



Best Practices Dutch Cycling

ENGLISH



In front of you lies a book containing a selection of some of the finest examples and practices Dutch cycling has to offer.



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“Discover some of
the finest examples
and practices.”

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Photo: Dutch Cycling Embassy



Visual: BUKOO

BUKOO



Photo: Dutch Cycling Embassy

01. Introduction

In front of you lies a book containing a selection of some of the finest examples and practices Dutch cycling has to offer. In fact, it was a huge challenge for the team and editors compiling this book as there are many examples to choose from.

With this book we want to inspire and provide you with insights, background and learnings of famous and perhaps less-famous examples. Besides motivating you, we want to offer some perspectives that may help you in taking first steps in implementing similar examples in your locality. Having examples or icons has proved crucial in the uptake of post-war cycling in the Netherlands. “Build it and they will come” is the famous one-liner and metaphor for the success of the first cycling lanes. First pilot projects attracted cyclists, that in turn catalysed the development of cycling networks and cycling culture. The rest, as they say, is history...

Well, there is more to that. Just building infrastructure will not guarantee success. In fact, just building infrastructure could backfire and kill grassroots developments before they have a chance to grow. “Bicycle infrastructure is not about bicycle infrastructure, and cycling is not about cycling.” There is more to that. Making bicycle infrastructure a success and getting cycling to take off requires three ingredients: hardware, orgware, and software. Parallel to the physical ‘building’, strategies such as policy making, stakeholder participation, decision making, and promotion are necessary. It was during the network planning strategies that integrated policies, design principles, systematic safety approach, and the polder model that were developed, implemented, and improved. Doing this parallel to the first demonstration tracks in The Hague and Tilburg, and consecutive waves of cycling (r)evolutions in the Netherlands made cycling a success. You will soon find out that this book presents both visible icons of cycling and cycling infrastructure in the Netherlands, as well as the less visible elements, such as data collection, strategies and tools for policy making, campaigns and behaviour change. Besides general information, all examples include actionable insights and lessons learned. We would invite you to carefully read these lessons as well, and try to grasp the essence of each project, and relate it to your circumstances.

“ In front of you lies a book containing a selection of some of the finest examples and practices Dutch cycling has to offer.”

We do not offer you a cookbook that guarantees success. We can only present you with the ingredients, and stress that you need all different types—hardware, orgware, software—covered. It is to engage in endeavours, to acquire and enhance knowledge and skills, to mix and align the ingredients to your situation.

We hope this book will motivate you to persevere in building and enhancing your cycling culture.



Photo: Fietsersbond

02. The Cycling History: Cycling in Response to Crises

With over 37,000 kilometres of fully segregated bike lanes, the Netherlands is widely regarded as the world's most successful cycling nation. More than one-quarter (28%) of all trips are made by bicycle, covering 17.6 billion kilometres each year, which equates to 3.0 kilometres of cycling per day per person. The Netherlands is also one of the safest countries in the world to ride a bicycle, with a fatality rate of just 0.9 per 100 million kilometres cycled.

But that status was never a given. Instead, it was the result of a difficult, decades-long process that began in response to a pair of converging crises in the early 1970s, leading to a more systematic approach to safer, more sustainable, equitable, and efficient street design.

In 1972, the Stop the Child Murder (*Stop de Kindermoord*) movement formed in reaction to a road safety crisis that was killing 3,000 people per year, including 450 children. Named by journalist Vic Langenhoff, whose six-year-old daughter was killed while cycling to school one morning, their goal was "to break through the apathy with which Dutch people accept the daily death of children in traffic."

Langenhoff was enraged at the minuscule fine imposed on the driver and the flawed street design that prioritized speed over human life, arguing that "this country chooses one kilometre of motorway over 100 kilometres of safe cycle paths."

One year later, the Dutch were the target of an OPEC oil embargo, resulting in an abrupt gasoline shortage and compelling its three million motorists to reevaluate their relationship with their cars.

A dramatic spike in fuel prices forced many to reacquire themselves with their bicycles—the sales of which doubled—producing a collective desire for safer streets. This shift was reinforced by the national government's 'Car-Free Sunday' policy. Suddenly, cities went completely quiet, as their normally unsafe avenues were returned to the public realm. It was an eye-opening moment in history, when residents realized they could not take safe cycling for granted, unless their cities' car-centric design was dramatically transformed.

Applying concepts that came out of that decades-long trial-and-error process, the CROW Design Manual for Bicycle Traffic is now widely regarded as the best bikeway engineering guide in the world. Critically, it dictates any successful cycling infrastructure network must reflect five design principles: cohesion, directness, (road and social) safety, attractiveness, and comfort.

“The Netherlands is widely regarded as the world's most successful cycling nation.”

The COVID-19 pandemic was another, similar crisis that challenged cities everywhere to think about how their mobility networks might operate differently. It became a time for cities to experiment, using their streets as testing grounds for change. Many global metropolises—including Bogotá, Kampala, Sydney, Berlin, and Paris—built entire networks of "pop-up" cycling infrastructure; not one or two routes, but dozens that would connect as many origins and destinations as possible, in an effort to keep their streets moving post-lockdown.

Like the 1970s crises were for the Dutch, the COVID-19 crisis may be a tipping point for the rest of the world; revealing solutions that have far-reaching benefits long into the future, and pointing the way to more resilient, accessible, and safe urban transport. After all, a city with more cycling is a city with healthier people, safer streets, cleaner air, and better connectivity.

03. Catering for Different Needs

Practical cyclist



Logistical cyclists

(Electric) cargo bikes are cleaner, often faster and have a smaller traffic footprint than vans. Contribute to the ambition of having emissions-free urban logistics by 2025. Users need space on the urban network for fast and heavily loaded cargo bikes. Strategic shipment points.



Everyday cyclists

The bicycle as a standard mode of transport for daily use (in the city). It is cheap, easy and quick. Users need bicycle parking facilities at home and at day-to-day destinations, as well as a close-knit network.



Bicycle commuters

Cycle to work, often in combination with public transport or the car. There is a wide range of speeds and habits within this group. Users need safe bicycle storage facilities near public transport, facilities at work, information on allowances for commuting by bike, high-quality routes on commuter corridors.



Children in and out of school, and students

Cycling to school, to friends or a sports club (unsupervised) means a degree of freedom and contributes to happy, healthy children. You're never too young to learn. Requirements: a safe environment to be able to learn to cycle independently, traffic safety education.

Overall requirements of practical cyclists

- Get from A to B efficiently, often under time constraints.
- Comfort and attractive routes ensure that more people will opt for the bike.
- Safety, rules and straightforward traffic situations. Particularly for parents with children and those with disabilities.
- Good connections to transport hubs.
- Sufficient, safe parking facilities.

SOURCE REFERENCE

Tour de Force: 2nd stage - 'Scale up Cycling', edited by Bike-minded in the Cycling and Dutch national infrastructure book of the Ministry of Infrastructure and Water Management, and Rijkswaterstaat.

Different groups of cyclists with differing needs

When constructing cycling infrastructure and creating cycling facilities, it is important to take into account different types of cyclists: from 'practical' cyclists to recreational cyclists. Each type of cyclist is defined by his or her own specific requirements. So, make sure that you know who is using your cycle paths and routes, and adjust your plans to match the needs of your road users.



Recreational cyclist



E-bike users

Greater distances can be covered more quickly, thanks to pedal-assist. Increasing differences in speed are putting pressure on the current Dutch cycling infrastructure. Users need safe storage facilities and charging stations, sufficient space on the cycle path.



Sports cyclists

The Netherlands has 850,000 cyclists who actively ride a (race or mountain) bike for exercise once per month on average. Users need sufficient space for racing cyclists, good urban-rural connections and starting points.



Cyclists of all ages and abilities

Make it possible for people to learn to cycle or continue cycling; from beginners to people considering stopping (such as the elderly). Users need support when learning to cycle (on a different type of bike), image of cycling.



Recreational cyclists

Cycling as a pastime. Cycle tourists and visitors make an important contribution to the economy (the leisure sector in particular) in our country. Users need good urban-rural connections, a network that covers the country, interesting surroundings, facilities and catering options.

Overall requirements of recreational cyclists

- Sense of enjoyment from the journey: no time pressure.
- Being outside, able to enjoy nature and the environment.
- Relaxation/sporting activity, together with family or friends.
- Specific cycle routes for recreational use, such as a mountain bike course or pleasant routes in the countryside.
- Minimum of interaction with other modes of transport.

“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

INTERSECTIONS

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.”

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 Filosofenallee-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.

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.

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' \(NL\)](#)

Bicycle Streets

For decades, urban cycling infrastructure in the Netherlands looked pretty much the same: painted lane or segregated path on the side of the road. It was good for cycling, but the car still received the majority of space in our streets. The bicycle street flips this paradigm with a smart twist. Instead of cyclists feeling they are a guest in the car realm, the design and rules state clearly: the car is the guest.



Photo: Dutch Cycling Embassy

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Photo: Gemeente Amsterdam - Edwin van Eis



Photo: Gemeente Amsterdam - Edwin van Eis



Photo: Gemeente Amsterdam - Marco Keyzer

BICYCLE STREETS

Sarphatistraat Amsterdam

Reason for intervention

The Sarphatistraat in Amsterdam proved to be a popular route for cyclists. However, the space on this route did not allow for the current large groups of cyclists, nor allow for growth. There was no space to create separate bicycle infrastructure or widen the existing (narrow) bike lanes.

Objective

The City of Amsterdam was interested in starting a pilot with a different road profile. This pilot was supposed to measure the effect of redesigning the Sarphatistraat into a bicycle street. The City of Amsterdam was keen on figuring out whether this redesign would result in a more pleasant and safe bike route.

4. Additional circulation measures were not taken, because this has already been done in the past. Ongoing car traffic was already not possible, so the number of cars was already very low (less than 2,500 per 24 hours).
5. On short stretches of the route the number of motorized vehicles is higher than recommended by the CROW guidelines (up to 5,000 per 24 hours).
6. Cyclists are very enthusiastic about the route, the City of Amsterdam is currently investigating the perception amongst other road users.

Chosen intervention

The Sarphatistraat was redesigned into a new type of bicycle street. The bicycle street was designed in a rather unique way, due to the tram track in the middle of the road. The new design included two times a one-way bicycle street for both cars and cyclists, which was separated by a tram track in between both bicycle streets. In line with other bicycle streets, cyclists have priority over cars (cars are guests).

Lessons learned

1. The pilot proved to be a huge success. Evaluation resulted in some minor improvements, such as adding an extra pedestrian crossing and improved signage, both along the route with signs and with symbols on the street. These additions made the pilot permanent.
2. This was the starting point for other parts of Amsterdam's inner ring to transform, if possible, to similar wide, red asphalted bicycle streets and bicycle friendly traffic speed bumps. This transformation is ongoing at the moment. Also other projects, dealing with busy cycling routes, are investigating if such a profile is a solution for redesigning the street.
3. When developing a bicycle street in a busy area, make sure you reserve enough space for cars to take-over safely, but at a slow speed (30 kilometres per hour).

“ In line with other bicycle streets, cyclists have priority over cars.”

Location:

Amsterdam, Sarphatistraat

Duration of the project:

2016

Involved organisations:

City of Amsterdam

Read more:

[Cycling Policies Amsterdam \(EN\)](#)

[Innecity Plan Amsterdam \(NL\)](#)



Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

BICYCLE STREETS

Campus Route Utrecht

Reason for intervention

With more than 65.000 students studying in Utrecht, proper infrastructure to move around between the university, student housing and public transport hubs is crucial. The municipality of Utrecht decided that the existing infrastructure had to become more attractive, safer and faster. The existing route between housing area Overvecht and Utrecht Science Park was already traffic calmed by filtered permeability, but wayfinding and priority was difficult.

Objective

The cycling streets between Overvecht and Utrecht Science Park should make it more attractive to cycle to university, both from residential areas and from the commuter train station. In the residential streets, priority should be given to walking and cycling. Wayfinding via the red asphalt should be easier.

Chosen intervention

Before the intervention, most of the bike lanes were already separated from motorized traffic. However, on residential streets, people cycling have to share the road with car drivers. To make clear that priority in residential streets belongs to people in direct contact with surroundings, the streets were converted into bicycle streets. These streets are recognizable by the red asphalt. Car drivers are still allowed to drive but are obligated to reduce speed. This will reduce the number of cars in the city as well, as cycling becomes the faster mode of transport.

Lessons learned

1. To make the cycle street more recognisable, red coloured asphalt is ideal.
2. Alongside the route, there are extra bicycle parking racks and more green space was added to comfort residents of the converted streets.
3. The number of bike racks at train station Overvecht has been increased to accommodate the growing number of commuters as a result of the infrastructural improvements.
4. Traffic lights have been optimized by advanced detection to shorten the waiting time.overtaking with too little distance.

“To make clear that priority in residential streets belongs to people in direct contact with surroundings, the streets were converted into bicycle streets.”

Location:

Utrecht

Duration of the project:

2017-2018

Involved organisations:

Municipality of Utrecht

Read more:

[Bicycle Dutch \(EN\)](#)



Photo: Mobycon



Photo: Mobycon

BICYCLE STREETS

Middenweg Zuid Heerhugowaard

Reason for intervention

The street, Middenweg Zuid, needed to be renovated to meet contemporary requirements. Before the renovation and redesign of the street, 325 cars, 1,200 cyclists, and eight buses per hour drove on this outdated street with bicycle advisory lanes. The road surface of the street was in poor condition, there were traffic safety conflicts between the different road users, and the trees besides the road were deteriorating due to their age.

Objective

The objective of the redesign of the street was to meet the needs of all different road users in a safe and futureproof way. Therefore, the new road layout had to accommodate the numbers of cyclists and provide a safe and comfortable bicycle route, while at the same time providing appropriate space for a bus route.

Chosen intervention

Together with local stakeholders, including the engagement of residents and entrepreneurs, the redesign of the road was discussed extensively. During three design workshops many participants were engaged. During those sessions fruitful discussions arose. Among others, intersections which cross the street, entrances and exits of houses, and wishes concerning the bicycle path were discussed. Due to the engagement process, the preliminary design for the street was widely supported by those who were involved within the process. Leading to the best fitting redesign of the street: by implementing a bicycle street.

“ How well a bicycle street design works and is successful, highly depends on how the intersections and transitions between street types are designed.”

Lessons learned

1. During the project the specialists involved made sure that all stakeholders were informed and engaged properly. Which made the approval for the final redesign the redesign and the implementation process go smoothly. Stakeholders understood the usefulness and necessity of the redesign. In this way the road will endure and be enjoyed for decades..
2. Comfort for bicycles can still be maintained even when buses are allowed, as part of the bicycle street concept, as guests.
3. How well a bicycle street design works and is successful, highly depends on how the intersections and transitions between street types are designed.

Location:

Heerhugowaard, Middenweg Zuid

Duration of the project:

2016 – 2017

Involved organisations:

Municipality of Heerhugowaard, Mobycon

Read more:

[Video explanation via YouTube \(EN\)](#)

The bicycle is not only the most efficient way to move around cities, it can also be an attractive mode of transportation between cities. In recent years, the Netherlands has been developing a network of fast, super high-quality connections between cities, making recreational and functional cycling even more attractive. Better be careful with the wording however: a 'cycling highway' fits into the car narrative of building multi-lane highways, sparking fears of noise, reduced safety, and other detrimental effects.

Cycle Highways



Photo: Dutch Cycling Embassy

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Photo: Dutch Cycling Embassy



Photo: Sfeerfotografie.nl



Photo: Sfeerfotografie.nl

Rijn Waalpad Arnhem-Nijmegen

Reason for intervention

The cities of Arnhem and Nijmegen (both approximately 180.000 inhabitants) are about 18 kilometres apart and growing towards each other. This creates a large pressure on the public space and infrastructure in the area. To give commuters and other travellers an alternative to travel between the two cities, a cycling highway was proposed.

Objective

The formal objective of the RijnWaalpad was to reduce congestion on the main highway as this was a main prerequisite of the national government. For the regional and local governments, objectives were also to increase the attractiveness of the areas and to promote sustainable travel.

Chosen intervention

The chosen intervention was to develop a convenient, hassle-free bicycle route between Arnhem and Nijmegen. This 18 kilometre route was built between two cities; the route is easy navigable, high quality throughout and a clear landmark for cyclists and commuters in the region.

Lessons learned

1. Building a cycling highway is just as much about (personal) cooperation between municipalities, regions, provinces and the national level as it is about developing technical standards. Creating (and keeping!) political support, flexible planning options and mutual considerations for each municipality's challenge is key to building longer and inter-connected cycling infrastructure.
2. A cycling highway is not about top-speed; it is about convenience, not wasting (physical) energy, safety and low-stress. People choose these routes to have an easy, relaxed and reasonably quick commute. Travel time gains are not the main reason why people choose the bicycle; exercise, the joy of being outside and reasonable speeds matter more!
3. Be careful with the words: a 'cycling highway' fits into the car narrative of building multi-lane highways, sparking fears of noise, unsafety and other effects. But... The term is very

appealing to regional or provincial decision makers: it fits the narratives of broader policy development; this might help you in the early development process of the routes.

“ Building a cycling highway is just as much about (personal) cooperation between municipalities, regions, provinces and the national level as it is about developing technical standards.”

Location:
Arnhem, Nijmegen

Duration of the project:
2008 - 2017

Involved organisations:
Arnhem Nijmegen City Region,
Municipalities of Arnhem, Nijmegen,
Overbetuwe and Lingewaard, Province of
Gelderland, Dutch National Government

Read more:
[Province of Gelderland \(NL\)](#)
[Bicycle Dutch \(EN\)](#)



Photo: Provincie Drenthe

Green Corridor Assen-Groningen

Reason for intervention

The provinces of Groningen and Drenthe in the north of the Netherlands aim to be and remain bicycle friendly. In order to stimulate people to use their bikes for distances less than 20 kilometres, cycling should be made as comfortable as possible. This is especially relevant during large maintenance projects on roads and railways. The intention of the network is to create a better connection between the smaller towns to the larger cities in the region.

Objective

The objective of the cycle highway is fourfold. The first aim is to increase the connectivity of the region, which is important for economic developments. Second, the cycle highway stimulates a healthy lifestyle to which cycling contributes. The third objective is to give a boost to the tourism and recreation sector by strengthening the region's image as cycle-friendly through attractive cycle services. The fourth objective of the cycle highway is to contribute to a sustainable society as it eases the transfer from car to bike. Furthermore, these cycle paths should give priority to cyclists, be easily recognizable, wide and comfortable. During winter conditions, these cycle paths are prioritized with salt treatments to ensure safe cycling.

3. Even though available land is scarce in the Netherlands, cycle highways should be wide enough to cope with different speed limits. Cyclists of all ages, speeds and experience should feel welcome and safe on the cycle highway.

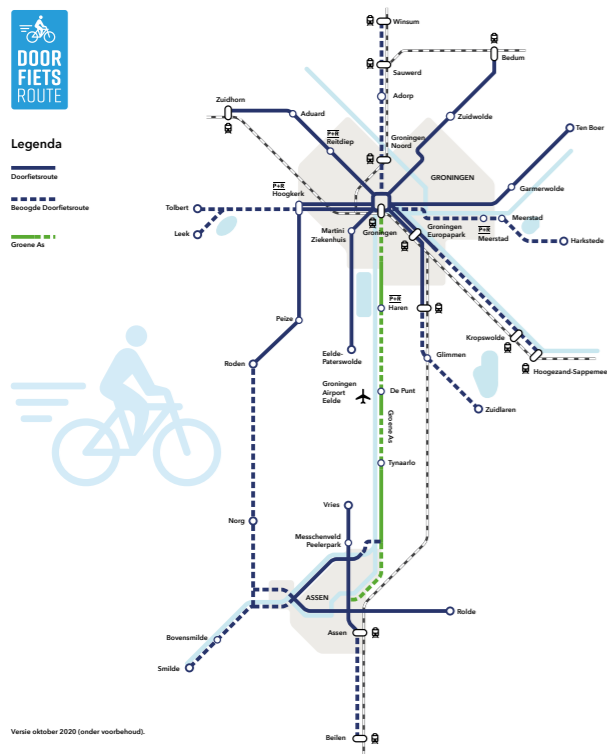
“The first aim is to increase the connectivity of the region, which is important for economic developments.”

Chosen intervention

This project was a collaboration between two provinces, two cities and the region Groningen-Assen. The cycle highway has a functional and recreational purpose. Functional in the sense that it allows cyclists to bike to their home, school or work. The recreational part of the cycle highway is that it is located along a canal with characteristic and green landscapes.

Lessons learned

1. Communicate clearly about the ambitions and goals of the project to make sure all involved parties are aligned. This prevents disappointments.
2. The infrastructure should be connected to the development of the area. Involve the environment actively throughout the process to integrate the cycle highway into the existing territory.



Map: Province of Groningen



Photo: Provincie Drenthe



Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

Star Cycling Route The Hague

Reason for intervention

Between 2018 to 2040, The Hague aims to increase the use of the bike by 50% by making cycling as comfortable, safe and easy as possible for distances up to 15 kilometres. All parts of the city and region should be easily accessible by (e-)bike. People will only choose cycling as their mode of transport for longer distances if routes are really comfortable and attractive. The main strategy to achieve this is developing a network of 'star routes', linking the city centre of The Hague with the region. One of these star routes connects the city centre with the district of Ypenburg, as well as the neighbouring cities of Nootdorp and Rotterdam.

Objective

The objective of this project was to create an easy and attractive connection between the city centre and Ypenburg for cyclists. This route was made as comfortable as possible by redesigning intersections, adding bicycle streets and paths, and building a new bicycle viaduct over the A4 motorway. In Ypenburg, the route links to the regional network.

3. A bicycle route is as good as the weakest link. It is important to make a design for the complete route instead of focusing on smaller sections.

4. Create a network which easily connects with regional destinations, nature reserves and public transport hubs.

5. Anticipate on the increasing popularity of e-bikes. Cycle paths should be wide enough to overtake other cyclists.

6. A set of prioritized routes within the bicycle network helps to generate focus and extra effort.

Chosen intervention

The City of The Hague identified the most logical route based on directness and attractiveness in order to make it as tempting as possible to use this route. The route leads along quiet streets, green areas, canals and residential areas. Busy roads and traffic lights are avoided as much as possible. The biggest challenge, crossing the A4 motorway, has been solved by placing a new bicycle bridge: the Jan Linzelviaduct. This bridge has a span of 335 meters and its lighting is powered by solar energy.

Lessons learned

1. Developing a network of star routes has set a new, higher standard for investing in bicycle infrastructure and can help with generating extra financing.

2. Choose routes which are not only safe and direct, but that are also attractive for cyclists, following green structures, waters and quiet roads. Hereby avoiding busy roads and traffic lights as much as possible.

Location:
The Hague

Duration of the project:
2017 - 2020

Involved organisations:
City of The Hague, Quist Wintermans Architecten, Dura Vermeer, Infra Regio Zuidwest, Hillebrand and ABT

Read more:
[City of The Hague \(NL\)](#)
[Bicycle Dutch \(EN\)](#)

At the end of the journey, you want to leave your precious bicycle in a safe place. One can find bike racks all around Dutch cities, but with the growing number of cyclists, it never seems to be enough. In recent years, cities in the Netherlands are participating in a peaceful arms race: creating the biggest, smartest, and most innovative bicycle facilities, although companies can also be competitive players. Simultaneously, the management of these facilities is a key element to its success.



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Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

Paid Versus Unpaid Bike Parking

Reason for intervention

Over 45% of everyone who travels by train arrives at the station by bike. In some cities, this number even rises up to 50% or 60%. Therefore, it is important that there is a safe place to park those bikes and to keep the train stations clear and accessible. At almost every train station in the Netherlands, there is an option to park your bike in a guarded or an unguarded parking area. However, the guarded areas are partly empty, while the unguarded areas are overcrowded.

Objective

The Dutch railway operator (NS) wants to use its parking facilities as efficiently as possible, while also keeping passengers and cyclists satisfied. Thereby, the NS wants to keep train station squares attractive without chaos caused by randomly parked bikes. At the same time, the joint costs should be as low as possible.

Chosen intervention

Since 2014, the NS implemented the rule that the first 24 hours are free to park bikes in a guarded area. After the first 24 hours, a small amount of money is reduced from your personal public transportation card. Travelers, municipalities and the NS have perceived this regulation as positive.

Lessons learned

1. The available parking area is used more efficiently. There is a better flow through of bikes and a higher occupancy rate.
2. Technological systems monitor bikes that are parked for more than 24 hours and which bikes are abandoned.
3. Since the implementation of this rule, there is a higher passenger satisfaction rate. There is a higher sense of safety, less chaos and an improvement of public space. Thereby, there is a good value for money.

“ Since the implementation of this rule, there is a higher passenger satisfaction rate.”

Location:

National

Duration of the project:

2014 - Ongoing

Involved organisations:

National Railways (NS)

Read more:

[Fietsberaad \(NL\)](#)



Photo: Dutch Cycling Embassy

Headquarters Rabobank Utrecht

Reason for intervention

The Rabobank headquarters has been in the same building in the City of Utrecht since the 1980s. As the company kept growing, the existing building was no longer sufficient. In 2005, Rabobank decided to start the construction of a more spacious building. Rabobank has an active mobility policy, which includes stimulating employees to commute by bike or public transportation. It was therefore important for the renewed office building to create efficient bike parking.

Objective

There are now 6,000 employees working at the Rabobank headquarters. Rabobank stimulates its employees to commute by bicycle. This should be facilitated in a safe and convenient manner.

Chosen intervention

1,300 bike parking places were built in the renewed office building. It is possible to enter the bike parking through an already existing public bike lane. The bike storage can be opened with an electronic pass to ensure the safety of the bicycles. It is located in a central area of the office building to ensure its accessibility from all directions. Because business attire does not always match with cycling outfits, there are changing rooms, showers and lockers. Initially, 360 lockers were built, but Rabobank noticed that this was not enough and expanded it to 800 lockers. There is also a small bike repair station and a bicycle pump within the facility.

Lessons learned

1. Even though Rabobank anticipated the growing number of bicycles in the bike parking, there is already a shortage of bike racks. They are currently discussing how to create more parking stands to facilitate the employees' needs.
2. As bike commuting is getting even more popular in the Netherlands, more types of bicycles emerge. Cargo bikes, e-bikes and speed pedelecs often do not fit in regular bike parking and need separate facilities. It is important to anticipate the need for parking space for all types of bicycles.

“ It is important to anticipate the need for parking space for all types of bicycles.”

Location:

Utrecht

Duration of the project:

2007-2011

Involved organisations:

Rabobank, Kraaijvanger Architects

Read more:

[Fietsberaad \(NL\)](#)



Photo: ProRail - Gerrit Semé



Photo: Dutch Cycling Embassy

PARKING

Bike Transferium Houten

Reason for intervention

Houten is a city in the Netherlands with 50.000 inhabitants. As Houten is only 9 kilometres to the southeast of the City of Utrecht, a lot of commuters live here. Therefore, a proper and efficient connection by train is crucial for the commuters living in Houten. As 57% of people living in Houten arrive at the train station by bike, it is important to make the transit from bike to train comfortable. In 2010, the train station was renovated, and a bike transfer centre was built underneath the train track.

Objective

The objective of the bike transfer centre at the train station in Houten is to make the transition from bike to train as smooth as possible. Therefore, the design of the train station should enable commuters to access the transferium directly from the perron.

Chosen intervention

In 2011, the bike parking at Houten train station opened, offering 3,100 spots for bicycles with the possibility to expand to 4,200 spots. The transferium also includes a bicycle shop with tourist info and charging points for e-bikes. The guarded parking area opens every day 15 minutes before the first train arrives and closes 15 minutes after the last train leaves. Bike parking at the train station is free. The transferium is also easily accessible for people with limited mobility.

Lessons learned

1. Due to the success of the bike transferium, the amount of parking space for odd-sized bikes such as cargo bikes or e-bikes proved to be too limited in the years following the opening.
2. Travel information displays in the bike parking would contribute to the comfort of the train station.
3. Rebuilding the train station in multiple phases would allow for the station to remain operative.

“The objective of the bike transfer centre at the train station in Houten is to make the transition from bike to train as smooth as possible.”

Location:
Houten

Duration of the project:
2007-2010

Involved organisations:
Municipality of Houten, Bestuur Regio Utrecht (BRU) and ProRail

Read more:
[Fietsberaad \(NL\)](#)
[City of Houten \(NL\)](#)
[Video explanation via YouTube \(EN\)](#)

Wayfinding

Imagine cycling along a state-of-the-art bicycle route and arriving at an intersection. To which direction shall you turn? Left, or right? That's exactly where good wayfinding systems come into play: signs, marks, and boards show cyclists their way, guiding the users along the route. The best wayfinding elements are so intuitive that you hardly feel them, but they help you get to your destination safely and comfortably.



Photo: Dutch Cycling Embassy

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Photo: Dutch Cycling Embassy

Numbered Junction Network

Reason for intervention

Cycling through the (Dutch) countryside is lovely, but navigation used to be quite a challenge. In order to facilitate this, a routing system needed to be developed. Such a system existed already south of the Netherlands, in the region of Flanders, Belgium. The principles of this system could be used for the development of a routing system in the Netherlands.

Objective

The objective of the number junction network was to develop a nationwide wayfinding system in which everyone can compose their own routes. Each central knot consists of an overview or map and routes are signed in both directions. Cities and villages are clearly connected to the network.

Chosen intervention

The cycling network across the Netherlands provides an easy-to-use system in which everyone can decide for themselves where to cycle and how long the route should be. By using a junction map, the cycling route can easily be shortened or diverted by following alternative junctions. The cycle junctions have been carefully chosen and, as far as possible, arranged along low-traffic roads. A cycling network consists of a series of bicycle routes that are connected by junctions (often junctions of roads). Each junction refers to the adjacent 'bicycle junctions' using signs with numbers linked to the junction. This results in a comprehensive network composed out of 45 regional networks, totalling over 34,000 kilometres of bicycle routes for cyclists across the Netherlands. Furthermore, this network is seamlessly connected to the numbered junction networks in Belgium and Germany.

“Uniformity is key, the networks should have the same ‘look-and-feel’, in order to make it easy to use.”

Lessons learned

1. Uniformity is key, the networks should have the same 'look-and-feel', in order to make it easy to use.
2. Determine beforehand who is responsible for the networks. This will make maintenance and further developing the routes easier.
3. The success of such a network requires constant development, for example through the removal of unsafe routes and by adding new points of interest.

Location:
National

Duration of the project:
1995 - Ongoing

Involved organisations:
Landelijk Fietsplatform, Folkersma Routing en Sign, all Dutch provinces.

Read more:
[Fietsplatform \(NL\)](#)
[Bicycle Dutch \(EN\)](#)



Photo: Bea Straver



Photo: Dutch Cycling Embassy



Photo: Bea Straver

WAYFINDING

P-Route Bicycle

Reason for intervention

The City of Utrecht, the University of Utrecht, and rail infrastructure company ProRail have invested a great deal of money to build safe indoor bike parking facilities. As these facilities are huge, on-street parking can be easier for the cyclist, but this can result in clutter on the pavement. For this reason, the city wants to make parking garages more accessible by providing real-time information about the number of available bicycle parking spaces.

Objective

The route management system should inform people in the streets about the current bicycle parking situations at the bicycle garages. The system should be accurate and guide people to the nearest available spot to park their bike.

Chosen intervention

The system relies on sensors in the garages to monitor their occupancy and has a central server to distribute information to all panels. The panels are connected wirelessly and have batteries, as well as a solar panel to be less dependent on the light electricity network. Next to the on-street panels an app delivers information for people before starting their trip to the city centre. The system provides management information about the occupancy and turn-over of the bicycle garages.

Lessons learned

1. As the system was initially developed for Utrecht, all prototyping took place in the streets.
2. Connectivity issues and maintenance issues require a lot of time from the city administration, which might result in reluctance to implement the system.
3. Data connection is now standardized on a national level and open to connect different operators and suppliers of sensors.

“The city wants to make parking garages more accessible by providing real-time information about the number of available bicycle parking spaces.”

Location:
Utrecht

Duration of the project:
2016 - Ongoing

Involved organisations:
City of Utrecht, LumiGuide

Read more:
[City of Utrecht \(NL\)](#)
[Bicycle Dutch \(EN\)](#)



Photo: Fietzersbond



Photo: Fietzersbond

Bicycle Route Planner

Reason for intervention

The Netherlands offers a lot of beautiful cycling routes. However, planning the best routes might be challenging. In order to make cycling on a variety of these routes easier, there should be a clear planner which allows all types of cyclists to plan their routes (from 5 to 500 km), through all provinces and through a variety of landscapes.

Objective

The objective was to develop a tool which allows everyone to find the most beautiful cycle routes in the Netherlands. This makes cycling accessible for all sorts of cyclists: elderly and children who prefer a shorter bike route, as well as long trips for the more experienced cyclists. It should also provide people with the opportunity to create their own route. The route planner provides several options, such as a route through a nature reserve, the shortest route, a route with as few cars as possible or a mountain bike route.

Chosen intervention

The Cyclists' Union (Fietzersbond) created the online route planner as a free tool for everyone. The enormous pool of cyclists affiliated with the Cyclists Union (31,000 members, 1,800 volunteers) constantly update the route planner (add new routes, update route characteristics e.g., type of pavement, etc.) and keep the route planner as comprehensive and accurate as imaginable. In addition, the route planner is an enormous source of data, which can be used by municipalities and provinces to increase traffic safety, through the Safety Performance Index for example.

“The route planner is an enormous source of data, which can be used by municipalities and provinces to increase traffic safety.”

Lessons learned

1. Currently, some four million trips are planned each year via the Cyclists' Union route planner. With volunteers throughout the whole country, the data, and therefore the routes, are very reliable, which is why the route planner gets such a high rating.
2. In recent years, more and more attention has been paid to the data and how it can contribute to traffic safety. This also generates income for the Cyclists' Union to further develop the route planner.
3. One of the most recent developments is the realisation of a new mobile app, which is a lot more user friendly than the previous one

Location:

National

Duration of the project:

Ongoing

Involved organisations:

Fietzersbond

Read more:

[Routeplanner \(EN\)](#)

Network Planning

Not all roads lead to Amsterdam, but with such an advanced bicycle infrastructure, there are plenty of routes one can take to their destination. This is exactly where network planning comes to play: divides different modes and speeds into a variety of networks, allowing people of all ages and abilities to reach their school, work, the café or the museum safely.



Photo: Maurits Lopes Cardozo

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Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

Sustainable Safety

Reason for intervention

Traffic systematically allows for human failure, resulting in fatal accidents. As people will always have flaws, make mistakes and deliberately ignore rules, the traffic system should not allow for these mistakes to be made or it? should reduce their impact.

Objective

A new vision on road safety needed to be developed in order to prevent severe crashes and (almost) eliminate severe injuries when crashes do occur

Chosen intervention

The SWOV and the Ministry of Infrastructure and Water Management developed a vision is based on five principles 1) functionality (of roads), 2) homogeneity (of mass, speed and direction of road users), 3) predictability (of road course and road user behaviour by a recognizable road design), 4) forgivingness (of both the road/street environment and the road users) and 5) state awareness (by the road user). Following these principles, all roads were categorised and designed accordingly, 30 and 60 kilometre per hour zones were defined, all traffic from the right has right of way and permanent traffic education became institutionalized.

Lessons learned

1. The measures taken between 1998 and 2007 resulted in a 30% decrease in traffic fatalities, saving approximately 1,650 lives.
2. Risk decreased with 2.6% to an average of 5.8%.
3. The benefits proved to be two to four times higher than the costs.
4. One of the main barriers turned out to be discussions about conflicting interests in terms of physical space and financial means.

“The measures taken between 1998 and 2007 resulted in a 30% decrease in traffic fatalities, saving approximately 1,650 lives.”

Location:
National

Duration of the project:
First stage 1998 - 2007,
second stage 2003 - 2017
and third stage 2018

Involved organisations:
SWOV, Ministry of Infrastructure and
Water Management

Read more:
[SWOV \(NL\)](#)
[Bicycle Dutch \(EN\)](#)



Photo: Dutch Cycling Embassy

Three Levels of Infrastructure Delft

Reason for intervention

In the 1970s, the Netherlands started to experiment with modern cycling infrastructure: high-quality design, improved detailing, and dedicated space for people on bikes. Following the demonstration sites in Tilburg and The Hague, the City of Delft developed a different approach to cycling infrastructure to repair the lack of cohesion and directness of the first pilot sites. These two criteria were cited as the two main reasons cyclists did not use these facilities.

Objective

The main objectives were to increase the modal share of cycling and to enhance cycling safety. The secondary objectives were to improve the accessibility for cyclists and to improve cycling as an attractive mode of transport. This should be achieved through the working mechanisms of the reduction of trip lengths, reduction of trip travel time and separation of traffic flows.

plan for men commuting during rush hour, therefore forgetting many care trips predominantly made by women.

3. Users stated their dislike of circuitous routes, even if they were made safer and more comfortable. Convenience was key.

Chosen intervention

Planners from the City of Delft identified not one, but three cycling networks of varying grid sizes. First, the Urban Network (grid mesh: 400- to 600-meters) for trip lengths of two- to three-kilometres. Second, the District Network (grid mesh: 200- to 300-meters) for trips of one- to two-kilometres. Third, the Neighbourhood Network (grid mesh: 100- to 150-meters) for trips of 500-meters to one-kilometre. To implement the following interventions were necessary: 1) improve route quality in regard to comfort and safety, 2) install contraflow for cyclists in one-way streets, including instalment of bi-directional paths and 3) improve position and safety of cyclists, especially for the elderly and young at intersections.

Lessons learned

1. When improving the network, the development and implementation of bicycle parking facilities is essential.
2. It is important to look beyond the "normal" rush hour commuting patterns, as the bicycle network is used for many non-commuting trips by different types of cyclists (e.g., children, elderly, etc. At that time (in the 70's), there was a tendency to

“ When improving the network, the development and implementation of bicycle parking facilities is essential.”

Location:
Delft

Duration of the project:
Planning: 3 years (1976 to 1979); first phase implementation plan: 5 years

Involved organisations:
City of Delft, Rijkswaterstaat, and others.

Read more:
[Verkeerskunde \(NL\)](#)
[Bicycle Dutch \(EN\)](#)



Photo: Gemeente Zoetermeer



Photo: Gemeente Zoetermeer

Improving Social Safety at Night

Reason for intervention

Zoetermeer has an extensive and traffic-safe network of cycle paths, connected by tunnels and bridges. However, cyclists felt less safe in the evenings on some parts of the route.

Objective

The municipality of Zoetermeer wanted to make sure the cyclists felt safer during the darker hours of the day when using the route, so that residents continue to cycle in the dark.

Chosen intervention

Night network (*Nachtnet*) Zoetermeer connects schools, shopping centres, sports facilities and entertainment venues with residential areas. The route is in sight of houses, so that there is more social control. To improve the social safety and awareness of the network even further, Mobycon analysed which aspects along the route have a negative effect on social safety. They provided advice on how this can be improved, as well as how the findability can be increased. Besides the right infrastructure and surroundings, it's also about behaviour. Cyclists can use a free app, which shows the routes of the night network and enables users to share their location with friends.

Lessons learned

1. When working on traffic safety, social safety shouldn't be underestimated.
2. Bridges and tunnels can have a negative impact on the perceived safety of cyclists.
3. The perceived safety is not limited to physical aspects such as infrastructure. Behaviour and confidence play a big role as well. To increase these aspects of safety, a free app was launched.

“When working on traffic safety, social safety shouldn't be underestimated.”

Location:
Zoetermeer

Duration of the project:
2014 - 2015

Involved organisations:
Municipality of Zoetermeer, Mobycon

Read more:
[Nachtnetfiets \(NL\)](#)
[Video explanation via YouTube \(EN\)](#)

City Hall

The bicycle touches every field of life: urban planning, economy, health, mobility, quality of life, and so on. When you cycle in the Netherlands, you do it next to doctors, politicians, teachers, sanitation workers, bankers, and even footballers. That's why municipalities in the Netherlands are seeing the bicycle as more than just a question of infrastructure. City halls around the country are using the bicycle as a promoter of a variety of programs, such as health, education, economy, and inclusivity.



Photo: Dutch Cycling Embassy

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Dare, Able, and Invite to Cycle

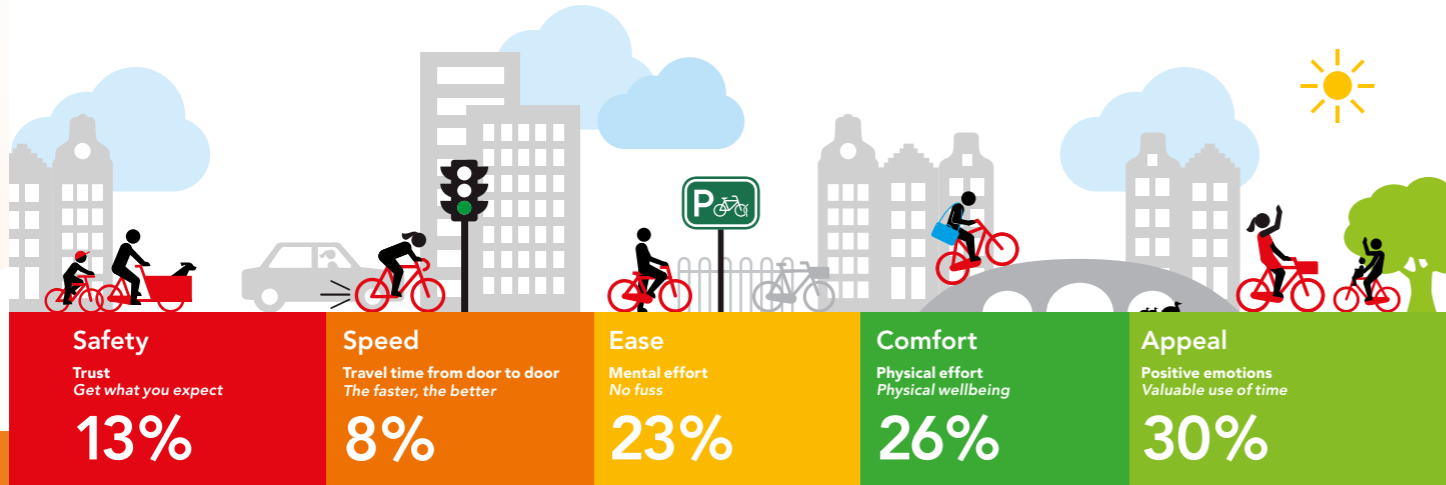
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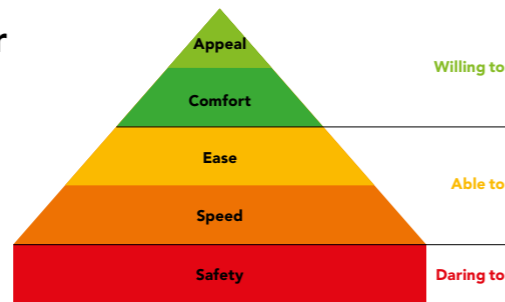
Cycling Satisfaction Monitor

30% of the score given by cyclists for their bicycle ride is determined by:

- the **air** they breathe
- how much **green** they see
- the **diversity** of the scenery they experience
- the **sounds** they hear

Investments in the top of the pyramid will lead to a more positive cycling experience when the core facilities are in order.

Visual: Goudappel Coffeng



The appeal of the route accounts for **30%** of the cyclist's satisfaction with the ride



Photo: Dutch Cycling Embassy - Able Infrastructure



Photo: Dutch Cycling Embassy - Invite Infrastructure

Dare, Able, and Invite to Cycle

Reason for intervention

Mobility policy aims to entice commuters into making certain choices within the multimodal mobility system. Accordingly, the quality of services influences how people actually behave. Commuters, and hence also car drivers or cyclists, make choices based on the qualities they perceive, and this perceived quality is the underlying reality of their choices. This means that for commuters, reality is not the objective reality of performance, as monitored by KPIs (Key Performance Indicators), but rather how the commuter perceives and interprets the performance. For example, it does not matter whether it is objectively safe to cycle at night; what matters is whether the cyclists feel safe cycling at night, as this is what ultimately determines whether they choose to cycle or not.

Objective

To facilitate more targeted investments in measures that align with the experiences of cyclists, the needs of train passengers are transposed—as depicted in NS Netherlands Railways' pyramid of customer needs—to environments in which people cycle. This can be shaped into a tool for decision makers to monitor satisfaction amongst cyclists.

2. The Netherlands is a cycling country, and most Dutch people dare and are able to cycle; in short, the cycling pyramid's base is already well established in the Netherlands. Now it is time to devote greater attention to the top of the pyramid, where cycling is made more attractive. Now, not only more people want to cycle, people also cycle more often and cycle over longer distances.

Chosen intervention

The resulting cycling pyramid follows the same structure as the customer needs pyramid and features three main levels: dare, able, and invite to cycle. Before daring to cycle, cyclists must first feel safe. Once they feel safe, the infrastructure must be designed in a way that allows them to be able to cycle quickly and conveniently. When the dare and able to cycle elements are established, the trick then is to entice these new cyclists into cycling more frequently and over longer distances.

Lessons learned

1. Research and monitoring of the cycling experience (e.g., through the Amsterdam Bicycle Satisfaction Monitor) revealed that cyclists deem speed to be less relevant than we previously assumed; instead, cyclists find the attractiveness of cycling routes much more important.

“Before daring to cycle, cyclists must first feel safe.”

Location:
National

Duration of the project:
2018-2019

Involved organisations:
National Railways (NS), Goudappel Coffeng, City of Amsterdam

Read more:
[Conference paper \(EN\)](#)



Photo: Gemeente Utrecht – Kamiel Scholten



Photo: Gemeente Utrecht – Kamiel Scholten

Social Cost-Benefit Analysis

Reason for intervention

The bridge over the Amsterdam-Rhine Canal (Dafne Schippers-bridge) connects a relatively new developed city district with the existing neighbourhoods and is therefore part of the cycle route between Leidsche Rijn and the centre of Utrecht. The bridge contributes to a better, faster and safer cycling network, but to understand the social costs and benefits of this intervention, Decisio was asked by the municipality to create a Social Cost-Benefit Analysis (SCBA) of this project.

Objective

The objective of the SCBA is to analyse whether the costs and benefits of such intervention have a positive or negative effect on the interested society. The SCBA is a powerful tool that allows policymakers to better understand the social impacts of specific interventions, in this case of cycling infrastructure like the construction of the Dafne Schippers-bridge.

the effects on public transport and other factors. This allowed for a complete and clear picture of the case.

Chosen intervention

The costs of building this bridge consist of building the bridge, moving a school from one area to the other and future maintenance and management of the bridge. The total costs were around €25 million. Once the bridge can be utilized, on average it will save 700 meters for 7,000 commuters on a daily basis. This saves travel time by approximately three minutes per person. Other important effects of this intervention are the saved CO2 emissions and the health effects, due to the modal shift of cars to bicycles. In total, the benefits are predicted to be as high as €46 million. This gives a result of €21 million of perceived social benefits.

“The SCBA is a powerful tool that allows policymakers to better understand the social impacts of specific interventions.”

Lessons learned

1. Being Decisio's first Bicycle SCBA, it taught that it is possible and feasible to calculate the social costs and benefits of bicycle projects.
2. Another important lesson learnt is the importance of looking at all the social effects of the project and not only at the direct effects for cyclists. In fact, in this study the costs of replacing the school building before its end-of-life cycle due to the construction of the bridge were taken into account, as well as

Location:
Utrecht, Oog-in-Al

Duration of the project:
2017 (SCBA delivery time 2 months)

Involved organisations:
Decisio

Read more:
[Decisio's report \(NL\)](#)



Visual: Humankind



Visual: Humankind

Bicycle Vision Rotterdam

Reason for intervention

In 2019, the City of Rotterdam released its bicycle vision. The reason to create such a document is to summarize the city's ambitions and plans in the field of cycling and to align budgets accordingly. Rotterdam, unlike many other Dutch cities, was rebuilt after World War II, and therefore it resembles some North American cities. In recent years, the city is moving from car-oriented planning to pedestrian- and cycling-friendly planning, with focus on mixed-used, welcoming, safe, and comfortable streets. The Bicycle Vision is a large part of this change.

Objective

The objective of Rotterdam's bicycle vision was to use cycling as a transition tool to a better quality of life in Rotterdam. Since cycling touches in so many fields (mobility, health, economy, liveability), it can be used to take Rotterdam a step further.

Chosen intervention

Rather than just focusing on infrastructure, the vision stresses the importance of diversity of users, bicycle parking, the bicycle as an economic force, etc. In addition, the vision calls for the formation of Rotterdam's Bicycle Alliance: a collaboration that aims to further develop the bicycle culture in the city.

Lessons learned

1. Cycling is more than just lanes. In order to create a successful cycling city, we need to look at the city in a holistic way. For instance, how can the city work with teachers, parents, and children to promote cycling? How does it affect the learning quality of pupils? And what does it mean about the daily life and development of children?
2. We have to understand how different groups in the city see their mobility options. Cycling is more than just a way to go around, it's also a way of living.
3. How can we make the journey of the cyclists as comfortable as possible? It's not only the routes, but other factors like parking and wayfinding are highly relevant as well.

“ We have to understand how different groups in the city see their mobility options.”

Location:
Rotterdam

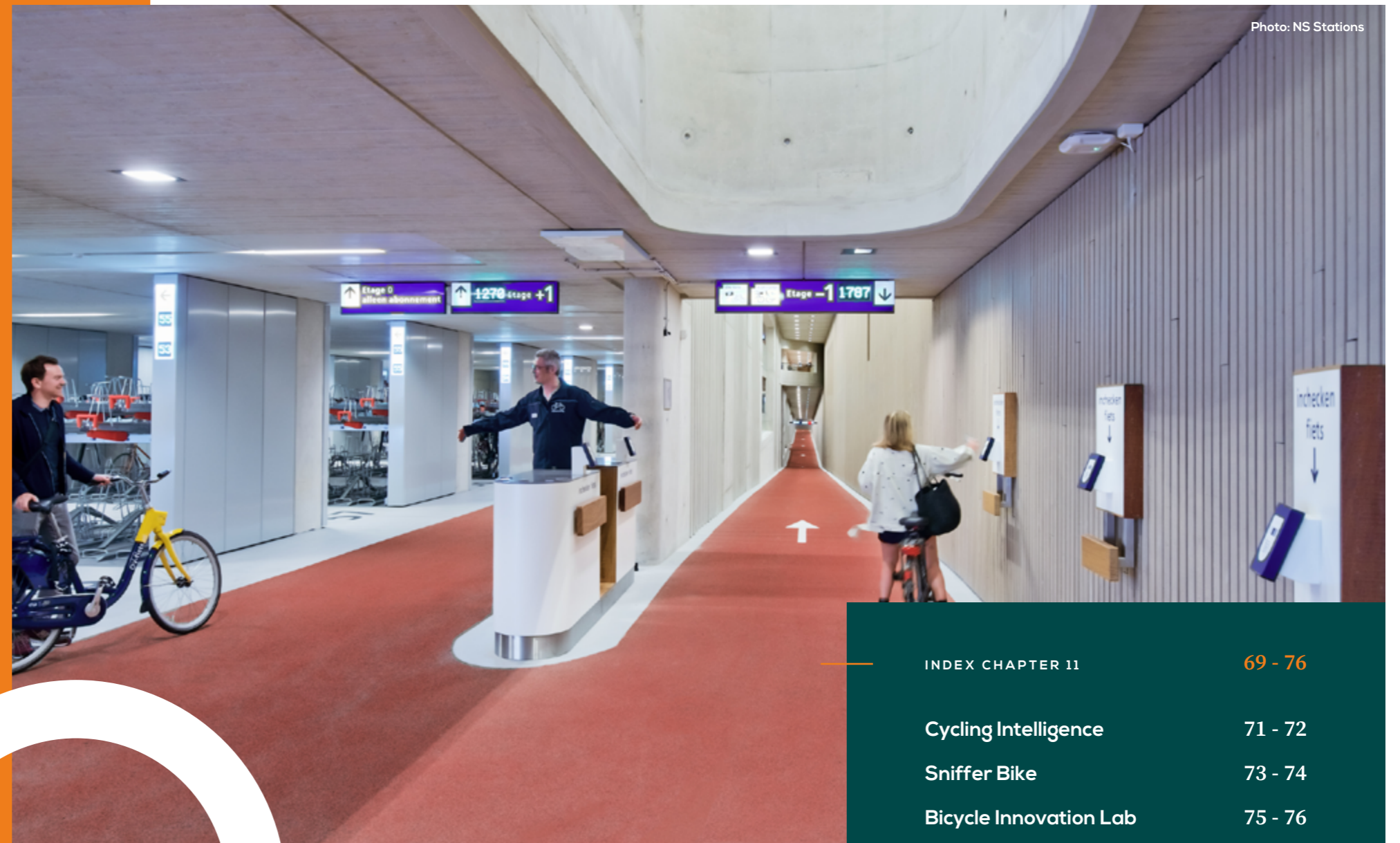
Duration of the project:
2018 - 2019

Involved organisations:
Municipality of Rotterdam, Humankind, Dutch Research Institute for Transitions, Studio Bereikbaar

Read more:
[City of Rotterdam \(NL\)](#)

Data & Innovation

The Dutch are pragmatic, especially when it comes to mobility planning. People cycle because it's the easiest way to get around. The same approach is also applied to data and innovations. The Dutch look beyond the bells and whistles of the "Smart City", knowing the real goal of data and innovations to improve quality of life for all.



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Cycling Intelligence

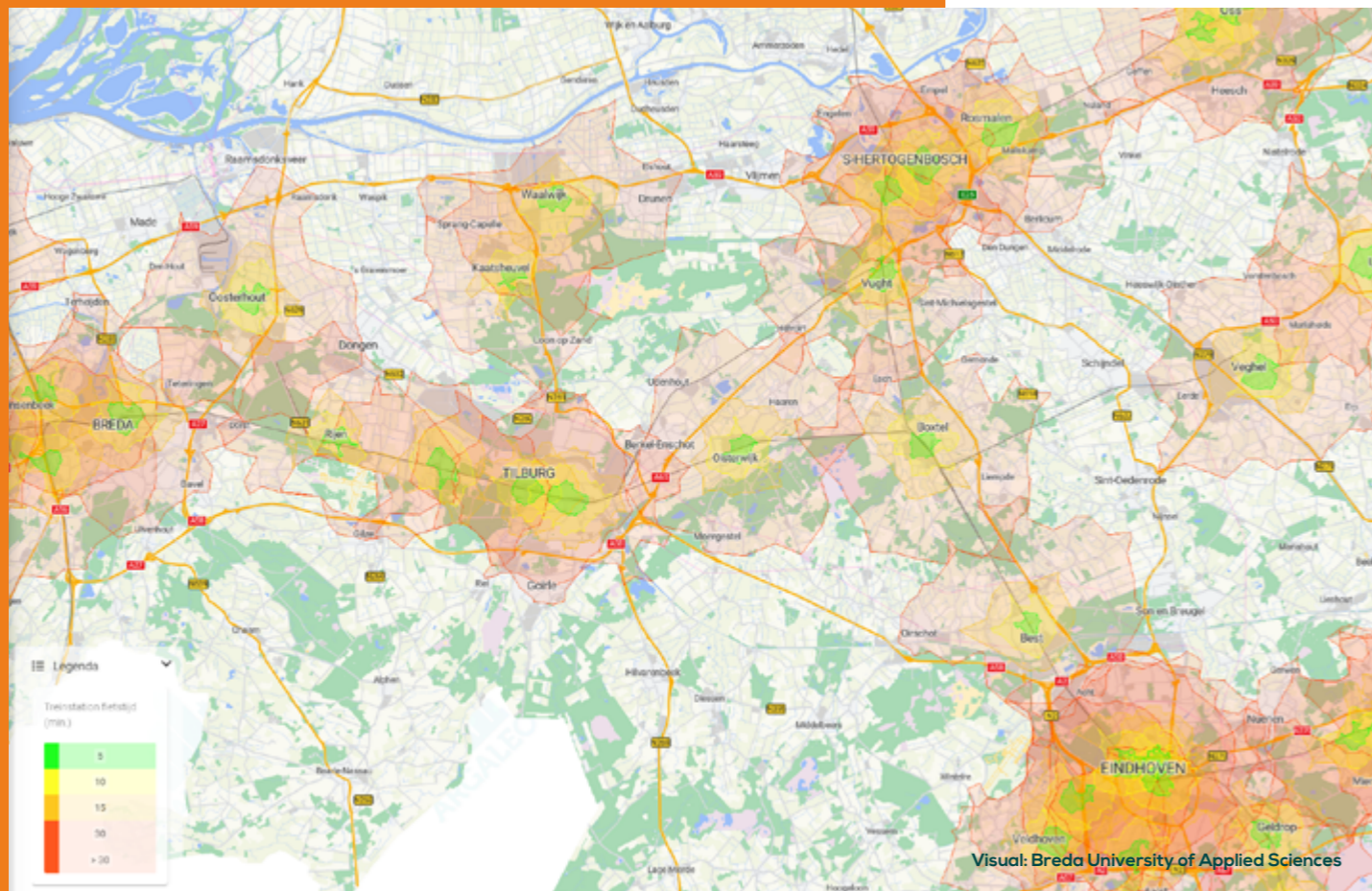
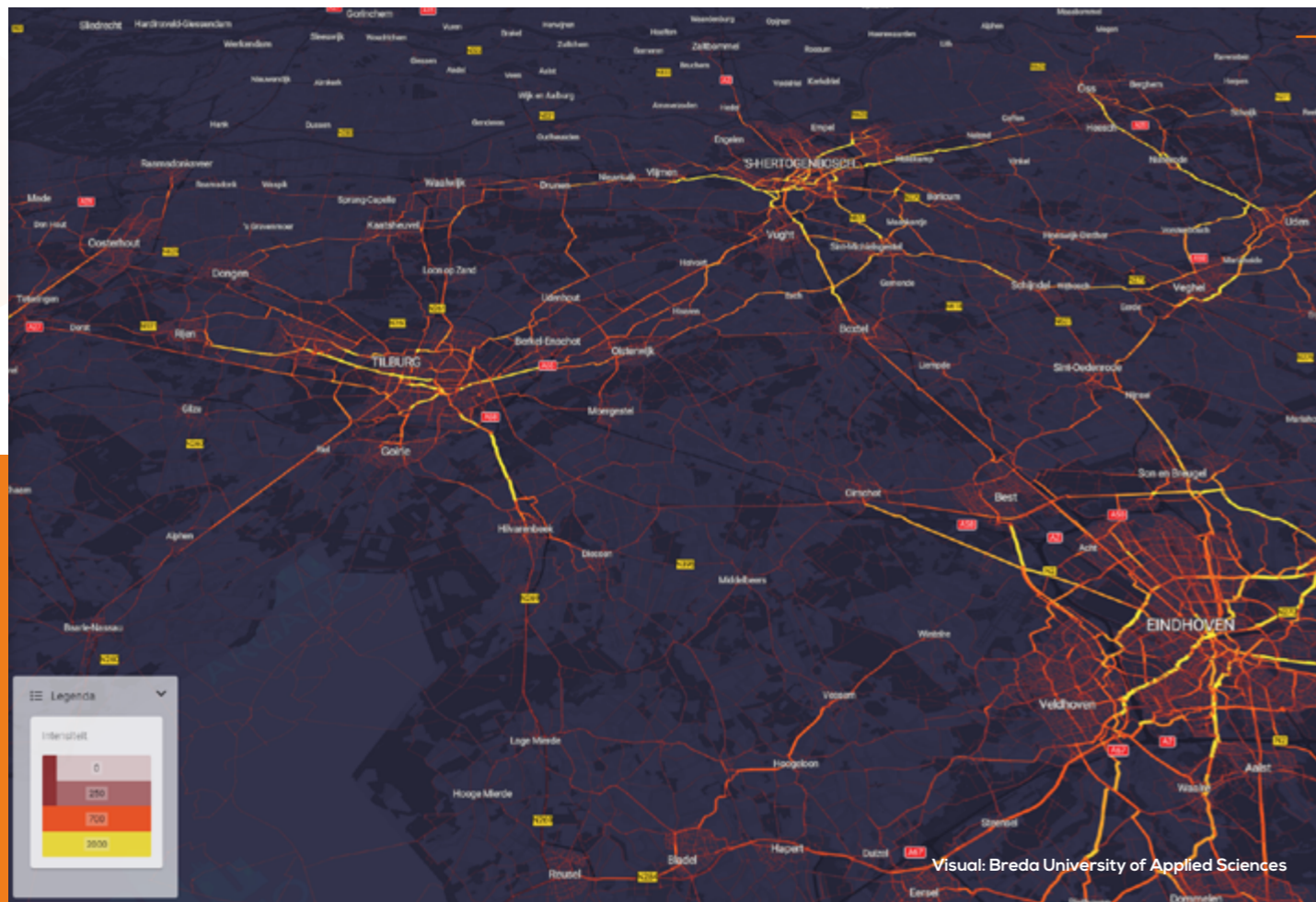
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Cycling Intelligence

Reason for intervention

In order to keep the modern city accessible, safe, and liveable, the bicycle is regarded as the environmentally friendly alternative. Because of the limited space and how expensive investments are to complete and enhance existing cycling networks, there is a need for better insights in cycling behaviour and policy effectiveness to support policy decisions.

Objective

The aim of Dutch Cycling Intelligence collaboration is to obtain insights in current and future cycling demand by translating data into policy relevant insights. The objective is to accelerate the data-driven dialog between road authorities, companies and research distinguishing the cyclist behaviour, use of the cycle path and the bicycle itself.

Chosen intervention

GPS data, cycle count data, and data for national surveys are being enriched, merged, and translated into cycling behaviour dashboards and on digital networks. Next to volumes, also speeds, route choice preferences and barriers are being exposed. Based on empirical cycle network performance, forecast models are developed to calculate the effects of cycle network enhancement.

Lessons learned

1. The introduction of Cycling Intelligence into the existing Dutch cycle policy process was not established overnight. First initiatives on data-driven cycle policy enhancement emerged from collaborations of academia and private companies.
2. To structurally embed this approach, several governments needed to invest in the process to uniform data collection, storage, and creating open data.
3. The insights are being enriched constantly by collaboration between road authorities, academia and the private sector, where applicability of insights is key (and not the data itself).

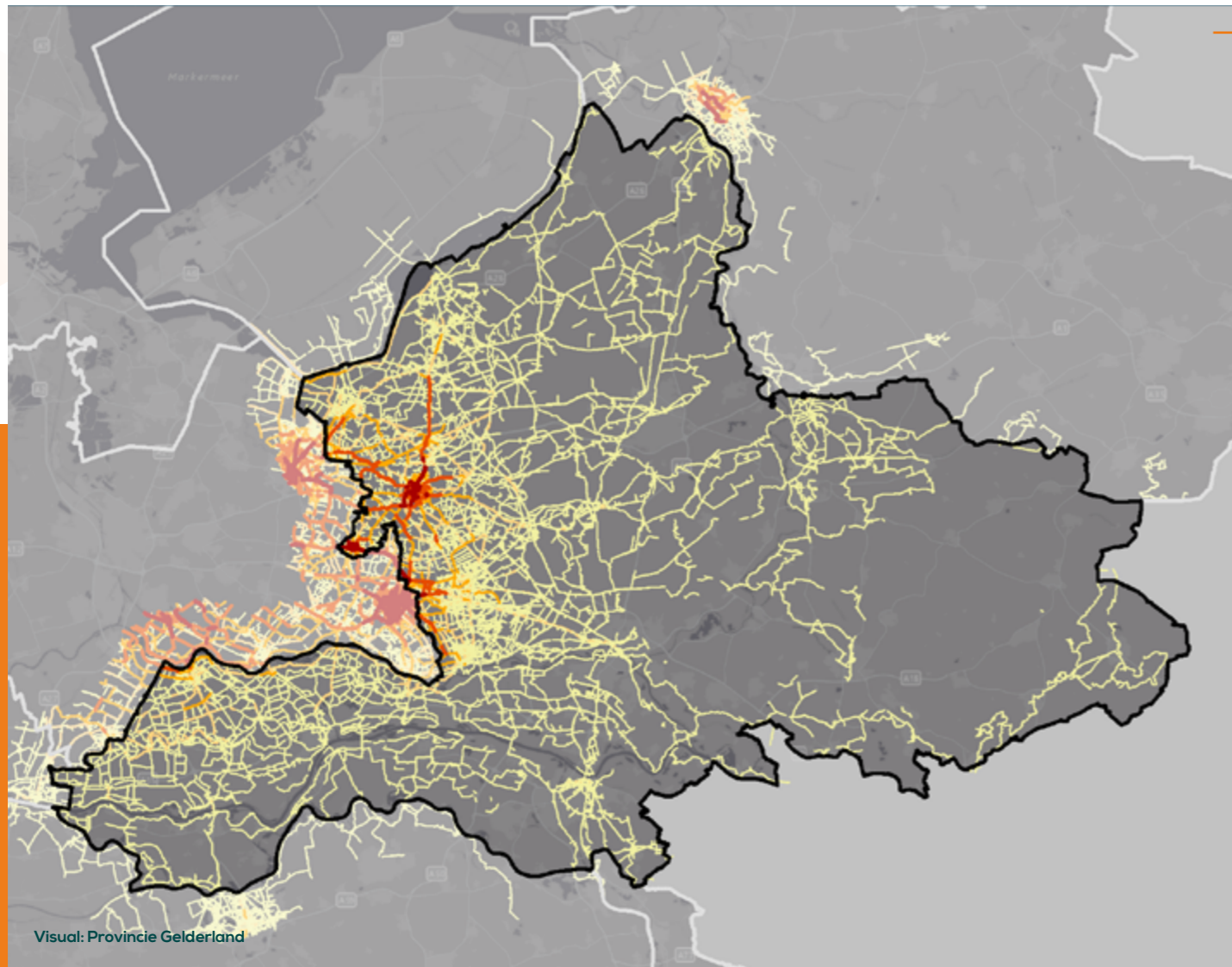
“The aim of Dutch Cycling Intelligence collaboration is to obtain insights in current and future cycling demand by translating data into policy relevant insights.”

Location:
National

Duration of the project:
Ongoing

Involved organisations:
Breda University of applied sciences, Dat. Mobility, Move.Mobility, City of The Hague, Tour de Force, studio Bereikbaar

Read more:
[Dutch Cycling Intelligence \(NL/EN\)](#)



Sniffer Bike

Reason for intervention

In the last few years, several data sources that provide a lot of insight in transport movements by car have emerged. However, even though there are major benefits for society to travel by bike instead of by car, the amount of available data about cyclists is scarce in comparison. If we know more about how and why cyclists use the bicycle within our cycling network, we could use those insights to stimulate traveling by bicycle instead of the car, especially for short distances.

Objective

The objective for the Sniffer Bike experiment was threefold. First, they wanted to collect more data about cycling movements and behaviour. Second, to do research whether GPS data could be a good addition for creating and implementing policies. Third, the provinces that are involved in this project wanted to gain experience in citizen science by collecting data in collaboration with individuals.

took more capacity than expected. Future experiments should anticipate required capacity to recruit participants who are willing to collect GPS data on a scale which is representative for the average cyclist.

3. Because of the experimental character of this project, the way data was received changed multiple times. Thereby, the data infrastructure used was not ready to process these types of data. This made the preparation of the data for the analyses time consuming. Progression in the data infrastructure is necessary if this project would be duplicated on a larger scale.

Chosen intervention

The Sniffer Bike was chosen as a means of collecting GPS data because of its innovative character. With the Sniffer Bike, participants could attach a sensor to their bicycle which measured their GPS location, particulate matter levels, temperature and relative air humidity. On a publicly accessible dashboard they could see the routes they have taken and the particulate matter concentrations on those routes.

Lessons learned

1. GPS data provides different insights and would be useful for creating and implementing policies. In contrast to the static data sources used at the moment, GPS data gives information about cycling speed, delays and more detailed routes underlining the need for a national standard for collecting more cycle data.
2. It can be quite complex to collect data together with individuals. In this project, municipalities were responsible for recruiting participants, although some reported difficulties reaching citizens who were willing to use the sensor for the duration of this experiment. Recruiting enough individuals

“The amount of available data about cyclists is scarce.”

Location:
National

Duration of the project:
2018 - Ongoing

Involved organisations:
Province of Utrecht, Civity, SODAQ, RIVM and Province of Gelderland

Read more:
[Snuffelfiets \(NL\)](#)



Photo: NS Stations



Photo: NS Stations

Bicycle Innovation Lab

Reason for intervention

The bicycle is an important element in the mobility chain for many Dutch citizens. Close to half of all train travellers in the Netherlands arrive at the station by bike, and with solutions like OV-fiets the last mile is often covered by bike as well. To support and speed up this growth, the Dutch Railways (NS) want to improve the comfort, accessibility and efficiency of parking at train stations. But before simply implementing new innovations, the effect and potential success need to be measured in order to check for effectiveness and flaws.

Objective

Create a test-lab concept where new innovations can be piloted on different locations in bicycle parking facilities. Examples of innovations that will be piloted in this lab are: 1) The new check-in / check-out zone (with e.g., Bike lanes), 2) A smart bicycle lock for OV-fiets which can be opened by using tapping your public transport smart card onto the lock, 3) special bike racks for off-sized bikes, such as cargo bikes, and 4) offering e-bikes for business use and therefore increasing the catchment area of the train station.

Chosen intervention

After extensively testing new innovations in a testing environment on an iterative basis, innovations will be piloted in a (small) setting with customers. This requires extra communication towards customers, since new innovations might not run as smooth as intended or perhaps not at all. Furthermore, the managers of the bicycle parking facility are engaged in the process in order to gather feedback from the users and receive feedback about the operational impact of the innovation. Stakeholders, such as municipalities, the National Ministry of Transport and the Cyclists' Union, are informed whenever a new pilot is launched in the bicycle parking facility.

Lessons learned

1. Iterative testing helps in easily gathering feedback from customers and managers of the parking facilities, which will help in quickly further developing innovations. This increases the agile development of innovations.

2. Customers value the opportunity to provide feedback and think along with the development of innovations. This results in a positive image of NS and its partners with customers and engaged stakeholders.

“Customers value the opportunity to provide feedback and think along with the development of innovations.”

Location:

Various train stations nationally

Duration of the project:

2020 - Ongoing

Involved organisations:

NS, ProRail, Municipalities, Ministry of Infrastructure and Water Management

Read more:

[Bicycle Innovation Lab \(NL\)](#)

“If you build it, they will come” is a famous phrase in the planning world. When cycling supporters say it, they refer to the need of safe and attractive cycling infrastructure to get more people on the bike. In the Netherlands, lack of bicycle infrastructure is not a problem, and yet many people don't cycle. That's why the role of campaigning is so important: how can we raise awareness to cycling, and attract more people to do so?



Photo: Benjamin Groenewolt

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Photo: Vierstroom Zorg Thuis

National Bicycle Ambassadors: Vierstroom

Reason for intervention

The Netherlands Ministry of Infrastructure and Water Management works together with selected organizations to increase modal share amongst their employees through the Bicycle Ambassador program. One of these Bicycle Ambassadors is the home care organization 'Vierstroom'. 650 caretakers travel daily routes to their clients, totalling 85,000 hours of travelling per year. In times of cost cutting and high pressure on caretakers, both the organization and the health insurance company VGZ were investigating ways to reduce travel time.

Objective

Vierstroom and VGZ wanted to investigate the impact of e-bikes on time spent travelling.

4. Vierstroom is eager to share their experiences and approach with other care-organizations, therefore acting as a true bicycle ambassador.

Chosen intervention

Vierstroom started a pilot with eight e-bikes, which were assigned to two teams: one team in an urban setting and one team in a rural area. The employees were allowed to use the e-bike for private trips as well and were asked to travel as they liked. The pilot was financed by the health insurance company VGZ. Overall, travel time was reduced with 11.5%, both compared to car and regular bike trips. The number of trips done by bike was increased by 60%, because they enjoyed riding the e-bike. Vierstroom decided to translate this policy to their entire organization, which led to a reduction of 100,000 kg of carbon emissions per year.

Lessons learned

1. Investing in e-bikes for employees can be a typical win-win: increased organizational efficiency and happy employees.
2. Offering e-bikes to all employees allows caring for 35 extra clients per month.
3. Absenteeism due to sickness reduced by an average of one day per employee.

“Offering e-bikes to all employees allows caring for 35 extra clients per month.”

Location:

Province of Zuid-Holland

Duration of the project:

2018 - Ongoing

Involved organisations:

Care organization Vierstroom, Ministry of Infrastructure and Water Management, VGZ

Read more:

[Ministry of Infrastructure and Water Management \(NL\)](#)



Photo: Fietzersbond



Photo: Fietzersbond

Cycling City Award

Reason for intervention

Cities are often looking for ways to put themselves on the map. They are often improving the situation for cyclists, but don't manage to attract attention to these changes. This can be helped by creating a platform to highlight their cycling policies and developments, include citizen/user-based input and celebrate the efforts of the best performers. This platform can also help convince politicians to reserve more money for cycling.

Objective

The goal of the bicycle city election is to draw attention to improving bicycle policies. By giving cities the chance to be rewarded every other year, they are stimulated to improve their cycling policies. By developing a campaign and organizing a challenge where you ask cyclists to give their opinion about cycling in their city, it gathers valuable input for the city administration. Furthermore, it designs a toolkit that cities can use to reach cyclists and politicians, that creates national awareness and draws attention to the cycle climate.

Chosen intervention

Every citizen in the Netherlands is asked to rate the current status of cycling (policies, infrastructure, etc.) of their own city. The opinion of cyclists is combined with objective data and on this basis, a winner is chosen and awarded with the 'Cycling City-award'. The election helps convince politicians that bicycle policy in the Netherlands requires more attention. Furthermore, it stimulates a competitive environment where each city wants to win. As a result, many cities have used this challenge for arranging budgets and drawing public attention to cycling in their respective cities. Enschede, for example, used the Cycling City-election to promote behavioural campaigns as well, rather than just focusing on infrastructural campaigns. Their educational programmes and (inter)national awareness days/weeks have gained a lot of attention amongst the inhabitants of Enschede.

“Have a story to tell: Why does the city need more cycling?”

Lessons learned

1. Use a mixture of communication channels. In reaching all of the population, it is important to use both online and offline channels. It helps being visible in public space and having others resend your message.
2. Collaborate with event-ambassadors. These ambassadors spread the message and have a large reach
3. Have a story to tell: Why does the city need more cycling? How does the one individual who reads your message benefit? Only that way people can truly believe the message you're sending.

Location:
National

Duration of the project:
2000 - Ongoing (every two years)

Involved organisations:
Cyclists' Union, all Dutch Municipalities

Read more:
[Cyclists' Union \(NL\)](#)
[City of Enschede \(NL\)](#)



Grassroots Bicycle Stimulation

Reason for intervention

Cycling should be as fun and comfortable as possible in order for more people to choose it as a way of transportation. However, it can be difficult for a government to reach citizens, companies and local networks. With a local community building approach, citizens can become part of the decision-making process. Taking social cycling issues together with the community results in more involvement, participation, sustainability and change.

Objective

The 033 on the bike initiative (*033opdefiets*) is created by people who work or live in Amersfoort and who want to stimulate as many of their peers enthusiastic about cycling. By conducting experiments, the initiative wants to visualize obstacles, inspire others and look for solutions together.

5. Next to infrastructure, it is important to focus on attitude and behaviour as well.

6. Make room for experiments that are future oriented.

7. The cycling climate will increase with more local bicycle ambassadors.

Chosen intervention

The initiative was started locally in collaboration with the municipality of Amersfoort. The purpose of 033opdefiets is functional and it stimulates people to participate. It is functional in the sense that it allows companies, schools, inhabitants, and the local government to act. The project is available for everyone in Amersfoort, which stimulates people to participate. It is currently investigated what role the people of Amersfoort want to play in improving the cycling climate. By being involved in the process, people can discover for themselves that cycling is fun and healthy.

Lessons learned

1. Involve the environment actively throughout the process to integrate a community around the bike into the existing territories.
2. When the municipality itself is very involved in the process, it gives a boost to the project.
3. Communicate clearly about which approaches led to success and which did not.
4. Experiment with current issues and small annoyances. Little effort can lead to great results which sets an example for future projects.

“With a local community building approach, citizens can become part of the decision-making process.”

Location:
Amersfoort

Duration of the project:
2016 - Ongoing

Involved organisations:
GoedopWeg, Municipality of Amersfoort,
Office for Bicycle Stimulation Triple Joy

Read more:
[033opdefiets \(NL\)](#)



Photo: Dutch Cycling Embassy

Campaigning by App

Reason for intervention

Many people travel to work by car, also for relative short distances (< 7,5 kilometres) which causes congestion between municipalities. This leads to emissions of greenhouse gases and particulate matter. So, each cycled kilometre is a gift to our public space, by providing cleaner air and improving the liveability of a community, your mental and physical health. Cycling should therefore be stimulated, for example through the use of apps that track cycle behaviour to stimulate people to cycle to their work and reward accordingly.

Objective

Cities can make use of an app to track and reward healthy lifestyle choices in order to change behaviour. The extra catch with these apps is that this will provide valuable cycle data. This data can provide a lot of information about cycle distances, bottlenecks, busy intersections, and infrastructure opportunities.

Chosen intervention

The chosen intervention is using an app as a tool to stimulate people to change behavior. Various versions of apps are gaining popularity. Ring-Ring® will convert the kilometres cycled into direct discounts at local shops or into donations to charity organizations on behalf of a group of bicycle commuters. Ring-Ring® is since 2020 connected with Talking Traffic and gives cyclists priority at traffic lights. Fynch also directly rewards cycle trips (and other ways of sustainable travelling, like using PT, working from home or travelling at off-peak hours) with coins that can be redeemed in the Fynch Shop for discounts on sustainable brands.

“ Cities can make use of an app to track and reward healthy lifestyle choices in order to change behaviour.”

Lessons learned

1. It is important to realize that a project like this on its own will not solve severe congestion problems, although it can contribute to it.
2. Clear channels should be defined to be able to reach target groups. A solution could be a collaboration with employers who stimulate the use of an app in order for their business to become climate neutral and to stimulate their employees to have a healthy lifestyle.
3. Commuters often become more enthusiastic about cycling, once they start cycling, so getting them to change to a bike during the project is key.

Location:
National

Duration of the project:
Ongoing

Involved organisations:
Ring-Ring®, Fynch Smart Mobility, municipalities, employers, shops, insurance

Read more:
[Ring-Ring® \(NL\)](#)
[Fynch \(EN\)](#)

To promote cycling culture in the Netherlands, professionals and like-minded people meet often to exchange ideas, challenges, and best practices. The spirit is that to create great bicycle cities, we need to work together. These networks connect professionals, decision-makers, researchers, and activists around a variety of topics: from education, through logistics and to technology.



Photo: Acquire Publishing

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Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

'Tour de Force' National Agenda

Reason for intervention

Although there is already plenty of cycling, the bicycle use still has large potential for growing, especially in urban areas. More than half of the car journeys in the Netherlands are shorter than 7.5 km, which is within a bicycle distance, let alone the range of electric bicycles, which brings the range up to 15 km. Another step forward would be to increase the number of people who cycle to the train, tram, or bus, especially since public transport is increasingly diminishing in rural areas. In order to achieve this further growth, a national approach needs to be developed.

Objective

The main goal is an increase in the number of kilometres cycled in the period 2017-2027 by 20 percent. Increasing the bicycle use in the Netherlands is not an end in itself. The Tour de Force wants to use the "power of the bike" in order to give a substantial boost to a number of broad-based social ambitions at various scales.

Chosen intervention

Tour de Force is the partnership between the authorities, trade and industry, NGOs, knowledge institutes, and platforms dedicated to cycling in the Netherlands. It is a network organisation, a facilitator. By setting the agenda, the coalition of stakeholders stimulates, motivates and inspires the regular bicycle-orientated activities undertaken by each of the partners separately.

Lessons learned

1. By working together, you can achieve more and create more value: cooperation between the various parties is what makes Tour de Force so successful: not only do the authorities participate, but also professional organisations with an interest in scaling up bicycle use.
2. Rethink the approach for boosting cycling conditions: for cycling distances up to 15 kilometres, the Tour de Force aims for a cycle-inclusive, integrated approach where the bicycle is the focal point. To that end, the Tour de Force not only prioritises and invests in infrastructure, but also provides sufficient services for cycling and creates adequate conditions. A few examples: parking facilities for bicycles, opening up mobility

hubs, bike share, road safety, and behaviour change.

3. Rethink our finances for boosting cycling conditions: Normally projects are linked to the available cycling budget. Tour de Force changes this approach to swap it the other way around. In addition, sufficient capacity to put into practice cycling projects is made available in government and other organisations.

4. Rethink the available space for boosting cycling conditions: this 'new thinking' has a large impact on the distribution of space, especially in town centres. Cycling is no longer 'a way to balance the budget'. On the contrary, pedestrians and cyclists will literally get the space to move comfortably and safely. This calls for a different prioritisation when infrastructural choices are made.

Location:
National

Duration of the project:
Initiated in 2015, First stage: 2017 - 2020, second stage: 2020 - 2027

Involved organisations:
Over 20 authorities, parties, civil society organizations, knowledge institutes and collaboratives

Read more:
[Bicycle Agenda 2017-2020 \(EN\)](#)
[Bicycle Agenda 2nd stage \(EN\)](#)



Photo: Acquire Publishing

National Cycling Conference

Reason for intervention

The world is rapidly changing, and so is the field of cycling. The challenges professionals in the field experience during their work are often experienced by their peers as well. In order to foster collaborations between these professionals, an annual (networking) event/meetup was deemed useful.

Objective

The goal of the National Cycling Conference is to share knowledge and get acquainted with the newest cycling-related developments. Together, with like-minded people, your knowledge is broader, and your support base increases. Thereby, it is a network event where people can meet, exchange ideas, and come to interesting collaborations.

2. Most of these reasons to visit the conference can just as well be achieved digitally, although networking proves to be a bit more challenging for some visitors.

Chosen intervention

Every year, a national bicycle conference is organized. This National Bicycle Conference offers a platform for professionals to meet their fellow professionals in the field, be inspired by the talks of their peers and meet potential clients. During the talks, the newest developments in policy, products, research and relevant developments that influence cycling in the Netherlands are presented. In 2019, more than 350 professionals gathered for the National Cycling Conference with backgrounds in consultancy, government, education, healthcare, and much more.

In 2020, due to the COVID-19 crisis, the conference was held online and was divided over two days. With over 30 sessions, the latest research, experiences and insights were shared digitally. One of the benefits of an online conference is that all sessions can be viewed again at a later point.

Lessons learned

1. Professionals visit the National Cycling Conference for expertise (25.5%), for inspiration purposes (22.8%) and to be updated on the latest actualities (18.4%). 33.3% of the professionals go to the conference to network.

“ In 2019, more than 350 professionals gathered for the National Cycling Conference.”

Location:

National

Duration of the project:

Annually

Involved organisations:

Acquire Publishing

Read more:

[Nationaal Fietscongres \(NL\)](#)



Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

NETWORKING

Bicycle Community

Reason for intervention

In the Netherlands, despite its strong cycling culture and high cycling shares, cycling-related research was neglected or too narrow-focused on technical/practical issues. Professionals involved in (possible) research lacked a common base for social interaction and debate, while existing organizations served a limited professional audience only (e.g., civil servants).

Objective

Creating a 'community of practice' – i.e., a living cycling community (*'Fietscommunity'*) – aiming on: Enhancing cycling related research and increasing the scope of future research projects; Improving access to completed and new research. Creating a knowledge base for scientific, applied and explorative bicycle research. Drawing up a cycling-knowledge agenda.

Chosen intervention

The Bicycle Community was founded with guaranteed funding, stakeholder involvement and professional support for at least two to three years. Part of this community was a quadruple helix-based cooperation between bicycle entrepreneurs (services, products, consultants, designers), universities (research, education), government (ministries, cities) and citizens (cyclists' unions, NGOs). The Bicycle Community consisted of an accessible web platform, shared knowledge base, and meeting places/events.

Lessons learned

1. The concept of community is appropriate for organizing comprehensive cycling knowledge embedded in a quadruple helix-based cooperation of all stakeholders.
2. Development of a mature and comprehensive cycling knowledge base requires ongoing effort during a substantial number of years.
3. A cycling community represents a living entity that must operate as an open source for bicycle knowledge.

“Development of a mature and comprehensive cycling knowledge base requires ongoing effort during a substantial number of years.”

Location:
National

Duration of the project:
First stage: 2016 - 2020
Second stage: 2021 - Ongoing

Involved organisations:
Platform31, Favas.net, Hugocycling and others

Read more:
[Bicycle Community \(NL\)](#)



Photo: Fietzersbond



Photo: Fietzersbond

NETWORKING

From Activism to Professional Advocacy

Reason for intervention

The Fietzersbond (Cyclists' Union) was founded in 1975 out of several local initiatives that protested against the growing dominance of cars in the cities, which led to traffic unsafety for cyclists. At this stage, the modal share of cycling was decreasing, and traffic unsafety was at a very high level.

Objective

From the beginning, many local initiatives advocated for better cycling facilities and more cycling. Better cycling facilities means separate bicycle paths or lanes along main roads, traffic calming as low speeds in living areas, bicycle streets, regional fast cycling routes, bicycle parking facilities. By joining forces and creating one national organization, the impact can be heavily increased.

Chosen intervention

Initially started with typical activist's protests, Fietzersbond managed to grow into a serious lobby organization. It intervenes at national, regional and local level. The backbone of intervention is concentrated at city level. At this level, the Fietzersbond consists of local chapters. These local chapters have regular meetings with bicycle officials and/or politicians responsible for mobility. The chapters are supported by the national headquarters with expertise and connections. Day to day local advocacy is strengthened by campaigns, for instance the annual 'Cycling City' election and the campaign '30 is the new 50' to make 30 kilometres per hour the default speed in built-up areas.

Lessons learned

1. Fietzersbond is successful because it has become a respected partner of government at all levels and thus forms part of the orgware of Dutch cycling. It is important that cycling

is recognized to be an important element of mobility by all political parties.

2. Cycling advocacy requires a long breath in order to be successful due to slow processes and adoption within governments.

3. The local chapters should be supported by the national office on a daily basis in order to be effective.

“Cycling advocacy requires a long breath in order to be successful due to slow processes and adoption within governments.”

Location:

National

Duration of the project:

1975 - Ongoing

Involved organisations:

Fietzersbond

Read more:

[Cyclists' Union \(EN\)](#)

The bicycle is so integrated in Dutch society, that it is not a surprise that it has a big role in the school system. Dutch children have to pass a cycling exam during primary school. But it doesn't end there: around the Netherlands, there are plenty of training programs that help newcomers to learn how to ride a bicycle. The great thing about it is that once you learn how to ride a bike, you never forget!

Training & Education

Photo: Dutch Cycling Embassy



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Photo: Mama Agatha



Photo: Mama Agatha

TRAINING & EDUCATION

Bicycle Lessons for Migrant Women

Reason for intervention

Over ten years ago, Agartha Frimpong, also known as Mama Agatha, was confronted with the loss of a dear member of the community in Amsterdam Southeast, which made her realize that she wanted to learn to ride a bicycle, in order to stay healthy. She soon found out that she was not the only woman in that part of the city who wanted to learn this.

Objective

Teach women to cycle and give them access to a bicycle, so that they can integrate cycling into their daily routines and work on their health, as well as support women in their role as mothers, who can then cycle with their children to school. Another objective is for women from Amsterdam Southeast to build stronger social connections and open up new opportunities.

Chosen intervention

The municipality financially supported Agartha to set up the bicycle lessons that have been running for more than ten years. Hundreds of women learned to ride a bicycle and earned their own bicycle through dedicated participation in the course.

Lessons learned

1. Teaching adults to ride a bicycle is a social activity, rather than a technical skills course.
2. Combining bicycle lessons with the opportunity to get access to their own bicycle at the end of the course is a motivating factor that helps integrate the bicycle in daily life.
3. Teaching mothers to cycle benefits their children too.

“ Hundreds of women learned to ride a bicycle and earned their own bicycle through dedicated participation in the course.”

Location:

Amsterdam Southeast

Duration of the project:

2010 - Ongoing

Involved organisations:

Stichting Women Motivation & Integration

Read more:

[Stichting Women Motivation & Integration \(EN\)](#)

[Mama Agatha - The film \(EN\)](#)



Photo: Gemeente Amsterdam - Edwin van Eis



Photo: Marjolijn Vonhof



Photo: Marjolijn Vonhof

Traffic Exam for Children

Reason for intervention

It is very important for Dutch children that they have the freedom to cycle to school or to their friends independently. It is crucial that schools spend time teaching children about behaviour and rules in traffic in order to maintain themselves in traffic safely and help build confidence, both for the kids and their parents. This is preferably done throughout their whole education at primary school. For most Dutch children, being mobile and independent is a crucial part in their social life.

Objective

The organization VVN examines children on their knowledge and practice when they are around 11 years old. During this practical exam, children show that they know how to behave in traffic during real situations.

Chosen intervention

The VVN Practical Traffic exam tests the behaviour of children on their bicycles in their neighbourhood. It also shows how they apply their knowledge of traffic in real situations. The route is established by connecting various different points of importance such as a crossroads, roundabouts, traffic lights, or railroad crossings. In the weeks approaching the exam, parents can practice the route with their child(ren) and give pointers where necessary. This prepares them to take the practical exam with confidence.

Lessons learned

1. The exam route should be close to school, as those are the bike lanes the children use the most in their daily routine.
2. It is important that children practice the route before the exam to take away some of the nerves. Children who practiced the route with their parents are more confident during the exam.
3. Parents and teachers are volunteering alongside the route to examine the children in cooperation with VVN. This increases the engagement of parents with the traffic education and reduces costs.

“ The VVN Practical Traffic exam tests the behaviour of children on their bicycles in their neighbourhood.”

Location:

National

Duration of the project:

1932 - Ongoing

Involved organisations:

Schools, Municipalities, VVN

Read more:

[VVN \(NL\)](#)



Photo: 4Wieler



Photo: Dutch Cycling Embassy

CycleOn

Reason for intervention

Cycling has no age limit. However, older cyclists are vulnerable. The number of seniors who are seriously injured in bicycle crashes in the Netherlands has increased by 50% since 2000. Many elderly cyclists are scared to ride their bike after an accident, which has a major impact on their health, self-reliance and social interactions.

Objective

The ambition of the CycleOn program is to make elderly cyclists aware of road safety concerns, via their own trusted network. Provinces, municipalities and local (health) authorities are all part of this network. This way, the number of bicycle crashes among elderly cyclists must decrease, while simultaneously increasing levels of mobility and vitality.

Chosen intervention

Setting up a program which motivated elderly people to keep riding the bike as long as possible in a safe manner. It is organized through a local network of organizations (e.g., physical therapists, bicycle volunteers, sports coaches) supporting elderly people with this ambition.

Lessons learned

1. Cycling is fun! The CycleOn program is based around a positive approach. All CycleOn activities are focused on having fun in an inviting environment.
2. Connecting and working together is at the core of CycleOn. Both in terms of government layers (national, regional and local) as in terms of policy domains. The combination of road safety policies, health policies, sport and physical activities has been an important asset in the success of CycleOn.
3. Gather the early adopters. By connecting enthusiastic people from different disciplines (sports, healthcare, policy advisors), CycleOn has created a group of frontrunners who also play an exemplary role, encouraging others to take part in the CycleOn program.
4. Small steps. CycleOn started with a small group of frontrunners who were eager to make a change. Now, 10 out of 12 provinces have implemented CycleOn in their policy. These small steps have also worked well in the activity plans of the CycleOn partners. Start with a couple of activities, communicate about it so people are aware of the CycleOn program in their municipality, and extend in the next period.

“Connecting and working together is at the core of CycleOn. Both in terms of government layers (national, regional and local) as in terms of policy domains.”

Location:
National

Duration of the project:
2019 - Ongoing

Involved organisations:
Veilig Verkeer Nederland, SWOV, and others

Read more:
[Doortrappen \(NL\)](#)
[CycleOn \(EN\)](#)

15.

Multimodal Projects

Great bicycle design is about breaking the silos between planning worlds. The idea behind multimodal projects is to allow users to seemingly change modes of transportation, while always choosing for the most convenient way of moving around. Do you want to cycle to the station, take a train, and then walk to work? These multimodal projects have got your covered.



Photo: Dutch Cycling Embassy

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Photo: IPV Delft - Helibeeld.nl



Photo: IPV Delft - Andreas Secci

Hovenring Cycle Bridge Eindhoven

Reason for intervention

This previous existing intersection at this location was a big at-grade roundabout used by all modes of traffic. This caused terrible congestion and it was not well designed for cyclists. Nearby building developments would only increase traffic. The City of Eindhoven wanted a new grade-separated intersection that would benefit its identity as the city of technology and light.

Objective

The main objective was to create a bicycle and pedestrian friendly crossing. The roundabout had to be safe and allow a constant flow of traffic for cyclists, pedestrians, and motorized vehicles.

Chosen intervention

The decision to design a floating cycling roundabout, something that had never been done before at this scale and in this way, formed the basis of the project's success. Getting all stakeholders involved right away and closely working together with all parties involved in the construction during the design and engineering phase, was key in ensuring the final result was as powerful as could be.

Lessons learned

1. When space is limited, as it was here, looking for unusual options might just offer the solution. The existing infrastructure and buildings set the boundaries for the grades of the slopes leading up to the roundabout. Space was limited and it seemed impossible to fit the slopes in. Therefore, the project team decided to lower the ground level of the traffic intersection underneath by a metre and a half. That allowed enough room for a comfortable slope for pedestrians and cyclists.
2. An innovative and iconic design can boost cycling, as well as a city's image. Ever since its completion, the Hovenring has attracted cycling and design enthusiasts from all over the globe.

“When space is limited, looking for unusual options might just offer the solution.”

Location:

Eindhoven, Heerbaan and Noord-Brabantlaan

Duration of the project:

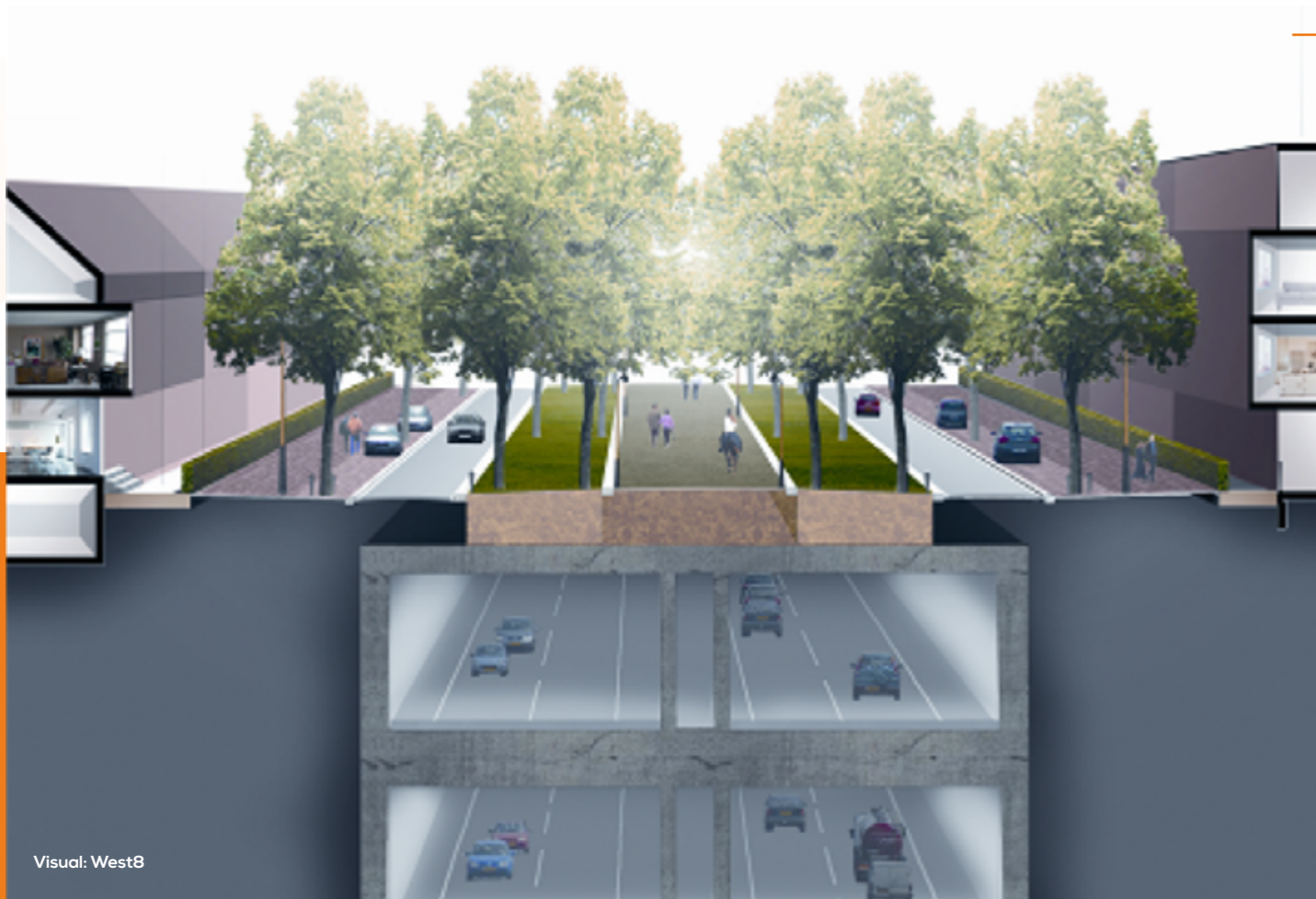
Design and feasibility study 2007, completion 2012

Involved organisations:

IPV Delft, Witteveen+Bos, BAM Infra

Read more:

[IPV Delft \(EN\)](#)



Visual: West8



Photo: Maurits Lopez Cardozo

Koning Willem-Alexander Tunnel Maastricht

Reason for intervention

Right through the city of Maastricht, there used to be highway A2/N2. This problem was not just traffic-related, it was also a quality-of-life issue. Therefore, the solution had to be an integrated plan that includes a range of mobility and urban development interventions. The statement of requirements has built-in cycling aims and the technical specifications to help boost quality of life, for example by creating a park on top of the highway tunnel.

Objective

The main goals of the project were to improve traffic flow, accessibility and quality of life in Maastricht. The A2 Maastricht project is often seen as an infrastructural project. Or even just as a tunnel project. But that's not the reality: A2 Maastricht is more like a social project than an infrastructural one. It's all about mobility, plus quality of life.

(Groene Loper) is a comprehensive plan for the city and motorway.

2. Utilise market expertise at an early stage in the process. In this project, the plan was much better as a result. The project has synergy and an integral nature.

3. Work together in a joint project agency: that makes you sharper and facilitates the process.

Chosen intervention

At the turn of the century, Maastricht mobilised and involved stakeholders in order to widen the scope of the project. For cyclists, the project involved the construction of a cycle tunnel for a better connection to the cycle highway from Maastricht to Aachen. Additionally, the cycling network was enlarged with the creation of a recreational cycle route beyond the project boundaries. Unsafe barriers for cyclists were removed as well: there used to be three dangerous signalized highway crossings for cyclists, now there are eleven safe and attractive connections along the corridor. Thanks to the highway tunnel, 80% of all traffic passes through Maastricht underground.

Lessons learned

1. Combine work on the infrastructure with improving the living and working environment; this helps to take cyclists and pedestrians into account. The so-called Green Carpet

Location:
Maastricht

Duration of the project:
2001 start integrated planning,
2016 completion

Involved organisations:
National Government, Province of Limburg, Municipality of Maastricht, Municipality of Meerssen, Maastricht Bereikbaar, A2 Buurtplatform, Cyclists' Union, and others

Read more:
[Example Book Bicycle Rijkswaterstaat \(EN\)](#)



Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

Central Station- Area Utrecht

Reason for intervention

The Central Station in Utrecht is the busiest train station in the Netherlands. Every day during rush hours, bike-clogged streets crowded out foot traffic. To improve the quality of space around the train station, there should not be bikes parked on street level. This led city officials to the idea to redevelop the whole Central Station area of Utrecht. The project is called CU2030 (See You in 2030).

Objective

To solve the mobility issue, the municipality of Utrecht wanted a solution that would ease congestion and transform the surrounding station square neighbourhood, whereas the National Railways aimed for improving the connection between the train and other modalities. The solution should also include the train station, the bus station, a shopping mall, and several public squares. Thereby, the largest bike parking facility of the world was designed and built right next to the train station. With space for 12,500 bikes, the area is prepared for an increased number of passengers.

Chosen intervention

To seduce cyclists to use the bike parking facility, the time to park should be limited. The first 24 hours, it is free to park your bike in the facility. Afterwards you pay a small amount of money, which is automatically deducted from your personal public transportation card. Cyclists are able to cycle into the garage, right to the spot where you park your bicycle. When leaving the garage, you step right into the train station, bus station, shopping mall or business area. This creates a smooth connection for train passengers who arrive by bike.

Lessons learned

1. Creating a smooth connection for train passengers also yields for the railway operator, resulting in increased demand.
2. It is important to put effort in improving a project team to make it perform better. By openly discussing what role everyone plays, the team gets stronger.

3. Scope changes cannot be avoided in a long-term project such as this one. Possible changes have to be discussed with all stakeholders to gain support.
4. The project team has held frequent interviews with all workers and stakeholders throughout the project. This provided lessons and insights to improve upon going forward.

“Creating a smooth connection for train passengers also yields for the railway operator, resulting in increased demand.”

Location:
Utrecht

Duration of the project:
Design 2009-2014,
Construction: 2014-2019

Involved organisations:
POS (Project Organisation Stationsplein)
City of Utrecht; and others.

Read more:
[CU 2030 project page \(NL\)](#)
[Bicycle Dutch \(EN\)](#)

We like to say that Dutch bicycle infrastructure is state-of-the-art. But sometimes, Dutch designers take this idea literally. They give roads, parking stations, and bridges a spectacular design, making an ordinary trip feel like a visit to a museum. Bicycle infrastructure can be a boring topic, but once you see some bicycle landmarks in the Netherlands, you'll understand why the Dutch celebrate their love for the bike.

Photo: IPV Delft - Lucas van der Wee



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Photo: IPV Delft - Lucas van der Wee



Photo: IPV Delft - Lucas van der Wee

LANDMARK

Cycle Bridge Nigtevecht

Reason for intervention

Local authorities had been wanting to create a bicycle connection across the Amsterdam-Rhine canal for a long time, but residents objected. The connection would provide a much-needed addition to the regional and recreational cycling network.

Objective

Maximizing resident and stakeholder support for a bicycle and pedestrian bridge to be built across the canal at this rural location. A wildlife connection was to be created at the same time, connecting areas of natural beauty on either side of the canal.

Chosen intervention

By talking to stakeholders and explaining the (im)possibilities the site provided, we were able to design a bridge that met all the requirements and addressed local concerns. The stakeholders were ensured that the bridge would be as transparent and slender as possible, resulting in minimal intrusion. Furthermore, the necessary slopes would be compact and well-fitted into the location.

Lessons learned

1. Get stakeholders involved right away, before even starting the design phase. Stakeholder involvement is key to getting a (bridge) design that suits everybody's needs. That way, the bicycle bridge will best suit its users and surroundings.
2. A well-thought-out slope design is essential for bicycle bridges that require a high vertical clearance. The slopes will be long, which means only a comfortable grade and easy to read layout will allow all types of users to use the bridge safely and comfortably.

“ Stakeholder involvement is key to getting a (bridge) design that suits everybody's needs.”

Location:

Nigtevecht, Kanaaldijk Oost

Duration of the project:

2015 - 2018

Involved organisations:

Province of Utrecht and Noord-Holland, Rijkswaterstaat, IPV Delft and others

Read more:

[IPV Delft \(NL\)](#)



Photo: Bersselaar

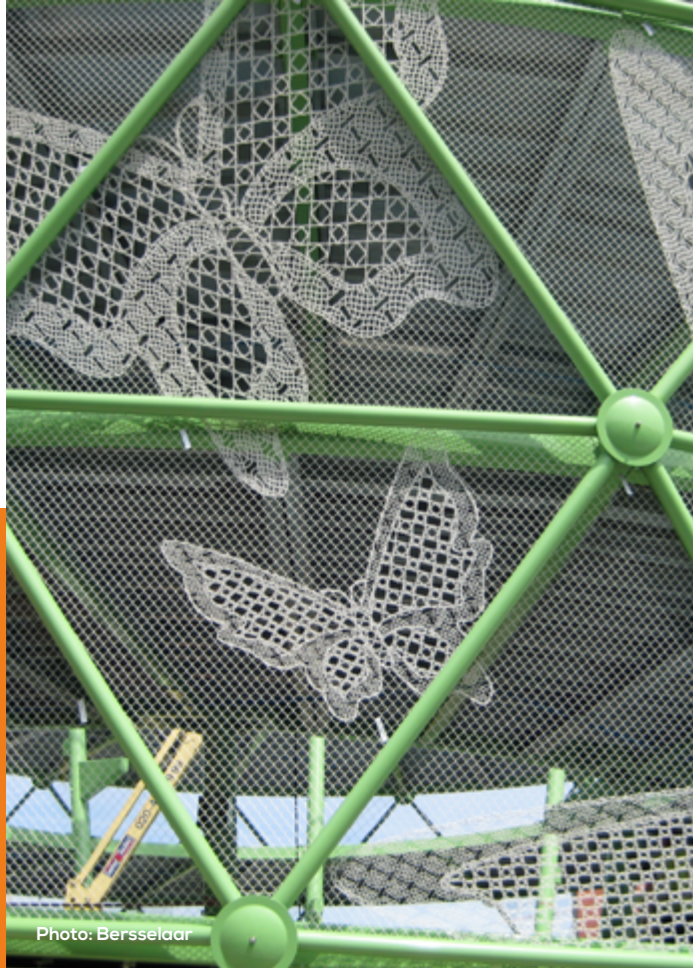


Photo: Bersselaar



Photo: Bersselaar

LANDMARK

Bicycle Apple

Reason for intervention

The City of Alphen aan de Rijn was redeveloping the station area. This redevelopment included the demolishing of the old station building and the building of a new tunnel and new bike parking facilities, both guarded (1,280 spots) and unguarded (1,570 spots). Since the train station itself would be torn down, the station would be less recognizable. Therefore, the city was aiming for another icon to improve the recognizability of the station area.

Objective

The goal of this project was to develop an iconic element for the station area in Alphen aan de Rijn, which can be used in a practical way as well.

Chosen intervention

In the past, bicycle parking facilities were not always the most attractive buildings. However, Alphen aan de Rijn managed to create an icon out of its bike parking: the Fietsappel or 'Bicycle Apple'. This bike parking facility has the shape and the colour of a huge apple in which you can find racks to park 970 bicycles. The interesting building is a steel construction, built right next to the new tunnel under the railroad tracks, which is for pedestrians and cycling only. The main floor is a ramp that spirals three and a half times around a cone-shaped open core. The total height of the building is 16 metres, and the diameter is 27 metres. To really make it look like an apple, the top features a wind vane in the shape of a stem with one leaf. The bikes are parked in racks on either side of the spiral ramp and these racks were especially designed for this building. The ramp can be accessed by bicycle at the bottom from the tunnel level and one floor higher from street level. To quickly get to and from your bicycle on foot, there are two stairs in the open core that provide a short cut.

Lessons learned

1. Plan according to the expected demand instead of current demand. The current capacity in Alphen does not suffice.
2. Due to the limited capacity, the city needs to tidy up the facility multiple times per week.

“ Alphen aan de Rijn managed to create an icon out of its bike parking.”

Location:

Alphen aan de Rijn

Duration of the project:

2009-2010

Involved organisations:

KuiperCompagnons (Wytze Patijn), V-consyst (formerly Jan Kuipers Nunspeet), Bersselaar Constructie, Demakersvan

Read more:

[Architectuur.nl \(NL\)](https://www.architectuur.nl)

[Bicycle Dutch \(EN\)](https://www.bicycle-dutch.nl)



Photo: Het Utrechts Archief



Photo: CU2030

LANDMARK

Utrecht's Canals

Reason for intervention

In the year 1122, Utrecht started to build its iconic canals. Even though the canals had adorned the city for hundreds of years, they seemed to disappear completely in 1958. The city of Utrecht wanted its city centre to be accessible for cars and started with the construction of a bypass. The decision was protested a lot by the people of Utrecht, but this could not prevent the building of a city highway and a parking lot at the expense of a significant part of the canals.

Objective

People living in Utrecht kept protesting the disappearance of the canal which eventually led to the first steps of creating a more sophisticated central station area. In 2002, there was a referendum in which the people voted to dig up and restore the ancient canals. The comeback of the water was a iconic moment in the history of Utrecht. It has created a green and open space in the centre of the city where people do sports, have a picnic and meet with friends. Thereby, the restoration of the canal, which calmed traffic, created a safer and more comfortable cycle environment. Nowadays, there is a beautiful bike path along the canal which is used for both recreational and utilitarian cycling.

Chosen intervention

The restoration of the canals took a few years as there were multiple stakeholders and aspects that had to be taken into account. A few examples are sailing width, sailing depth, green spaces, history, bike lanes, money, and car lanes. Thereby, the preferences of the people living in Utrecht were taken into account as well.

Lessons learned

1. Involve all stakeholders, including the people living in the area, to live up to everyone's expectations.
2. It is important to have political will and resources for an invasive project like this one.
3. The restoration of the canals and the surrounding nature brings a lot of life to the city where people can meet each other.

“The comeback of the water was a iconic moment in the history of Utrecht.”

Location:

Utrecht

Duration of the project:

2002 - 2020

Involved organisations:

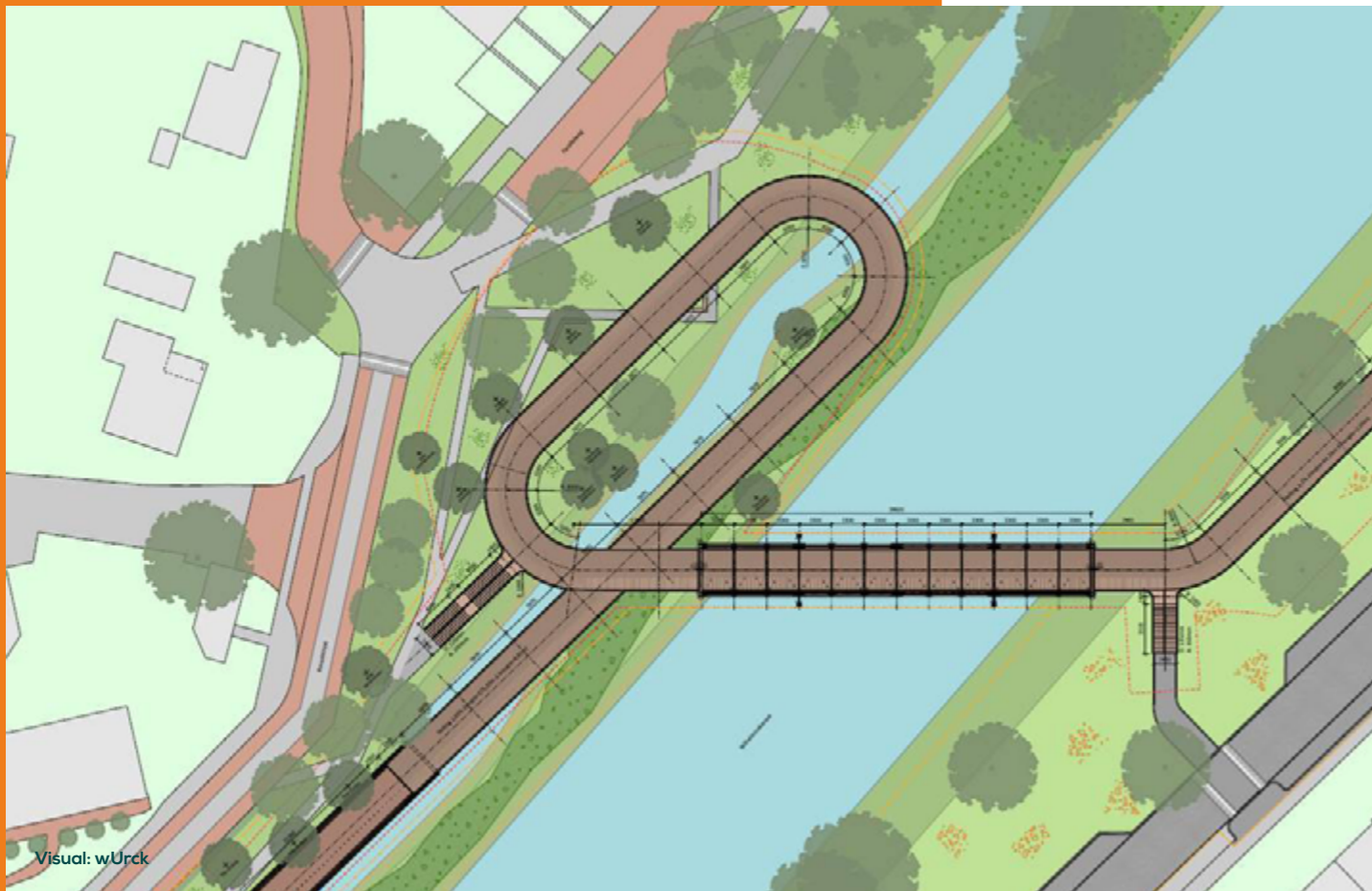
City of Utrecht and others

Read more:

[CU 2030 \(EN\)](#)



Photo: Leef fotografie



Visual: wUrck

LANDMARK

Cycle Bridge Oirschot

Reason for intervention

Brabant Landschap and the municipalities of Eindhoven and Oirschot developed a 14 kilometre long green corridor between Eindhoven and the historic town centre of Oirschot. This way they want to bring the city and the National Landscape together and make the environment more attractive for living, working and recreation.

Objective

The City of Oirschot wanted to create a slow-traffic connection between a new neighbourhood south of the Wilhelmina Canal and the historic town centre of Oirschot. The connection would also close the last stretch of the green corridor between Eindhoven and the historic town of Oirschot. The city wanted to develop their plans in close collaboration with the citizens, so they sat down with the residents living in the immediate vicinity regarding different functional and aesthetical aspects. The most important aspect was defining a new entrance for the city, the integration of the existing park and a solution adapted for different kinds of users.

Chosen intervention

A beautiful walking and cycling bridge has been developed. The truss clearing the span along the canal is oriented towards the historic church. The bridge has LED lights incorporated and perfectly fits in the recreational corridor due to its half-timbered construction of Azobe hardwood, which emphasized its recreational and sustainable character. The bridge was carefully designed to reduce the visual impact of the citizens living nearby. The slow-sloping ramp makes it easy to push a baby carriage or a wheelchair up and people in mobility scooters are able to easily use the bridge as well. Pedestrians can take stairs as a shortcut.

Lessons learned

1. When you design a bridge for slow traffic, try to make it accessible for people of all ages and backgrounds.

2. When you are going to build a bridge, first sit down with the residents who live nearby. This way you avoid complaints from the neighbourhood with possible delay of your project, which probably ensures that the bridge is used optimally.

“When you design a bridge for slow traffic, try to make it accessible for people of all ages and backgrounds.”

Location:
Oirschot

Duration of the project:
Approved in 2015, build in 2019-2020

Involved organisations:
City of Oirschot, West 8, wUrck architectuur Stedenbouw Landschap BV, Royal Haskoning DHV, Ingenieursbureau Wagemaker, Ballast Nedam, Nauta Heeg, Wijma Kampen

Read more:
[wUrck \(NL\)](#)
[Bicycle Dutch \(EN\)](#)



Photo: Dutch Cycling Embassy



Photo: Dutch Cycling Embassy

17.

Closing remarks

In 2020, the COVID-19 fundamentally changed the way we look at cities, offering a unique window of opportunity to rethink, redefine, and reallocate urban streetscapes and the way they are used. Everywhere in the world, pop-up bike lanes have been implemented to provide more space for cyclists, providing a reliable means of providing physical space for exercise and maintaining mental and physical health, as well as an alternative for public transportation. However, it is of the utmost importance that these changes are thoroughly considered and carefully implemented, to avoid common mistakes and adverse effects. The big question is how to move from pop-up bike lanes and temporary solutions to permanent ingredients for successful urban transformation?

As the world's number one cycling nation, the Netherlands can assist in the necessary changes based on experiences from the past five decades. In this document, the Dutch Cycling Embassy shares a lot of the lessons we learned based on almost 50 years of trial-and-error in improving cycling conditions. By sharing it, we hope that you can avoid the error part of that equation, focusing on the solutions that work.

An overarching lesson is that we learned not to be afraid to experiment: the Dutch tried a lot of different things since the 1970s; willing to overhaul streets and overhaul them again if new solutions didn't work. In this process, we also learned that simply copy-pasting solutions from one city or locality to the other can easily result in spectacular failures. To overcome these missteps, the Dutch Cycling Embassy is more than willing to offer our help and guidance in implementing Dutch-style solutions; together with you we can see how to fit them best in your local geographical, social and cultural context. To do so, we can organize tailor-made Think-Bike Workshops® and bring experts from our public-private network to work together with you to see what solution fits best and how to implement it to gain the maximum benefits.

The global pandemic has shown us that cities around the world need more resilient, more equitable mobility—not only to weather the COVID-19 crisis, but also to prepare for the climate crisis and to provide an easily accessible answer to the deepening inequality in many urban areas across the globe. As EU Vice-President Frans Timmermans expressed, the bike has a fantastic and romantic past, but also a glorious future, and can play an important and decisive role in reshaping urban public spaces.

The Netherlands has learned first-hand that cycling is not only a very humble mode of transportation, but also a very powerful transformational tool, which makes cities more sustainable, more social, safer, wealthier, healthier, and happier places to live!

“ An overarching lesson is that we learned not to be afraid to experiment: the Dutch tried a lot of different things since the 1970s.”

Let's face these challenges together.



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