundamental changes. Considering the (political) problems these would carry (in 2016), the City of Amsterdam decided to first look at what is possible within the current framework.
2. Measures which would be too complex and therefore delay a speedy process, were avoided. This is why none of the 50 km/h roads were changed into 30 km/h roads, and also why no tram masts or large overhanging traffic lights were moved (also because this is an expensive exercise).
3. There are more measures available than only the 'banana' or the 'bag of fries'. It's the whole package of possible generic measures in a combination which really improves a junction.
4. These physical measures are always in combination with traffic light optimization for cyclists - If the cyclists get less red-light time, less space is necessary for waiting cyclists.

PROJECT INFO

Location:
Amsterdam, Mr. Visserplein and Jodenbreestraat

Duration of the project:
2016

Involved organisations:
City of Amsterdam

Read more:
Cycling Policies Amsterdam (EN)
Plan Amsterdam (EN)
'Banana' and 'Bag of Fries' (NL)