

A Case Study of Cycling in the Dutch City of Groningen

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Groningen Case Study

The modern-day city of Groningen is in the northern Netherlands, 25 miles south of the North Sea. It is the sixth most populous city in the state¹ and is the capital of Groningen Province. In 2019, the population was 233,218.¹ In 2002, Groningen was named Best Cycling City in the Netherlands.³

“The name Groningen dates back to 1040, when ‘Villa Gruoninga’ was first mentioned in a letter by the German emperor.”² The first settlement in Groningen is traced as far back as 3 AD.³ By the thirteenth century, Groningen had become an important trade center and a wall was built around the city.² “In 1536, Groningen accepted Emperor Charles V . . . as its ruler, thus ending the region’s autonomy.”³ In 1614 the University of Groningen was founded, teaching law, medicine, theology, and philosophy.⁴ “During the same period the city expanded rapidly and a new city wall was built.”⁵ In 1672, the city successfully repelled Bernhard von Galen’s siege against the city, an event now celebrated annually.⁶ In 1945 the Battle of Groningen destroyed the main square and the Grote Markt. In 1977, the city implemented its Verkeerscirculatieplan (VCP) or Traffic Circulation Plan.⁷

History of the Bicycle in Groningen

The bicycle, known at the time as a velocipede, was first seen in Groningen in 1869.⁸ In 1885, the General Dutch Cycling Association (ANWB) began registering Dutch bicyclists as members.⁸ The first group of cyclists in Groningen were wealthy young men as the velocipede was too expensive for the rest of the population.⁸ Additionally, this



Figure 1: Location of Groningen, Netherlands
Source: <https://reports.shell.com/sustainability-report/2018/special-reports/working-for-solutions-in-groningen.html>



Figure 2: Velocipede
Source: https://www.si.edu/object/velocipede-1868:nmah_843079

¹ (Central Bureau of Statistics 2021)

² (Dunford and Lee 2007)

³ (Wikipedia n.d.)

⁴ (Independent 2011)

⁵ (Noll 2014)

⁶ (Troost 2004)

⁷ (Bruntlett and Bruntlett 2016; groningen.nl 2019; Rijkswaterstaat 1995; Tsubohara 2007; Tsubohara and Voogd 2004; Verzee 2019)

⁸ (Quanjer 2016)



Figure 3: "High Bi" bicycle
Source: <https://bikestoremember.nl/product/mooie-46-hoge-bi-van-kennedy/>

early bicycle was highly uncomfortable and only a limited speed could be achieved because of the front wheel pedals.⁹

This led to the development of the "High Bi" as it was called, which was faster and more comfortable than the velocipede.⁹ Riding a high bi required training and a significant time investment to learn how to ride it.⁹ This limited the use to wealthy individuals, and the design of the seat limited the use to wealthy men.⁹

Near the end of the 19th century, the safety bicycle was released by local bicycle manufacturer Fongers.⁹ The modern bicycle has changed little from the safety bicycle. These bicycles were still a rough ride (known as "boneshakers").⁹ However, in 1888 Dunlop created the pneumatic tire, which is made of rubber and filled with air.⁹ Additionally, Fongers was now mass-producing bicycles, driving down the price.⁹ This greatly increased the popularity of the bicycle through the end of the century, as shown in Figure 4.⁹

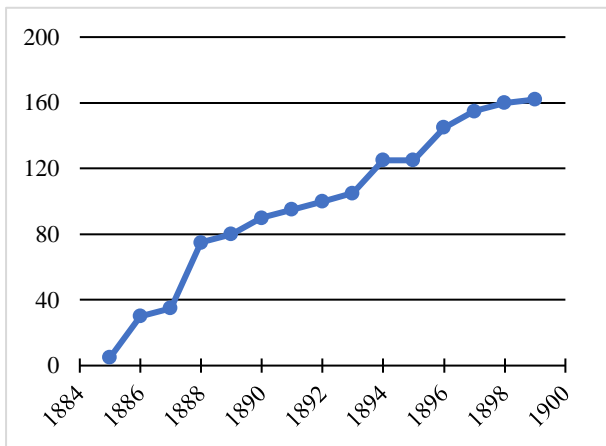


Figure 4: Number of ANWB Members in the City of Groningen between 1884 and 1900
Source: Quanjer 2016

The bicycle was affordable to a greater segment of the population, but still limited to the wealthy and those in "higher level" jobs.⁹ It was still out of reach for the average skilled worker.⁹ Cycling became more popular among women as well.⁹ A woman's cycling school was opened by Fongers in 1896.⁹

By 1900, the average number of bicycles per person was much higher in the city of Groningen than it was in the country of Holland, 1-in-27 and 1-in-45, respectively.⁹

After the turn of the century, prices for bicycles continued to fall due to increases in production scale, making the bicycle affordable

for skilled laborers.⁹ The age of bicyclists also increased during this period.⁹ The first bicycle path in the Groningen area was constructed from 1906-1907.⁹ This path connected the city of Winsum to Groningen⁹, and the trip was about ten miles.¹⁰

In 1899 the Groningen council created a tax for bicycles, and they considered them to be a luxury item. Once the bicycle became more commonplace, opposition to the tax rose. In 1919 the bicycle tax was abolished, but a new tax was created only five years later in 1924.

"In 1926 the bicycle tax became part of the road fund and that money was used for road improvements."

Growth in bicycle use stagnated during World War I but continued to grow after the war.⁹ Prices continued to fall, and foreign imported bicycles became less popular. Dutch bicycles were finally the majority of bicycle sales, whereas previously most bicycles purchases were of German or English build.⁹ By 1923, the average worker could afford to buy a bicycle after three

⁹ (Quanjer 2016)

¹⁰ Google Maps

weeks of work.¹¹ Additionally, the Labor Act of 1919 had shortened working days and workers now had the time to learn how to ride the bicycle.¹¹

By 1932, the bicycle was a highly popular means of transportation in the city, making up 77% of trips, versus the automobile which made up 9%.⁹ This was a big difference from the Netherlands as a whole, where bicycles made up 54% of trips and automobiles made up 39%.⁹ While bicycles had started as a leisure activity for the rich, they quickly became a mode of transport for workers and other Groningen residents.¹¹ Even the royal family was known to ride bicycles.¹¹

In 1941 the bicycle tax was abolished by the Germans when they invaded Holland.¹¹

Following World War II the bicycle became less popular, facing steep competition from the automobile.¹² City planners struggled to make space and many market squares became parking lots.¹² This all changed with Max van den Berg.¹²

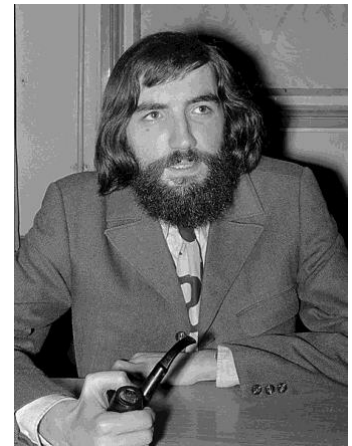


Figure 5: Max van den Berg, 1971
Source:
[https://commons.wikimedia.org/wiki/File:Max_van_den_Berg_\(1971\).jpg](https://commons.wikimedia.org/wiki/File:Max_van_den_Berg_(1971).jpg)

The 1977 Groningen Verkeerscirculatieplan

In the mid-1970s, a progressive local government rose to power in Groningen, with 24-year-old Max van den Berg as a top leader.¹² Seeing the harm that the automobile was doing to central Groningen, Van den Berg proposed a traffic policy that would expel cars from central Groningen and make more space for those who walk and/or bicycle.¹² Van den Berg's Verkeerscirculatieplan (VCP) proposed to divide central Groningen into four different sectors.¹³ Cars were not allowed to cross from one sector to another, but instead had to use a ring road around the inner city (delivery vehicles and buses could cross sectors).¹³ Bicycles and pedestrians however could freely move between sectors.¹³

The creation of the VCP involved multiple stakeholders. In short, the stakeholders were the federal government, the local government, civil servants, economic groups, and citizens groups.¹⁴ A full list of stakeholders is contained in the Appendix.

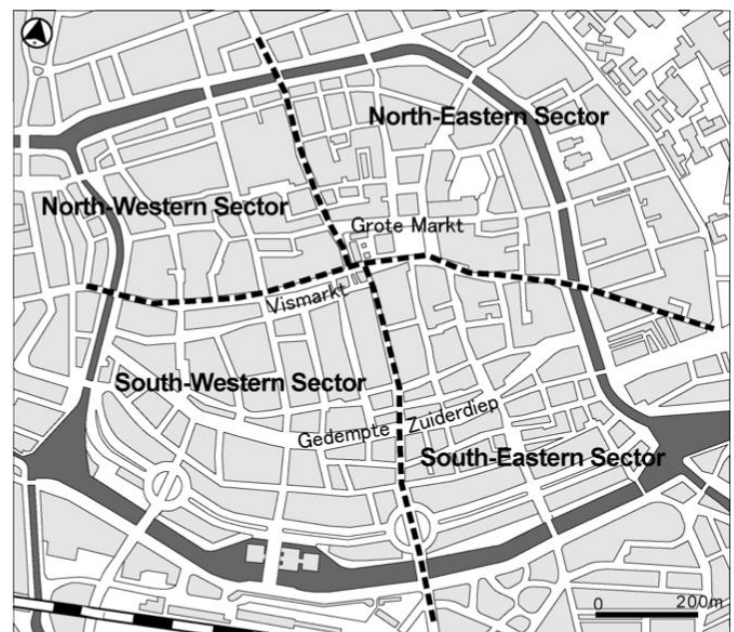


Figure 6: The Four Sectors of the Groningen VCP
Source: Tsubohara and Voogd 2004

¹¹ (Quanjer 2016)

¹² (groningen.nl 2019)

¹³ (groningen.nl 2019; Perch 2016; Tsubohara 2007; Tsubohara and Voogd 2004; Verzee 2019)

¹⁴ (Tsubohara and Voogd 2004)

In October 1973, the National Ministry of Transport and Public Works informed nine municipalities, including Groningen, that the ministry would cover public transportation deficits on the condition that these cities created a VCP and submitted it by January 1st, 1975.¹⁵ This proclamation was the catalyst for the creation of the VCP.¹⁵ In May 1974, Groningen hired engineering consultant Dward, Heederik en Verhey (DHV) to draft the VCP.¹⁵ Nieuwsblad, the local newspaper, reported that the VCP was being prepared.¹⁵ However, it did not mention the contents of the VCP, and the city gave little-to-no information to citizens.¹⁵

“The first interim report, the ‘VCP Groningen Basic Data’ was published on February 27th, 1975.¹⁵ This report argued the necessity of the VCP saying, ‘the difficulties of the motorised traffic . . . have caused a harmful influence on the function of society’.”¹⁵ “The second interim report, the VCP Part II, was published on May 22nd, 1975.”¹⁵ This report was primarily concerned with bus traffic.¹⁵ While a public meeting was held on May 31st, the citizens’ pressure group Working Group Inner City decried the meeting as “extremely undemocratic” as the “interim report was printed and made available on May 30th.”¹⁵ The business groups Groningen Entrepreneur Federation and the Chamber of Commerce “rejected attending the public meeting.”¹⁵

The final draft of the VCP was completed “in July 1975, with no public participation.”¹⁵ This first version proposed to extend the car-free area beyond the inner part of the city, which was buffered on all sides by canals.¹⁵ A member of the police department provided the information about this proposal to Nieuwsblad, saying this plan was dangerous and would harm businesses.¹⁵ This created uproar among the business community.¹⁵ Shortly thereafter on August 22nd, the municipal board approved an altered version, the one that divided the center into four sectors.¹⁵ On September 5th and 6th, informational meetings were held with business people and residents, respectively.¹⁵ However, being that the final draft of the VCP had already been completed, this gave no room for actual involvement from the two groups.¹⁵ When confronted about the lack of public input, the municipal board said that they did not have time for public involvement if they wanted to submit their VCP on time.¹⁵

On September 17th, the VCP was approved 21-15. Two days later, all 5,000 pieces of the VCP were put into effect literally overnight.¹⁵ The process for the creation of the VCP is sharply criticized for being undemocratic and dictatorial.¹⁵ However, according to researchers it is “likely that a car-free . . . Groningen still would not exist if the . . . politicians did not act in an authoritarian way.”¹⁵

In the years following the introduction of the VCP, a lot of changes were seen in Groningen.

- One year after implementation, car traffic in the city center decreased by 44%¹⁶
 - Traffic increased by 30% between 1978 and 1983¹⁶
- “Between 1978 and 1983, visits to the city center increased . . . by approximately 40%”¹⁶
- “Traffic intensity on the Diepenring (the outer road bordering the canals) increased by 55%”¹⁶
- The number of cyclists increased by 50% between 1978 and 1983¹⁶
- Within the inner city, traffic accidents decreased.¹⁶ Accidents increased on the Diepenring¹⁶

¹⁵ (Tsubohara and Voogd 2004)

¹⁶ (Rijkswaterstaat 1995)

- Before the VCP, 35% of pedestrians considered the roads safe for themselves, afterwards 45% felt safe¹⁷
- Before and after the VCP, 19% and 30% of bicyclists considered the roads safe, respectively¹⁷
- Noise levels in the inner city decreased from two to five decibels¹⁷
- The percentage of visitors to the center city that were inconvenienced by traffic noise fell from 28% to 16%¹⁷
- “Those who experienced ‘serious nuisance of noise’ from traffic had decreased from 10% to 5%¹⁸
- The percentage of inner-city residents that experienced nuisance from odors fell from 41% to 25%¹⁷
- While some businesses did not survive the implementation of the VCP, most did and eventually saw an increase in profits¹⁷
- Buses saw an average increase of 15% in ridership¹⁸
- With 1 as “very bad” and 5 as “very good,” the average rating for the atmosphere of streets increased from 2.89 to 3.42¹⁸
- “While 19% of businesses in the Province of Groningen had increased their net profit from 1977 to 1978, 24% in the inner city of Groningen had increased it.”¹⁸
- “In 1978 and 79, compared to preceding two years, more businesses were located in the inner city, the number of vacancies decreased, and the term of being vacant became shorter.”¹⁸



Figure 7: Change in Noise Before and After the VCP

Source: Tsubohara 2007

¹⁷ (Rijkswaterstaat 1995)

¹⁸ (Tsubohara 2007)

Today, imagining Groningen without bicycles would be like imagining the beach without the ocean. In 2016, 61% of trips within the city were made by bicycle.¹⁹ During the same time, when the population of Groningen was 190,000, there were 300,000 bicycles and 75,000 cars.¹⁹ That is approximately 1.6 bicycles per person. The city regularly updates its cycling infrastructure. One recent improvement is rain sensing green lights, which give more time to cyclists when it is raining.¹⁹ Another improvement was the creation of “four-way green lights for cyclists at 29 different intersections.”²⁰ With this method, the city essentially told cyclists to figure it out among yourselves to determine how to cross when all directions are green. While seemingly counterintuitive, these “all-greens” have actually proven to be efficient and effective.²⁰ Unfortunately, due to the sheer number of bikes, walkability in the city has suffered, but that is a problem that the city is actively working on fixing.²⁰

We Are Groningen Cycling Strategy 2015-2025

In early 2015 the city of Groningen released its bicycle planning strategy for the next ten years.²¹ Before elaborating on future stratagem for bicycle planning, the document first identifies several “urban challenges.” As Groningen grows, bicycle paths are facing traffic jams, there are long waits at traffic lights, and there is not enough bicycle parking.²¹

Considering this, the city identified five key urban challenges goals:²¹

- Create good conditions for the growth of the city
- Keep the city accessible
- Improve the health of our inhabitants
- Ensure a viable and economically vital city
- Ensure a safe city

With those five goals, the city created five strategies. Included with each strategy are a list of “compass projects” that either will be or are currently in progress.²¹

Strategy 1: The Bicycle Comes First

The first part of this strategy says that any new spatial developments will be required to perform a “Bicycle Effect Analysis” before construction will be allowed.²¹ According to the city, “this guarantees that every urban development takes account of bicycles at an early stage.”²¹ The



Figure 8: Front Cover of Groningen's New Cycling Strategy
Source: Gemeente Groningen

¹⁹ (Perch 2016)

²⁰ (Bruntlett and Bruntlett 2016)

²¹ (Gemeente Groningen 2015)

second part of the strategy is to make sure management and maintenance is in order.²¹ Main cycling routes will receive priority snow clearance, all main routes will have good lighting, and they will make it easy for inhabitants to report complaints regarding the bicycle infrastructure.²¹ Additionally, the city will have traffic education for “vulnerable road users” including children and the elderly.²²

Two projects are associated with this strategy.²² The first is a bicycle tunnel and underground bicycle parking at the main rail station.²² The tunnel will improve accessibility to the area just south of the station, and bicycle parking will increase from 10,000 to 15,000 spots.²² The second project is to use either geothermal energy or thermal energy from wastewater to naturally keep bicycle paths free of snow.²²



Figure 9: Artists Impression of Groningen Main Railway Station after Improvements
Source: Gemeente Groningen

Strategy 2: A Coherent Bicycle Network

According to the city, the “bicycle contributes to intensive and sustainable use of our city” and that “good bicycle connections to public transport hubs . . . [and] economic motors and to the region are essential to the . . . economy.”²² The city will thus ensure bicycle network cohesion in two ways: 1) “by considering bicycle connections”²² holistically and 2) “approaching the bicycle as part of the entire transport chain.”²² A map of the main bicycle routes in Groningen is available in the appendix.

²² (Gemeente Groningen 2015)

Two projects are associated with this strategy.²² The first is to ensure that there is “park and bike” at all “park and ride” locations and railway stations.²² Bikeshare will available as will “top-quality bicycle parking.”²² The second is to build a “Bicycle Route Plus” alongside the new Helperzoom tunnel and changing the surrounding Helpman district in a 20 mph zone.²²

Strategy 3: Space for Bicycles

The purpose of this strategy is to quite literally make more space for bicycles.²³ While the city will “ensure that the layout of the key shopping area is focused even more on pedestrians” they will also make sure to build “sufficient high-quality bicycle parking in the city centre”²³ Two projects are associated with this strategy.²³ The first project is to create a high-quality bicycle route along the Diepenring.²³ The second is to turn Korreweg [street] into a fietsstraat (bicycle street).²³

Strategy 4: Tailored Bicycle Parking

The first part of this strategy is to have enough bicycle parking to keep up with demand.²³ Bicycle parking will be offered for short-term (free, semi-permanent in public spaces), medium-term (free, permanent in public places), and long-term (paid, indoors or underground) parking.²³ The project associated with this part is the expansion of city centre bicycle parking, which will be done by building “top-quality bicycle parking at Vismarkt(major town shopping center)/Haddingestraat (*straat* = street), and the creation of temporary bicycle parking in vacant shop premises.²³

The second part of this strategy is to improve bicycle parking in the districts.²³ The districts contain limited space for bicycle parking.²³ The city will try to fix this by putting as much indoors as possible, site-specific solutions, or district-specific solutions.²³ The associated project for this part is to replace some car parking spaces with bicycle parking spaces and also to require hotels and other “lodging providers” to place bicycle racks on their premises and at their expense.²³

Strategy 5: The Story of Groningen – Cycling City

The final strategy is an awareness and promotional campaign for the city.²³ This is to raise Groningen’s image internationally, to attract young urban professionals, and to increase the number of municipal delegations that come to Groningen to learn about their cycling infrastructure.²³ The



Figure 10: Logo for Groningen: Cycling City
Source: Gemeente Groningen 2015

Year	Winner
2002	Groningen
2008	Houten
2011	‘s-Hertogenbosch (sp)
2014	Zwolle
2016	Nijmegen
2018	Houten
2020	Veenendaal
2022	TBD

Table 1: Fietsstaad Winners
Source: Fietsersbond 2016, 2020, 2021

first project is the creation of Groningen as a brand.²³ The telephone area code in Groningen is 050, and the city will use this as a logo.²³ The logo will be incorporated into “all bicycle traffic lights” and all places “where a bicycle marking is required on the road.”²³ They will also develop and sell merchandise.²³

The second project is to make 2016 the “Year of the Bicycle.” A large bicycle conference will be held in

²³ (Gemeente Groningen 2015)

Groningen.²³ The city will also try to win the Fietsstad (Best Cycling City in the Netherlands) award.²³ Information is lacking on whether the Year of the Bicycle was a success or not. Groningen's 2002 win of the Fietsstad has not been repeated.²⁴ The next Fietsstad will be awarded in 2022.²⁴

Conclusion

Cycling has been a part of the City of Groningen since the mid 1860s.²⁵ Bicycles grew in popularity until the automobile was more popular. The young liberals of Groningen saw that future urban planning would prioritize car usage and they desired to change that.²⁶ Max van den Berg won municipal election and spearheaded the creation of Groningen's 1977 Verkeerscirculatieplan (VCP).²⁶

The VCP split the central district of Groningen into four different sectors.²⁶ All through traffic was banned from going from one sector to the other.²⁶ Bicycling infrastructure was greatly improved as well.²⁶ Several quality-of-life improvements were seen following the implementation of the VCP.²⁷

Multiple problems regarding bicycle traffic, infrastructure, and parking were identified by the city in their 2015-2025 bicycle comprehensive plan.²⁸ The comprehensive plan will remedy these problems with several strategies.²⁸ Groningen strives to win the Fietsstad 2022 award again (previously won 2002).²⁸

Groningen wants to solidify its place as The World's Cycling City.

²⁴ (Fietsersbond 2016, 2020, 2021)

²⁵ (Quanjer 2016)

²⁶ (Bruntlett and Bruntlett 2016; groningen.nl 2019; Rijkswaterstaat 1995; Tsubohara 2007; Tsubohara and Voogd 2004; Verzee 2019)

²⁷ (Rijkswaterstaat 1995; Tsubohara 2007)

²⁸ (Gemeente Groningen 2015)

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Appendix

Stakeholders in Groningen During the Creation of the Verkeerscirculatieplan

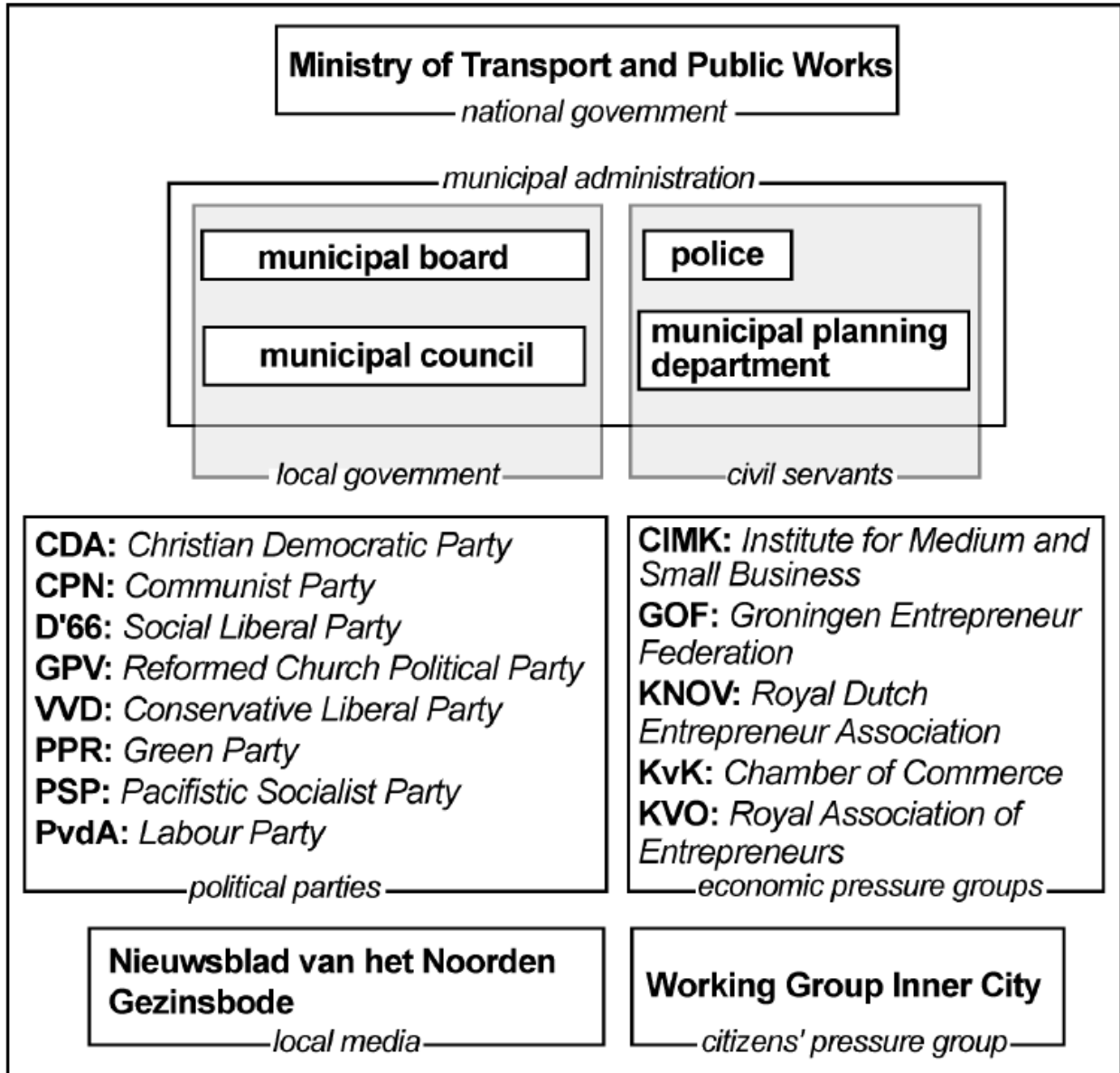


Figure 11: Stakeholders in Groningen During the Creation of the Verkeerscirculatieplan
 Source: Tsubohara and Voogd 2004

Map of the Main Bicycle Network in Groningen

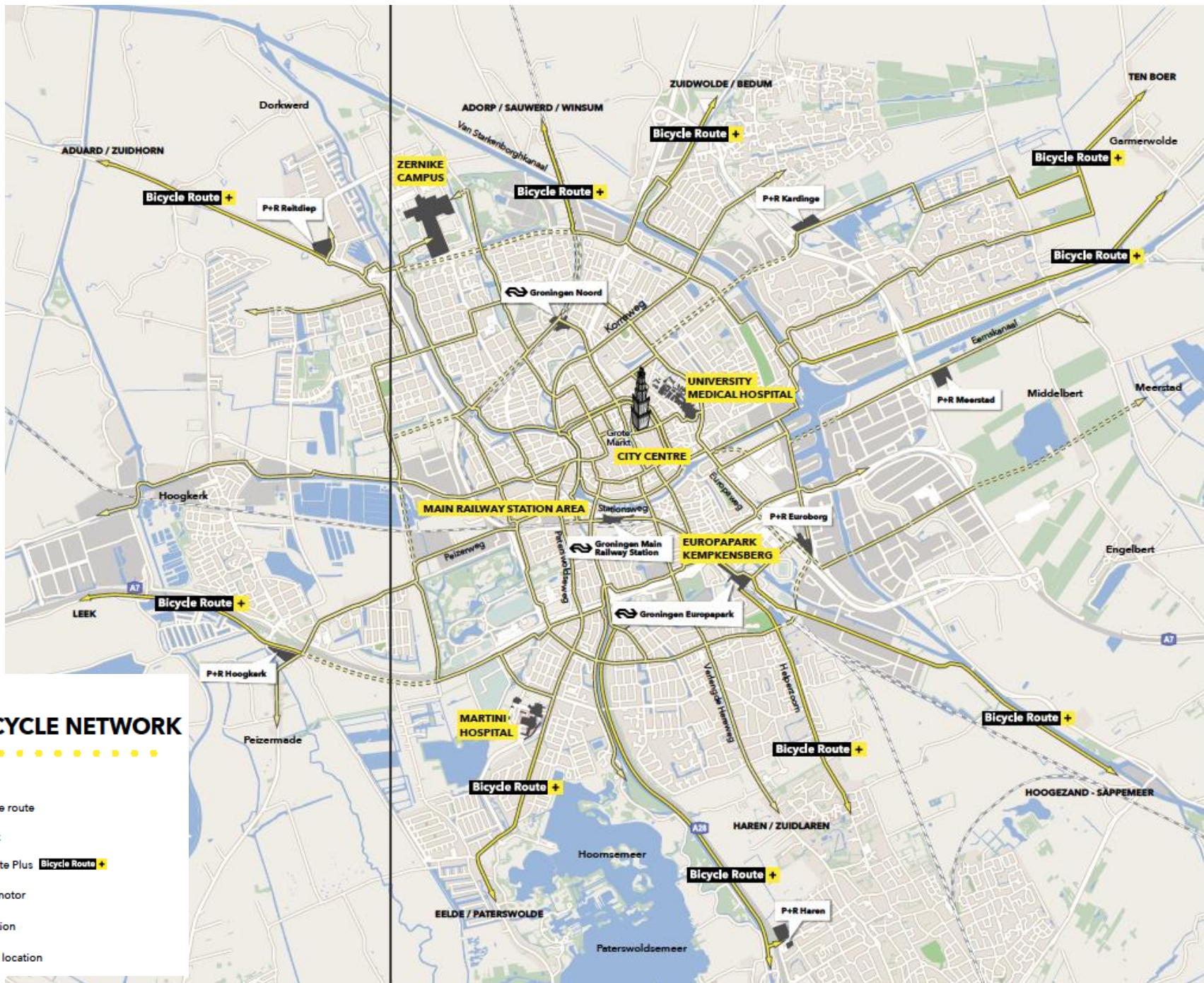


Figure 12: Map of the Main Bicycle Network in Groningen
 Source: Gemeente Groningen 2015

Map of Bicycle Smart Routes and Compass Projects

SMART ROUTES AND COMPASS PROJECTS

KEY

- Smart Route Zernike
- Smart Route Diepenring
- Smart Route Ten Boer
- Smart Route Haren
- Fast lane Meerstad
-  Public transport bicycle
-  Park & Bike

- 1 Bicycle tunnel and underground bicycle parking Main Railway Station**
When the Central Railway Station is refurbished, a bicycle tunnel will be built underneath the station and the capacity of the parking facility is expanded significantly.
- 2 Heated bicycle paths with geothermal energy or thermal energy from wastewater**
We see good opportunities to use heat from the soil or sewers to heat bicycle paths sustainably.
- 3 Park & Bike at all P+R locations and railway stations**
By offering good bicycle facilities and good connections to the city we encourage bicycle use.
- 4 Accelerate Bicycle Route Plus Groningen-Haren**
The conversion of southern circular road offers opportunities to accelerate the Bicycle Route Plus along Helperzoom to Haren.
- 5 Cycling on the canal ring**
When the canal ring is refurbished, we want to create an attractive bicycle route as an alternative to go around the city centre.
- 6 Bicycle street Korreweg**
We want to redesign Korreweg as a bicycle street where cyclists have all the space they need.
- 7 Expansion of city centre bicycle parking**
We want to build new bicycle parking near Vismarkt/ Haddingestraat and create more temporary facilities.
- 8 Bicycle parking in order**
When there is commitment amongst the inhabitants we will remove car parking spaces more often in favour of bicycle parks in the districts.
- 9 050 Cycling City logo**
We use the 050 Cycling City logo as a pictorial mark to promote Groningen - Cycling City internationally in order to strengthen our image and the urban economy.
- 10 Year of the Bicycle 2016**
In 2016 we organise the Year of the Bicycle, we want to become the best Cycling City in the Netherlands and we aim to host a major cycling conference.

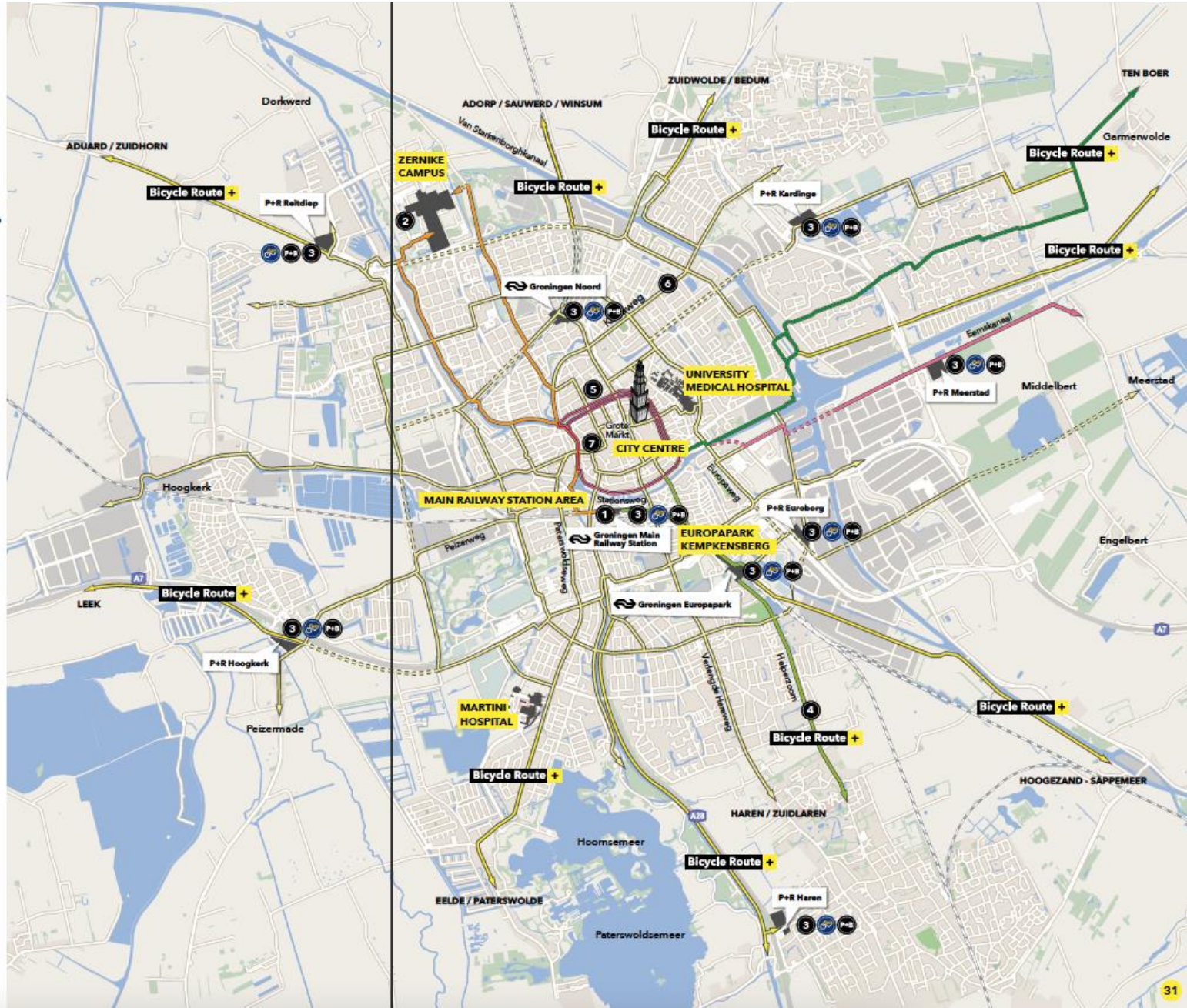


Figure 13: Map of Bicycle Smart Routes and Compass Projects
Source: Gemeente Groningen 2015