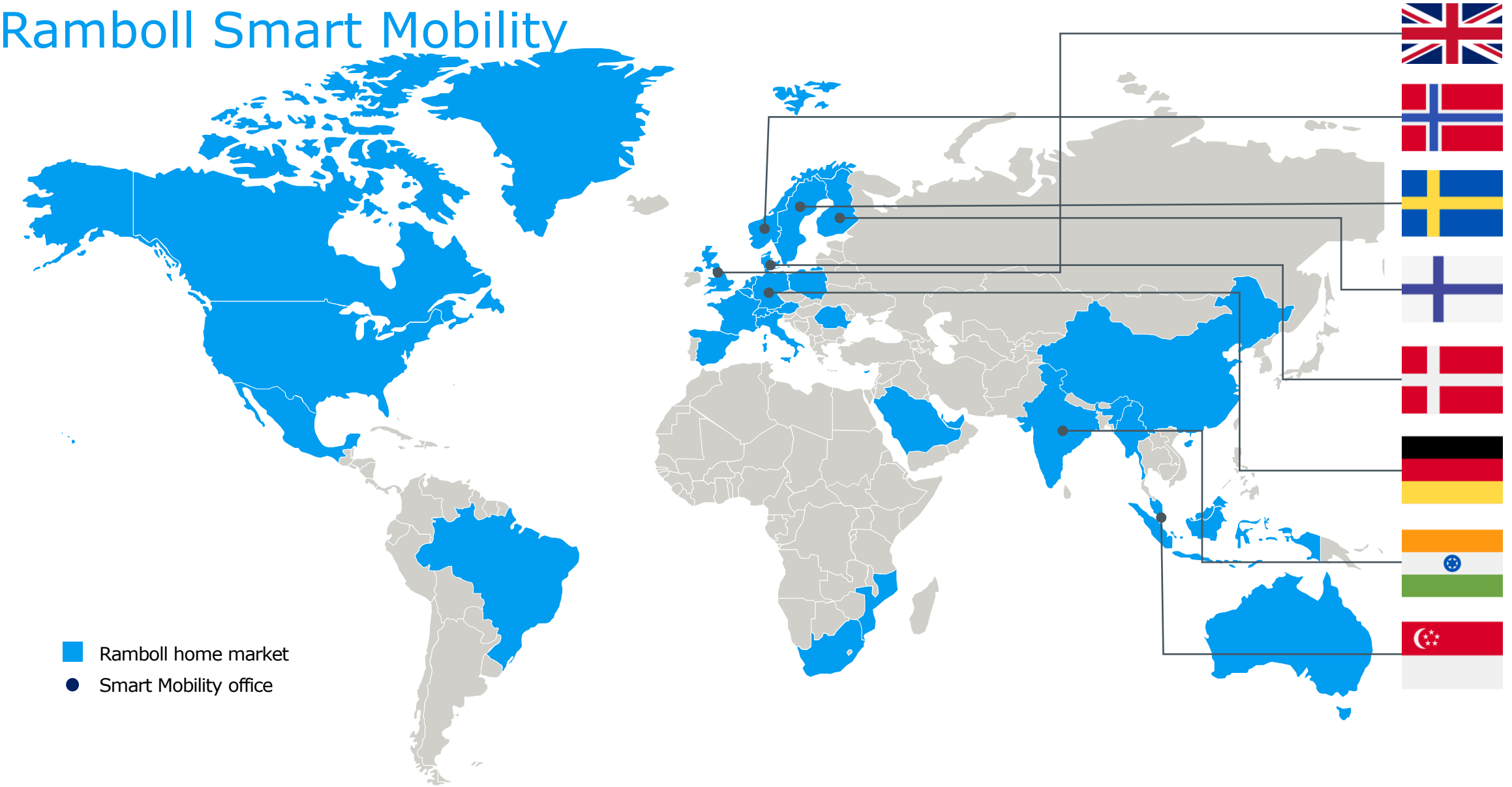
RAMBØLL

Bright ideas.
Sustainable change.

Planning and designing for cycling

Ramboll Smart Mobility



Providing access for all

Ensuring effective mobility for all

The cornerstones of sustainable mobility

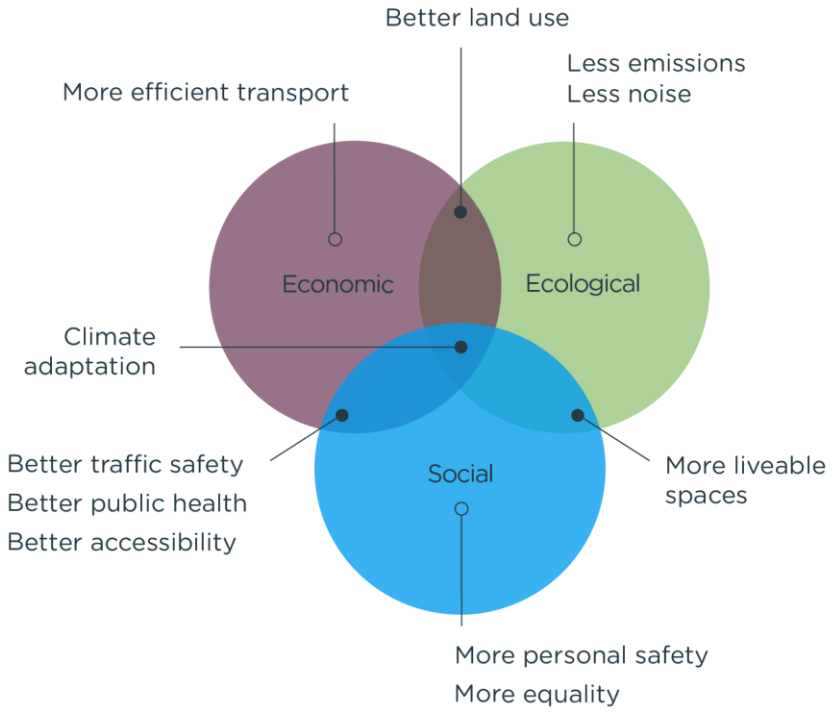
Improving safety for all

Securing green mobility for all

RAMBØLL Bright ideas. Sustainable change.

The challenge and the potential

- Cities around the World are facing the same challenge - decades of car-centric planning has resulted in congestion, air pollution, CO2 emissions, noise, and poor quality of space.
- Cycling is a green, clean, and healthy mode of transport, that also contributes to less congestion as cycling is a very space efficient way of moving people in a city. Cycling benefits both the individual, our cities, and the World at large. It **contributes to at least 12 of the 17 Sustainable Development Goals**.
- In Ramboll we help cities harvest the benefits of cycling by planning and designing for cycling. Normalizing cycling means making it an attractive and safe means of transportation - not only for the dedicated few, but for all, independent of age, gender, or fitness.



Key success factors when planning for cycling

- Integrate mobility planning and urban planning
- Prioritize and design for active modes like cycling and walking.
- Create a strategy/plan with clear goals
- Understand the potential
- Build a safe, direct, convenient and coherent cycling network with high quality
- Provide enough good bicycle parking
- Connect cycling & public transport
- Cater to the cyclists in public space
- Promote and brand cycling
- Monitor and evaluate your actions

Ramboll and cycling

- We understand cycling and view cycling as an **integrated and important part of a sustainable transport system** and of liveable cities.
- We have a **holistic view on cycling** and acknowledge that to become a successful cycling city you need **more than infrastructure**.
- Our cycling planning and designing roots are in Denmark and Copenhagen, but our team also draws on experience from The Netherlands, Sweden, Finland, Norway, and Germany. In short - we **combine international best practice experience with local knowledge**.
- **Sustainability is an integrated part of our DNA** and solutions as the Nordic countries are leading the way when it comes to creating efficient, safe, and green mobility for all.

Ramboll cycling services overview

00 DATA & INSIGHTS

Surveys

Data collection & analysis

Cycling account

01 POLICY & REGULATION

Policy

Strategy

Action plans

SUMPs

02 PLANNING

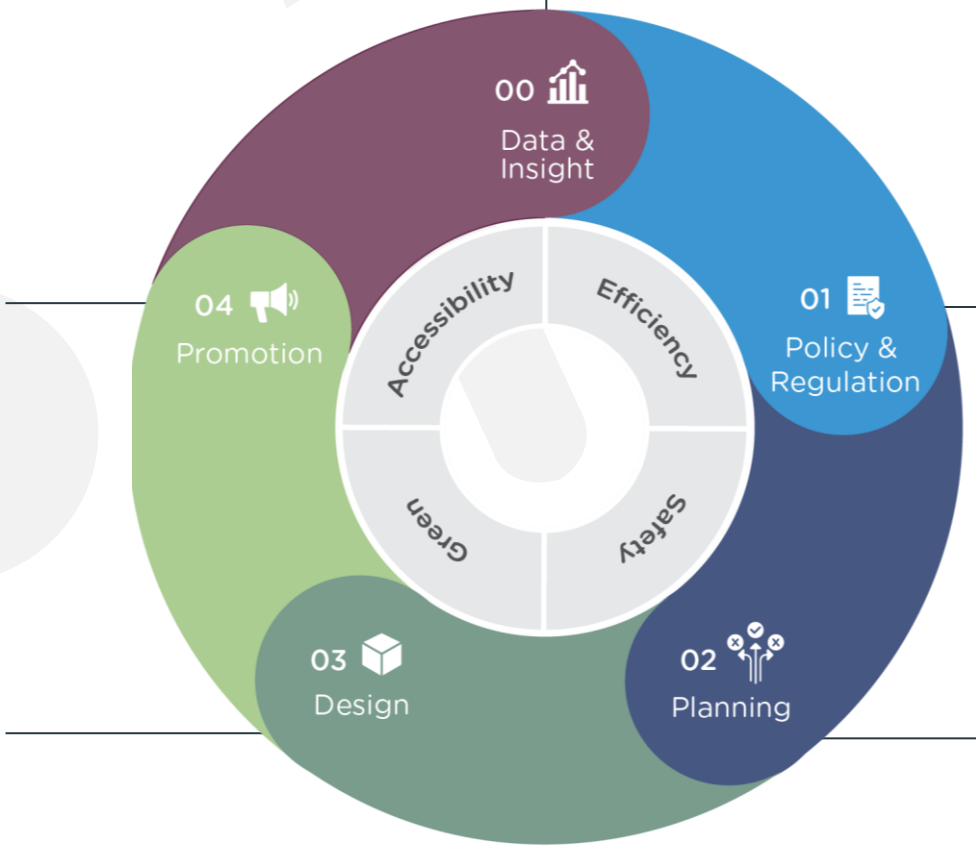
Urban planning

Network planning

Simulations

Modeling

Feasibility studies



04 PROMOTION

Stakeholder involvement

Promotion

Campaigns

Knowledge sharing

03 DESIGN

Conceptual design

Detailed design

Parking

ITS and signals

Signage and wayfinding

Integration with other modes

00 Data and insights

References

00 Data and insights

Access to **good data** and insights are important in order to plan for the right measures. Questions that needs to be answered are for example ‘Where do people bike?’, ‘How much do people bike?’, ‘What is the state of the existing infrastructure?’ and ‘What do the citizens think?’.

To be able to see and evaluate different aspects it is also important to **combine quantitative methods and data with qualitative methods** like interviews and focus groups.

Some examples of services Ramboll offers for this phase are:

- Advanced bike flow analyses using cameras, drones or wifi
- Analysis of vehicle speeds from GPS-data
- Traffic accident analyses
- Surveys and interviews
- Road surveys and maintenance studies
- Bike accounts

Walking and cycling data - Practice, challenges, needs and gaps

The challenge

Unlike cars, public transport, and new mobility solutions data on pedestrians and cyclists is not systematically collected, has limitations and can be difficult to compare and benchmark. But data on walking and cycling is important for cities in order to set goals and targets, create the policies needed to reach these goals, to track progress and make decisions about investments in infrastructure and planning measures that support walking and cycling. Lack of data also means that walking and cycling is often missing or overlooked in the transport and mobility ecosystem – because what is not measured does not count. Often pedestrians and cyclists only become visible in data when they get hurt or die in accidents. Lack of data also means lack of knowledge about why different people are not walking and cycling – at all or in specific streets or areas. Data is put simply a way of creating awareness and making the invisible visible.

Our approach

Through surveys and interview se investigated how 18 public authorities practise, needs and challenges in relation to walking and cycling data and benchmarked the available data sources against the most common indicators.

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Bicycle account

Bicycle account 2019-20 – City of Aarhus

Challenge

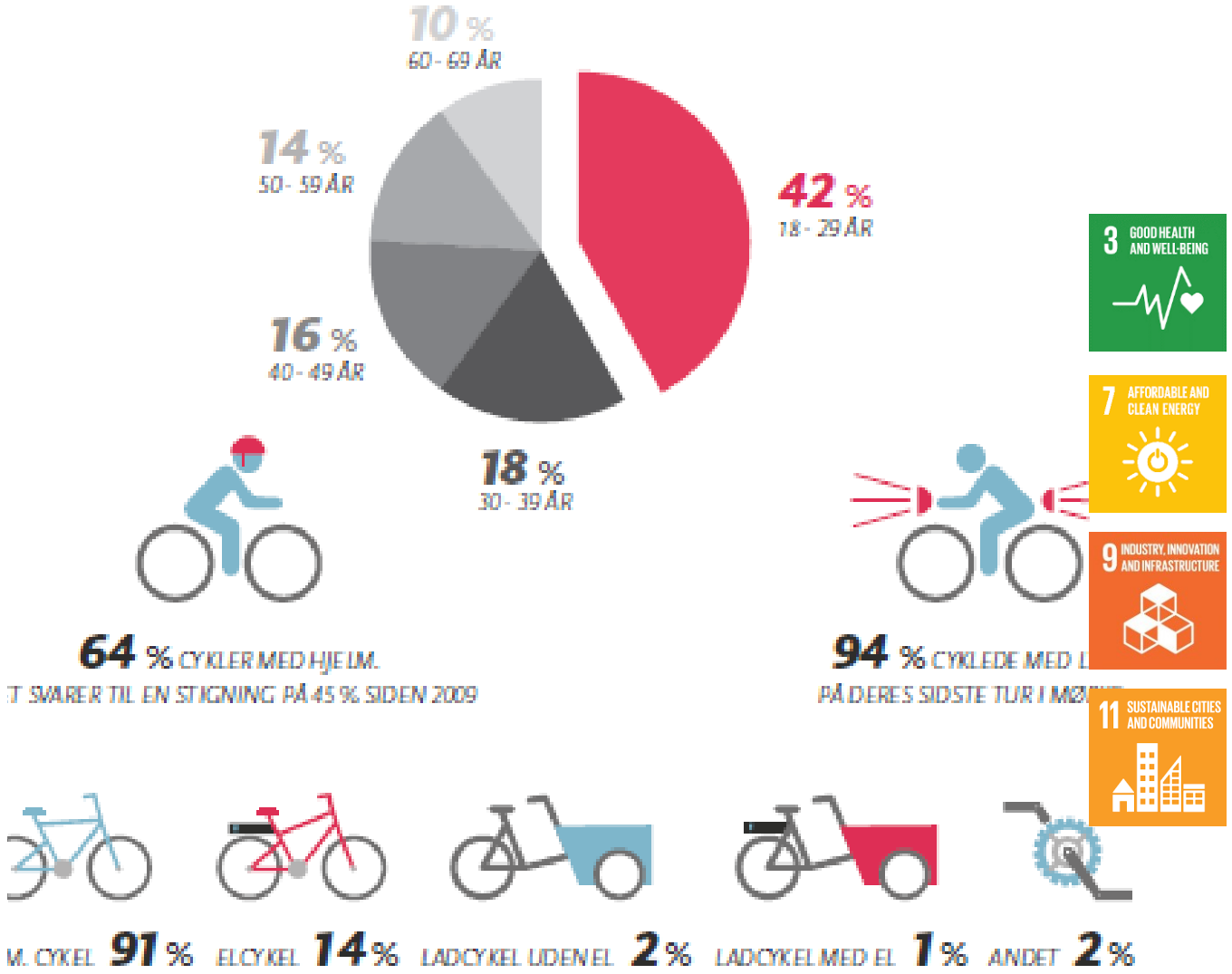
Since 2009 the City of Aarhus has biannually collected data on a broad range of cycling indicators to benchmark how they were doing – both in regards to their own goals and in relation to other cities. The are approaching the end of of their strategy periode.

What we did

- We collected and analysed cycling data on infrastructure, parking, accidents etc. and carried out survey of children's transport to school and citizen's survey on behaviour and satisfaction. All data was then disseminated graphically and benchmarked with the city's goals in a report.

Effect

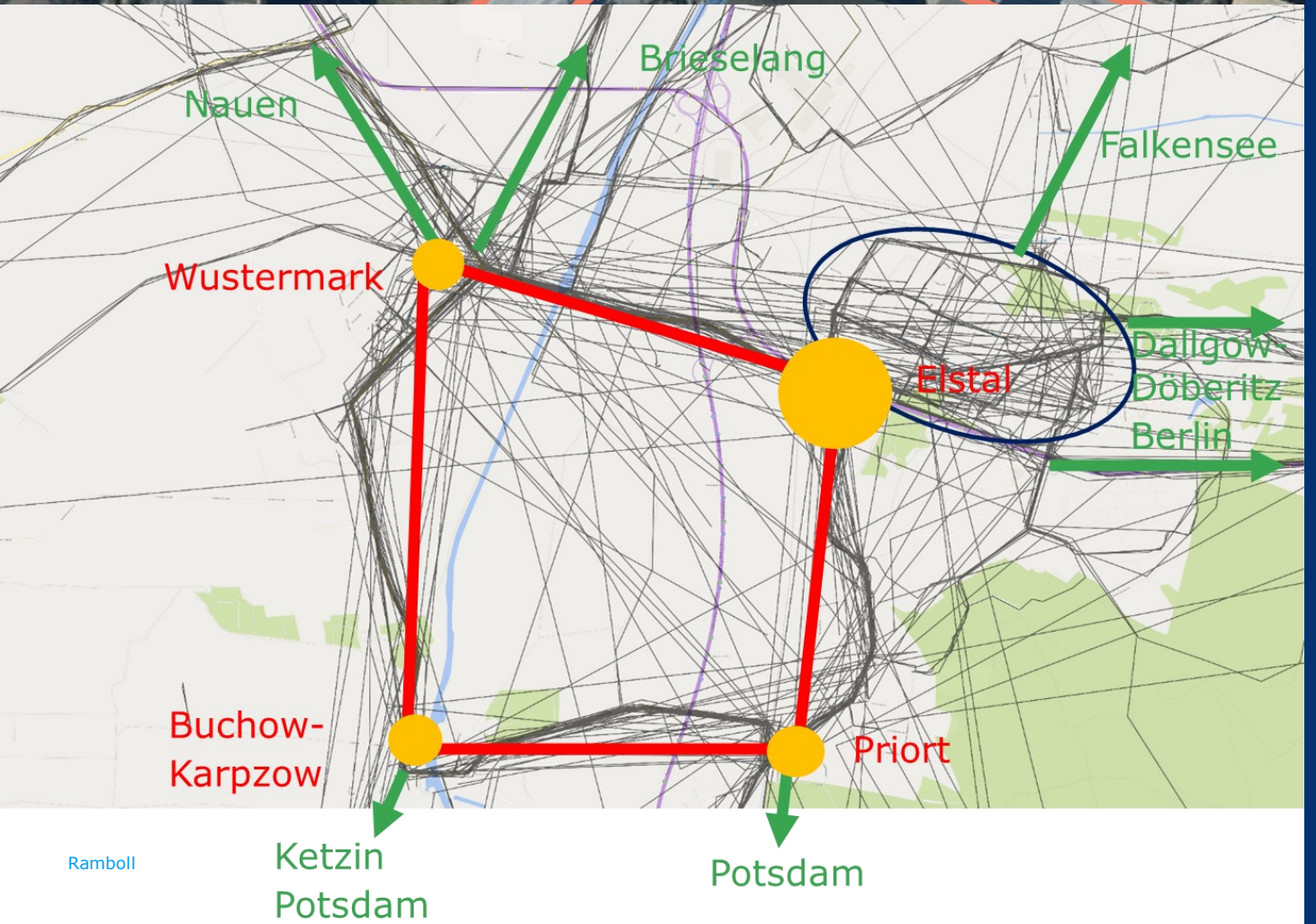
- The bicycle account was presented and accepted by the local politicians and will serve as starting point when the city set targets and develops new goals for cycling and mobility in the city.



Ramboll Transport

SUMP Lübeck

- Description: The Hanseatic city of Lübeck wants to improve sustainable modes of transportation. Ramboll develops a SUMP including detailed studies
- Project Manager: Gerald Hamöller, Torsten Perner (DE)
- Client: Lübeck municipality
- Scope:
  - SUMP (Sustainable Urban Mobility Plan) – main concept
  - Light Rail pre-feasibility study
  - Cycling concept
  - Parking
  - EV charging
- Delivery period: 09/2022-03/2024
- Ramboll Business Units: Ramboll DE



Ramboll Transport

Cycling Concept Wustermark

- Description: The municipality of Wustermark, 15 km west of Berlin, is growing significantly not least by several commercial locations. By now passenger traffic has mainly relied on car. In order to create an attractive alternative, Ramboll has developed a comprehensive cycling concept.
- Project Manager: Torsten Perner (DE)
- Client: Wustermark municipality
- Scope:
  - Communication, participation and stakeholder management including online-campaign with maptionnaire
  - Network planning improving not only the connections in the municipality as well as to Berlin, Potsdam and Nauen
  - Redesign of selected streets and intersections
- Delivery period: 01/2020-07/2021
- Ramboll Business Units: Ramboll DE, SE, RMC

TRAFFIC SAFETY STUDY ON TWO WAY CYCLING ON ONE WAY STREET

CHALLENGE

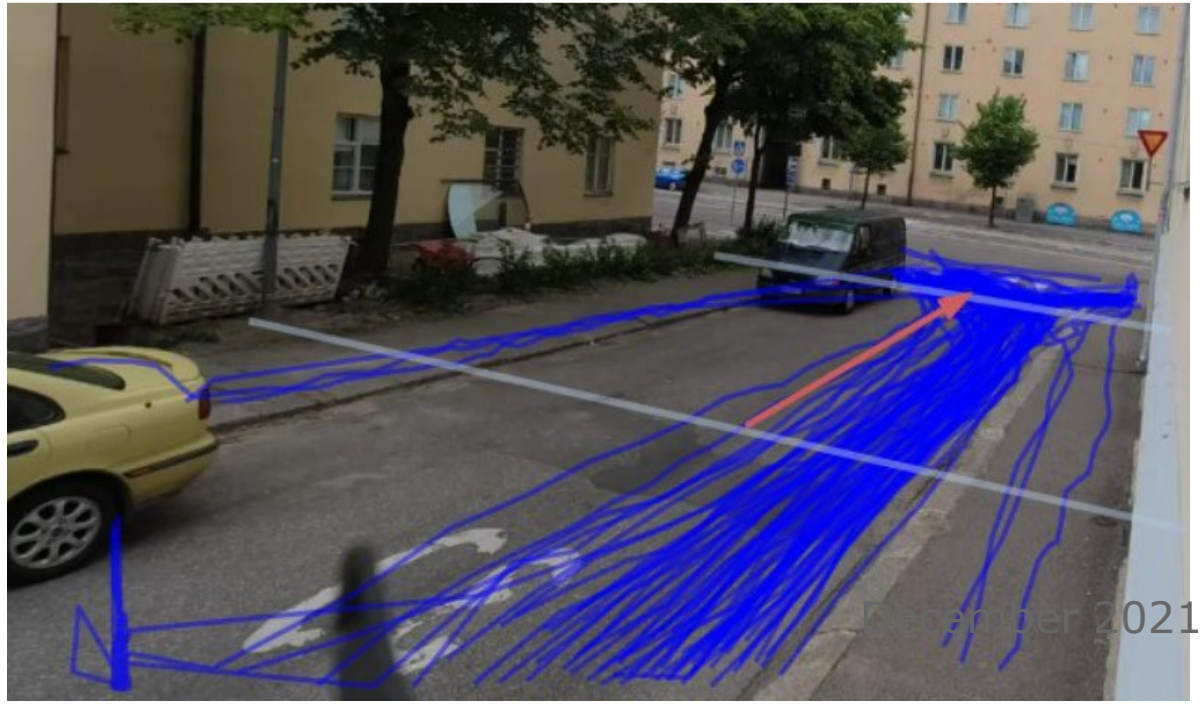
Allowing two way cycling on one way street has recently been added to Finnish legislation. There is very limited data and information available on this traffic solution. One of the key questions was; is the bicycle lane needed in the beginning and in the end of the segment?

WHAT WE DID

Ramboll used the machine vision to survey and visualize the use of the recently added traffic solution before and after marking the bicycle lane. We could determine the car drivers and cyclists driving and riding position, moving directions and possible safety problems.

EFFECT

The survey will help to understand people's behaviour on street and planning the safe solutions. The results will help to determine the right solutions in the street planning manuals.



Bicycle tourism in Germany

- Description: Cycling tourism has been booming in Germany over the past 10 years. The Road Directorate in Denmark wanted to learn more about what is being done in Germany and look into what could potentially be implemented in Denmark and asked us to map cycling tourism in Germany – how is cycling tourism organized, which stakeholders are involved, who are the cycling tourists and what do they want.
- Project Manager: Marianne Weinreich (DK)
- Client: The Road Directorate
- Scope:
  - Desk research
  - Interviews
  - Report
- Delivery period: 10/2022-12/2022
- Ramboll Business Units: Ramboll DK & DE

International benchmark of knowledge and innovation in cycling for City of Copenhagen

The challenge

Cycling is decreasing in Denmark. City of Copenhagen wanted us to do an international benchmark of knowledge and innovation in cycling area. The benchmark cover 4 areas:

1. Cycle data
2. Academic research
3. Europeans knowledge centres for cycling
4. Innovative cycling solutions
   - Infrastructure solutions
   - Mobility services with a focus on cycling
   - Tools and methods for planning for cycling

Our approach

Our international team interviewed planners, academic researchers and collected over 300 innovative solutions from our international network.

The result

Benchmark report with results and a inspiration catalogue with 100 cycling innovations.

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Potentials and barriers for city logistics by bicycle

The Challenge

Business cases and benchmarking for delivering parcels by cargo bikes.

Our approach

Desktop research, stakeholder interviews and analysis of parcel delivery data from a parcel distributor company.

The result

Increased knowledge and public awareness of potentials and barriers for parcel distribution by cargo bike.

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01 Policy

References

01 Policy

Having a **vision, clear goals and targets** are important.

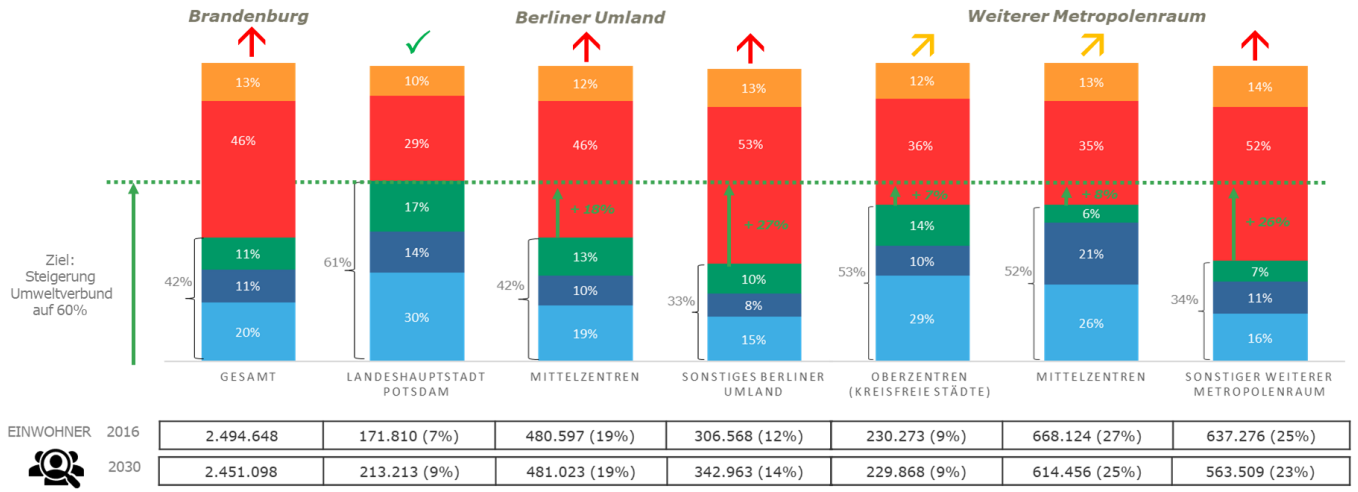
To secure ownership and commitment, it's important to involve the right stakeholders and to **integrate and link cycling policy to other policies** – urban planning, transport, sustainability, health, environment etc.

We have extensive experience of developing different kinds of mobility policies for rural and urban, regional and local for smaller towns as well as big cities.

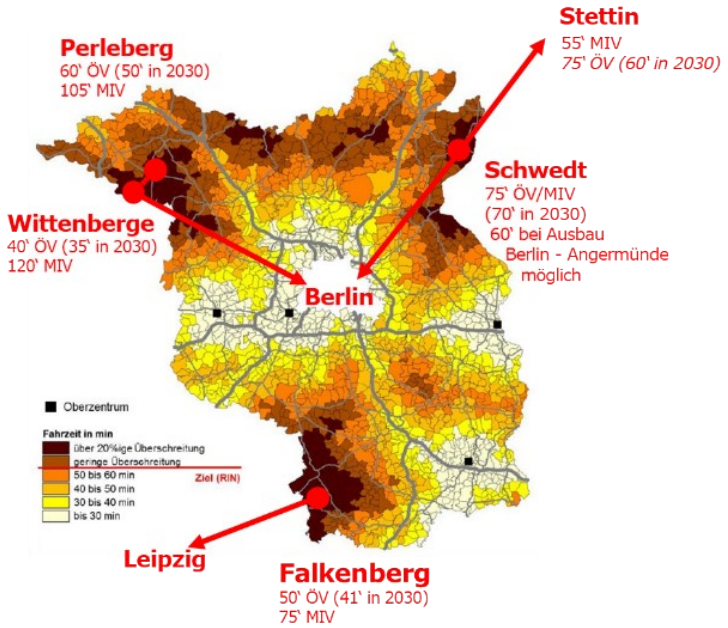
Examples of policies involving cycling are:

- Sustainable urban mobility plan (SUMP)
- Mobility strategy
- Strategy for active travel
- Cycling strategy

Mobility strategy Brandenburg



EINWOHNER	2016	2.494.648	171.810 (7%)	480.597 (19%)	306.568 (12%)	230.273 (9%)	668.124 (27%)	637.276 (25%)
	2030	2.451.098	213.213 (9%)	481.023 (19%)	342.963 (14%)	229.868 (9%)	614.456 (25%)	563.509 (23%)



- Description: The government of Brandenburg aims at increasing modal share of sustainable mobility from currently 42% to 60% in 2030. Active mobility and intermodal integration is a crucial part to achieve this goal.
- Project Manager: Torsten Perner (DE)
- Client: Federal State of Brandenburg
- Scope:
  - Developed of general policies in 9 subject areas customized for the 6 different regional types
  - Elaboration of the strategy paper
  - Participation process – Online commenting
- Delivery period: 08/2020 - 06/2023
- Ramboll Business Units: Ramboll DE, RMC

BICYCLE TRAFFIC ACTION PLAN FOR CITY OF VANTAA

CHALLENGE

The goal of the city of Vantaa is to increase bicycle traffic. The development of bicycle traffic in Vantaa has made partial progress, but the city has lacked a more detailed plan and program for the systematic development of bicycle traffic, which is why the development has not been systematic.

WHAT WE DID

We made a bicycle traffic action plan for the city, which will enable systematic and systematic development. The program set out a vision, objectives, development guidelines and twenty actions to ensure the right direction of development. Residents' surveys, international best practices, heat calculation and information on the current state of the city were used in the preparation of the work.

EFFECT

The result of the work was a concrete program of actions that the various parties in the city can take towards implementation and monitor the progress of the work. When implemented, the program will facilitate cycling in Vantaa and enable the growth of bicycle traffic in line with the goal.

Cycle path prioritization program for City of Lahti

The challenge

Lahti is aiming for carbon neutrality by the year 2025. In terms of emission reductions, transport is the most challenging sector in Lahti. One of the targets is to increase the share of cycling from 11 % (2016) to 16 % by 2030. Systematic promotion of better bicycle traffic conditions requires a prioritized investment program for the cycle network.

Our approach

We divided the bicycle traffic network into approximately 200 separate “projects”. The projects were then prioritized with the help of multi-criteria analysis. Based on an analysis of development needs, the most urgent projects were distributed into two baskets and preliminary investment costs were estimated.

The result

The prioritization programme ensures that bicycle traffic investments can proceed systematically. The prioritization allocates funding to the most urgent projects, based on their effectiveness in increasing the modal share of cycling. The project also facilitates the coordination of urban development projects and street renovations.

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Ystad, Sweden

Small Town Bicycle Planning

Challenge

Provide guidelines and actions necessary to implement an attractive network that can encourage bicycling and achieve the Swedish Municipality of Ystad’s goal of 35% more bicycle trips from 2018-2028.

What we did

Prepared a bicycle plan for the municipality of Ystad, including a description of existing conditions and deficiencies, as well as providing quantifiable goals and general design guidelines of physical and non-physical features for future bicycle paths.

Effect

Convenient and attractive bicycle network recommendations in the plan encourage the inhabitants of Ystad Municipality to shift to more sustainable modes of transportation.

Greater Copenhagen

Analysis of potential for more cycling in Greater Copenhagen

Challenge

Greater Copenhagen Region (Capital Region and Region Sealand in Denmark and Region Skåne and Region Halland in Sweden) was developing a cycling strategy and action plan and needed an analysis of the potentials for more cycling.

What we did

We analysed the potential for car commuters to switch to bicycle or e-bike the whole trip or combining the bicycle and train for longer commutes. This was a foundation to a suggestion of goals for a cycling strategy for the metropolitan area.

Effect

Data and numbers about the potential for model shift between cars and bicycles, reduction in cars on the roads, CO2 emissions and sick-days as well as cost-benefit for society.

02 Planning

References

02 Planning

A **coherent, accessible, safe and secure network of bike lanes**, paths and bicycle streets is the backbone in a cycling city.

But planning for cycling is more than planning new bike paths, bridges and tunnels. It is also about land use and spatial **planning for a city with shorter distances** and planning for the **integration and connection with other modes of transport**.

Understanding of the **DNA of cycling** and **cycling culture** is crucial when planning for cycling. A bicycle is not a small car and cyclists are not pedestrians on wheels.

Some examples of services Ramboll offers for this phase are:

- Modelling and simulations
- Potential studies
- Feasibility studies
- Master planning
- Network planning
- Safe school routes
- Cost-benefit analyses, socio economics
- Traffic safety analyses
- Bike sharing studies

BRUTUS

Cycling flow analysis

Challenge

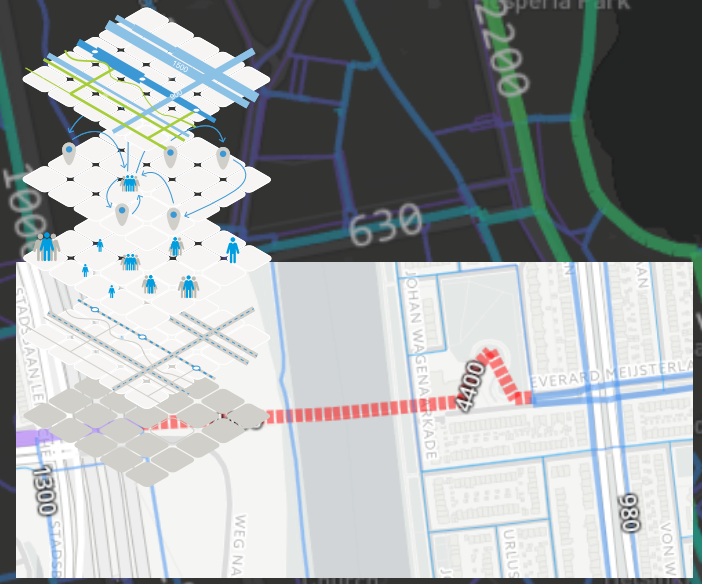
For modelling short trips like cycling and walking, one needs a high spatial resolution and detail in the description of urban structure and transport system, and it is important to take individual traveller characteristics into account.

What we did

Brutus is therefore very suitable for such scope with its high-density grid and individual-level approach. Therefore, there is a special class of Brutus models that focus on cycling and walking.

Impact

Travel demand is still modelled as multi-modal to get the modal shares to the correct level, but close attention is been paid to the bicycle network and route choices.



The Dafne Schippersbrug connects Utrecht's new district of Leische Rijn with the historic city center. Brutus correctly estimated the user potential of the bridge. A fact that was revealed by the automatic counters after opening.

RAMBOLL

Superhighways

Cycle Superhighway Network Plan

Challenge

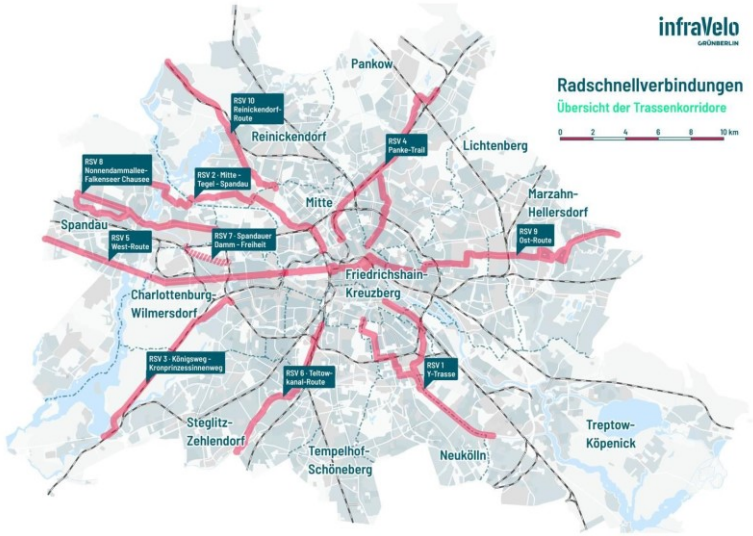
Establish an easily recognizable and coherent network of cycle superhighways to link together the main hubs across 22 municipalities and the Copenhagen Capital Region.

What we did

Concept development, creation of signature system elements, preparation of design standards catalogues, awareness campaign support

Effect

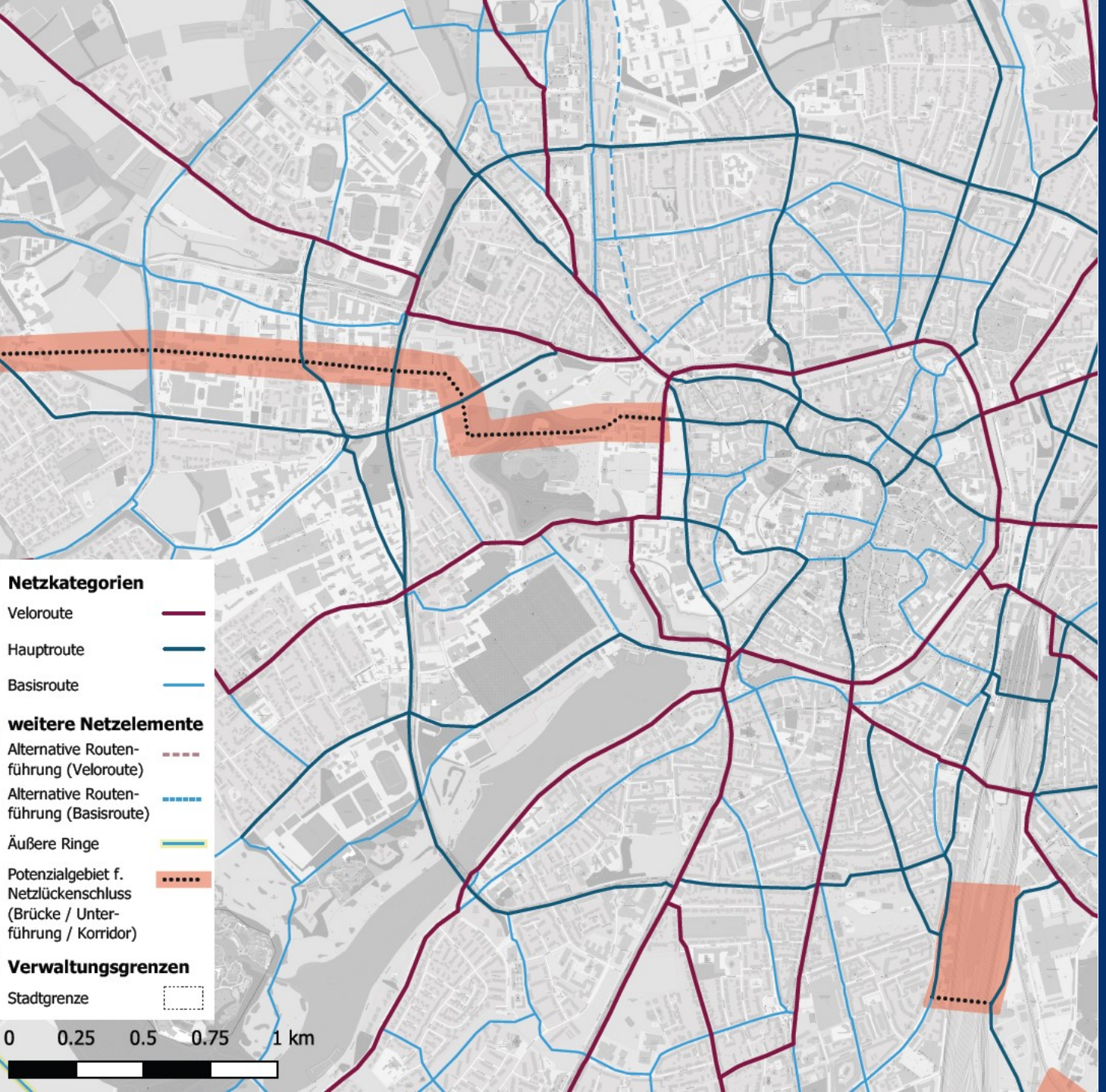
A visionary plan to prioritize and facilitate longer-distance bicycling has resulted in a highly successful and world-renowned network of direct routes throughout the capital region.



Ramboll Transport

Cycle Super Highways Berlin

- Description: Feasibility Study and design for 6 of 10 Cycle Super Highways in Berlin (80 km corridor length); draft and detailed design
- Project Manager: Torsten Perner (DE)
- Client: GB infraVelo GmbH (owned by Berlin Senate)
- Scope:
  - Identification and assessment of possible routes
  - Preliminary design and cost-best analysis
  - Draft and detailed design
- Delivery period: 01/2019-12/2020 (Feasibility study)
  Since 01/2021 (Design)
- Ramboll Business Units: Ramboll DE, DK, SE



Ramboll Transport

Bicycle Network 2.0 Münster

- Description: The City of Münster (315,000 inh) has on of the highest modal share of cycling in Germany (40% of all trips). To further increase this share and to improve conditions for cycling a coherent and hierarchic network of cycling infrastructure has been developed.
- Project Manager: Torsten Perner (DE)
- Client: Münster municipality
- Scope:
  - Macroscopic simulation of bicycle traffic with Brutus
  - Network planning
  - Communication, participation and stakeholder management including a tracking campaign
  - Redesign of selected streets and intersections
- Delivery period: 08/2020-06/2023
- Ramboll Business Units: Ramboll DE, DK, SE, FI

BICYCLE NETWORK PLAN FOR TURKU CITY CENTER

CHALLENGE

In order to reach the set goals for bicycle traffic the bicycle network plan for city centrum needed an upgrade. The old plan has old standards of planning and it was mainly bidirectional. The city also has many addresses that are difficult to reach by bike.

WHAT WE DID

We planned new network plan based on latest bicycle traffic planning principles and best practises. The new network plan is mainly unidirectional. The project also included cross-sections of challenging parts of the network and we estimated the total cost of the change.

EFFECT

The new network plan helps to design and built a cohesive and logical set of bicycle routes. Eventually, the network will also make it easier to cycle in the city and increase bike traffic.

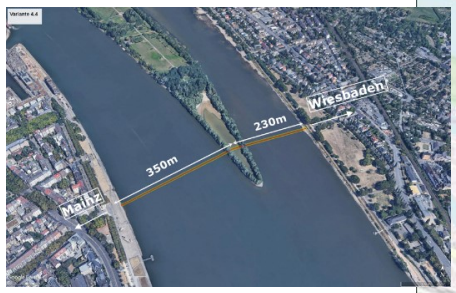
RAMBOLL Bright ideas. Sustainable change.

Ramboll Transport

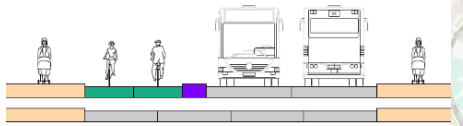
Cycle Super Highway Mainz-Wiesbaden

- Description: Feasibility study for a Cycle Super Highway between the both capitals of federal states (together 0.5 Mio inhabitants)
- Project Manager: Torsten Perner (DE)
- Client: Wiesbaden and Mainz municipalities
- Scope:
  - Identification and assessment of possible routes
  - Preliminary design for selected routes
  - Cost-best analysis
  - Recommendation and realisation plan
  - (Optional draft/detailed design – to be awarded in 2023)
- Delivery period: 01/2021-10/2022 (Feasibility study)
- Ramboll Business Units: Ramboll DE, DK, SE

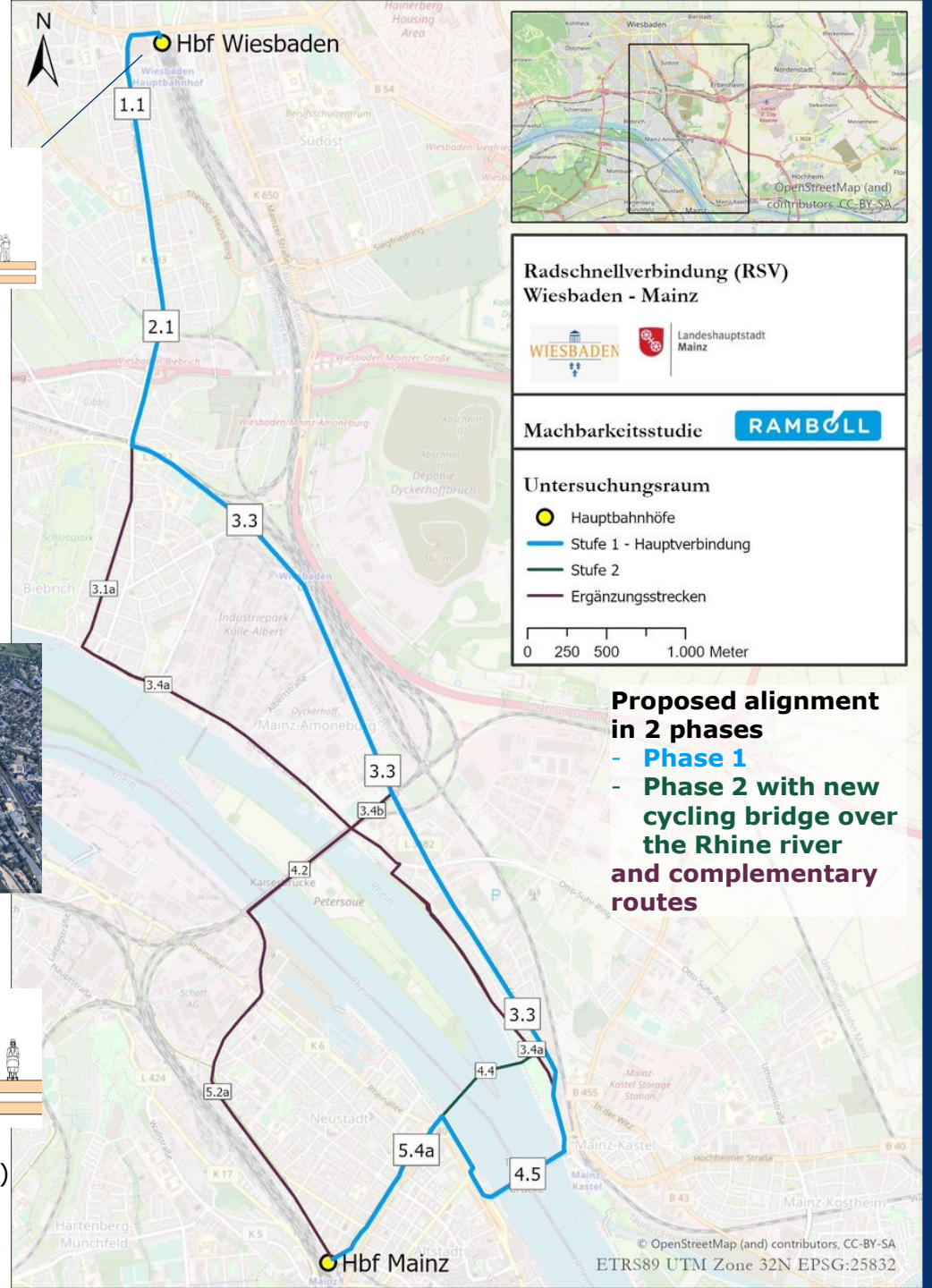
Proposed street design at Wiesbaden main station



New bridge for cyclists and pedestrians (phase 2)



Proposed cross-section on existing road bridge (phase 1)



Oslo City Center

Pre-study Stenersgata and more

Challenge

There is a lack of bicycle infrastructure through the center of Oslo.

At the same time, the needs of public transport, pedestrians and goods delivery must be taken care of.

What we did

Rambøll assists Oslo municipality in carrying out a pre-study for bicycle facilitation for the missing links in the city center. This includes designing of 6 street sections.
Ramboll draws up various solutions and assesses these against requirements.

Effect

City of Oslo will use the report and the designs as a basis for implementing measures to better facilitate for cycling through the city center.

Jägersro, Malmö

Planning for the kind city for children

Challenge

The old horse racing arena in Malmö will move and the intention is to create the most sustainable residential area in the Nordics with 5000 housing units on the grounds. Aside from the arena, the area today is dominated by large car parking areas, car dealers and a shopping center.

What we did

Three teams was selected to develop a structural plan for the area. Ramboll services in the competition team included mobility planning and sustainability coordination.

Effect

Our team (Ramboll, Kanozi architects and Mareld landscape architects) delivered a proposal centered around the concept of a ’kind city for children’ where mobility is focused on walking and cycling. This concept was implemented in everything from mobility to the design of front yards.

03 Design

References

03 Design

When designing cycling infrastructure we always use our experience and **best practice from the Nordics, Germany and the Netherlands** and adapt this to the **local context and the local cycling culture**.

Ramboll also have expert knowledge in street design, intelligent transport systems (ITS), ground engineering, landscape architecture, climate adaptation and stormwater handling. This means that we can **take care of the whole design phase, from conceptual and principal design to detailed design**.

Examples of services for this phase are:

- Conceptual design
- Design manuals
- Detailed design
- Bicycle parking
- ITS and signals
- Wayfinding and signage
- Urban and landscape integration
- Climate resiliency and adaptation

Planning manual

National design manual for bicycle traffic

The Challenge

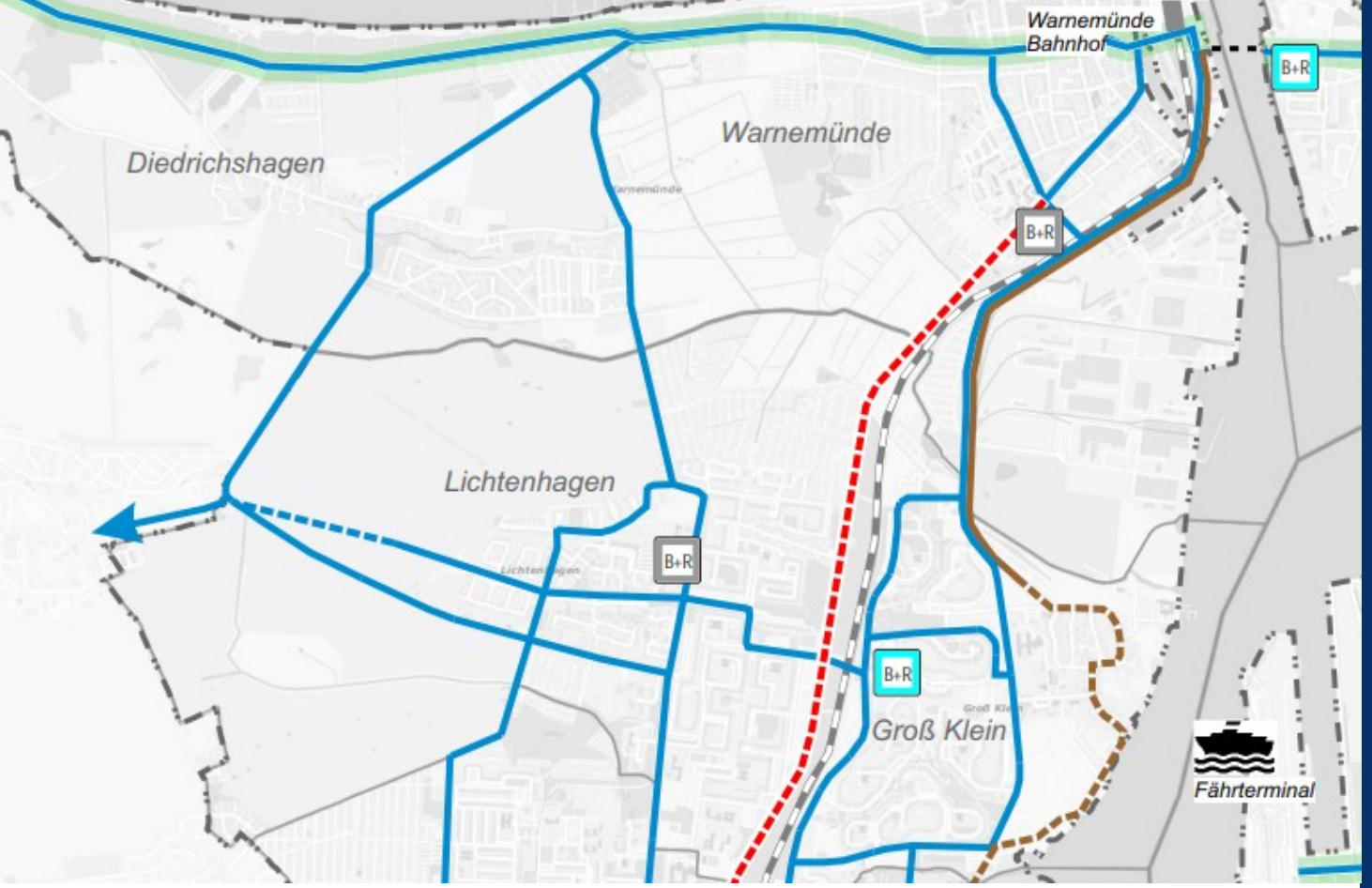
In order to reach the set goals for bicycle traffic, a significant improvement is required for bicycle infrastructure in Finland. The low standards of planning have limited the growth of cycling for decades.

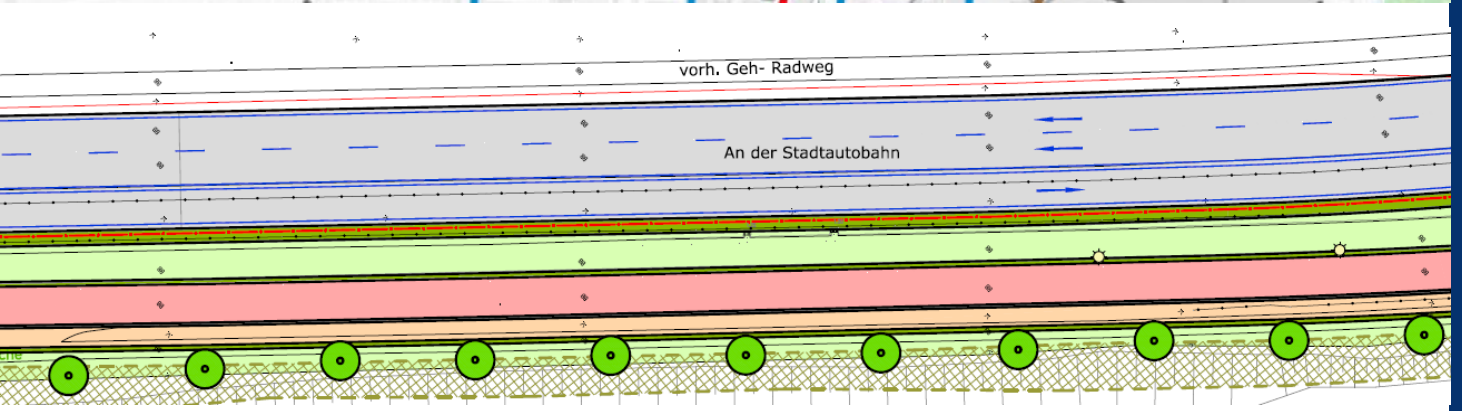
Our approach

We wrote the manual form A to Z in order to set the necessary planning principles and introduce some new traffic arrangements. The manual content is following the best practices in the world and fit them in the local context.

Impact

The new national planning manual represents the new era of bicycle traffic planning in Finland. Building bike paths with the new standards will take time – but most importantly, the page has turned.





Ramboll Transport

Cycle Super Highway Rostock

- Description: Preliminary design for Cycle Super Highways Rostock-Lichtenhagen – Warnemünde by redesigning the existing urban motorway
- Project Manager: Torsten Perner (DE)
- Client: Rostock municipality
- Scope: Preliminary design
- Delivery period: 03/2021 - 07/2022
- Ramboll Business Units: Ramboll DE, DK, SE

Bicycle Snake

Attractive Urban Bicycling Connector

Challenge

Improve connectivity and reduce travel time and route distance for users of a heavily trafficked bicycle route bifurcated by a canal in central Copenhagen.

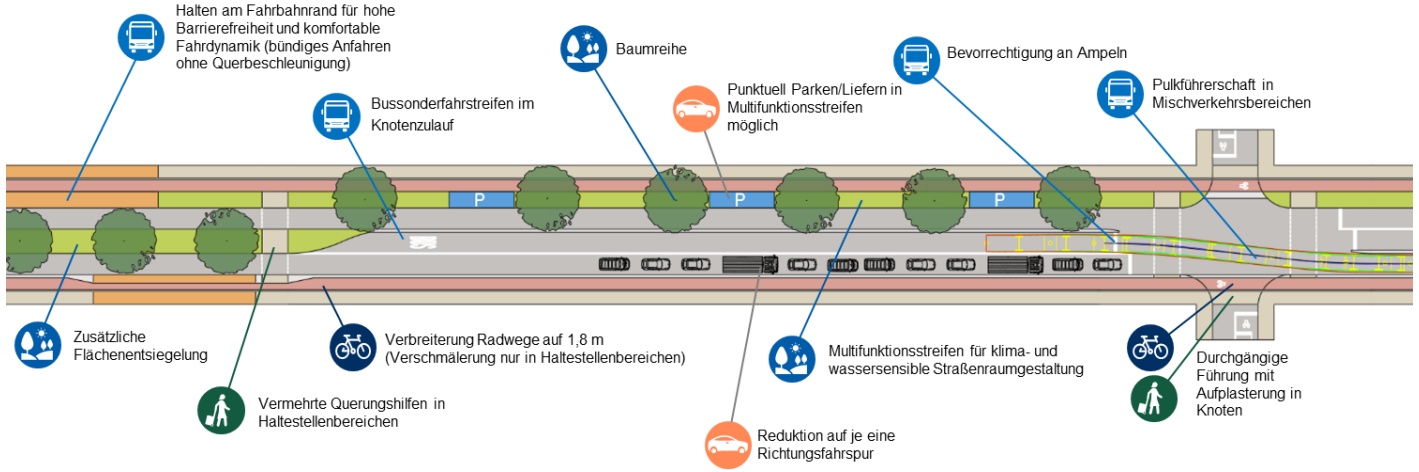
What we did

Prepared the project proposal, detailed design and tender materials, as well as fabrication and construction inspection.

Effect

The “Bicycle Snake” prioritizes connectivity, greatly increases the convenience of bicycling, and is a visually stunning example of people-focused infrastructure.

New street design

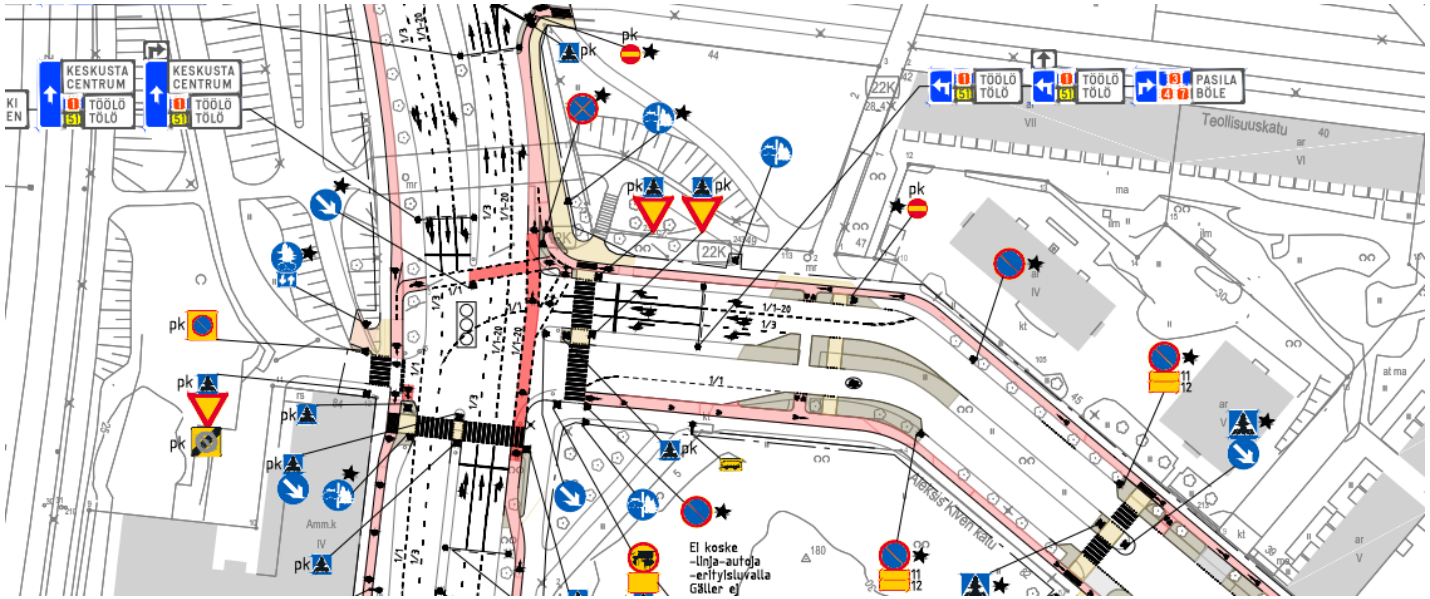


Online participation

Ramboll Transport

Mobilplan 2035 Luruper Hauptstraße

- Description: New street and urban design for Luruper Hauptstraße in Hamburg
- Project Manager: Torsten Perner (DE)
- Client: Hamburg municipality
- Scope:
  - Preliminary designs for the road space
  - Macroscopic simulation with Visum
  - Microscopic traffic analysis with Lisa+
  - Blue/green infrastructure and environmental planning
  - Participation with 3 stakeholder workshops, online participation and costumer audits
- Delivery period: 12/2021-09/2022
- Ramboll Business Units: Ramboll DE, Henning Larsen, RMC



Bicycle paths with lightened and fastened design process

The challenge

Helsinki is in the middle of a transition from bidirectional network for cycling to unidirectional network. The transition will take a long time, and there are serious gaps in the network.

Our approach

Our team suggested for the city of Helsinki that on the selected existing bicycle paths there could decent arrangements found with lightened planning process in order to fasten the transition and make new unidirectional network cohesive. The general method was to change existing bicycle paths to unidirectional on the line segment using road markings and traffic signs while make constructural changes only in the intersections.

The result

The cycling target network was extended with approx. 5 km of new bicycle paths serving much better cohesion for cyclists.

RAMBØLL

Wayfinding

Wayfinding for bicycle traffic

Challenge

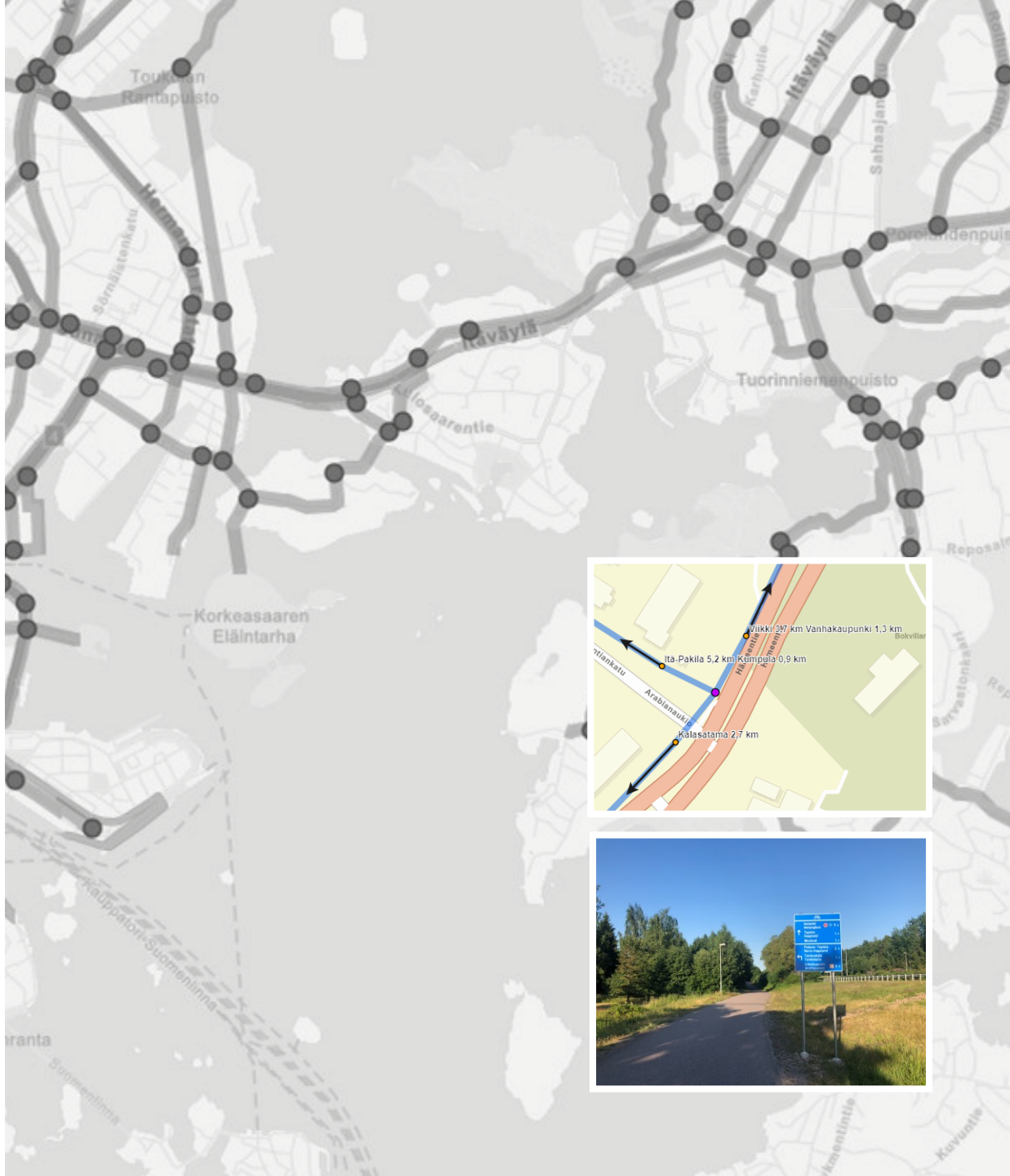
Bicycle paths are not always intuitive and easy to follow from A to B. To make cycling an attractive alternative for everyone, people need to find their way in the cities.

What we did

We created a GIS-based tool to determine the contents for wayfinding. The output is an error free and easily updateable general plan for wayfinding. The general plan is database for traffic sing contents.

Effect

We could deliver time saving wayfinding planning to our client. With new better signposting, more cycling can be expected as way finding get much easier for everyone.



Active School Travel

DLR (Greater Dublin), Ireland

Challenge

Unsafe conditions for children to walk and cycle to school as a result of car oriented suburban planning and street design from the past.

What we did

Designed a coherent network of Active School Travel routes with the safety concerns of families with children in mind, linking residential areas to 65 schools across the county.

Effect

Enabled more children to walk and cycle to school, and help to change the perception of cycling in DLR County.

04 Promote

References

04 Promote

Build it and they will come – but this is not enough.

Often the barrier for changing a habit is the 15 cm between our ears.

To **normalize cycling** we need to promote cycling as a normal **everyday activity that everybody can do** regardless of gender, style, age or income.

Often communication is not enough – having people **try it out** very important key to behavior change.

Examples of services Ramboll offer for this phase are:

- Citizen involvement
- Branding campaigns
- Behavior change measures and activities

Active travel to work

Oslo, Norway

Challenge

An increase in bicycle share during the pandemic and a new everyday life back in the office has led to more people being active to and from their workplaces. Cycling has become the new normal where more people cycle all year round. The pressure on each employer to facilitate and make it easy for their employees to continue being active has therefore increased.

What we did

Rambøll carried out a large survey of how well many of the municipality's workplaces are adapted for active work travel. The survey includes a travel habits survey of the employees as well as a physical inspection of the workplaces. Based on the survey, Rambøll has subsequently recommended measures.

Effect

The insight from this survey and the measures proposed will help workplaces to prioritize and implement measures so that more people can choose to be active to and from work.

Active School Travel

DLR (Greater Dublin), Ireland

Challenge

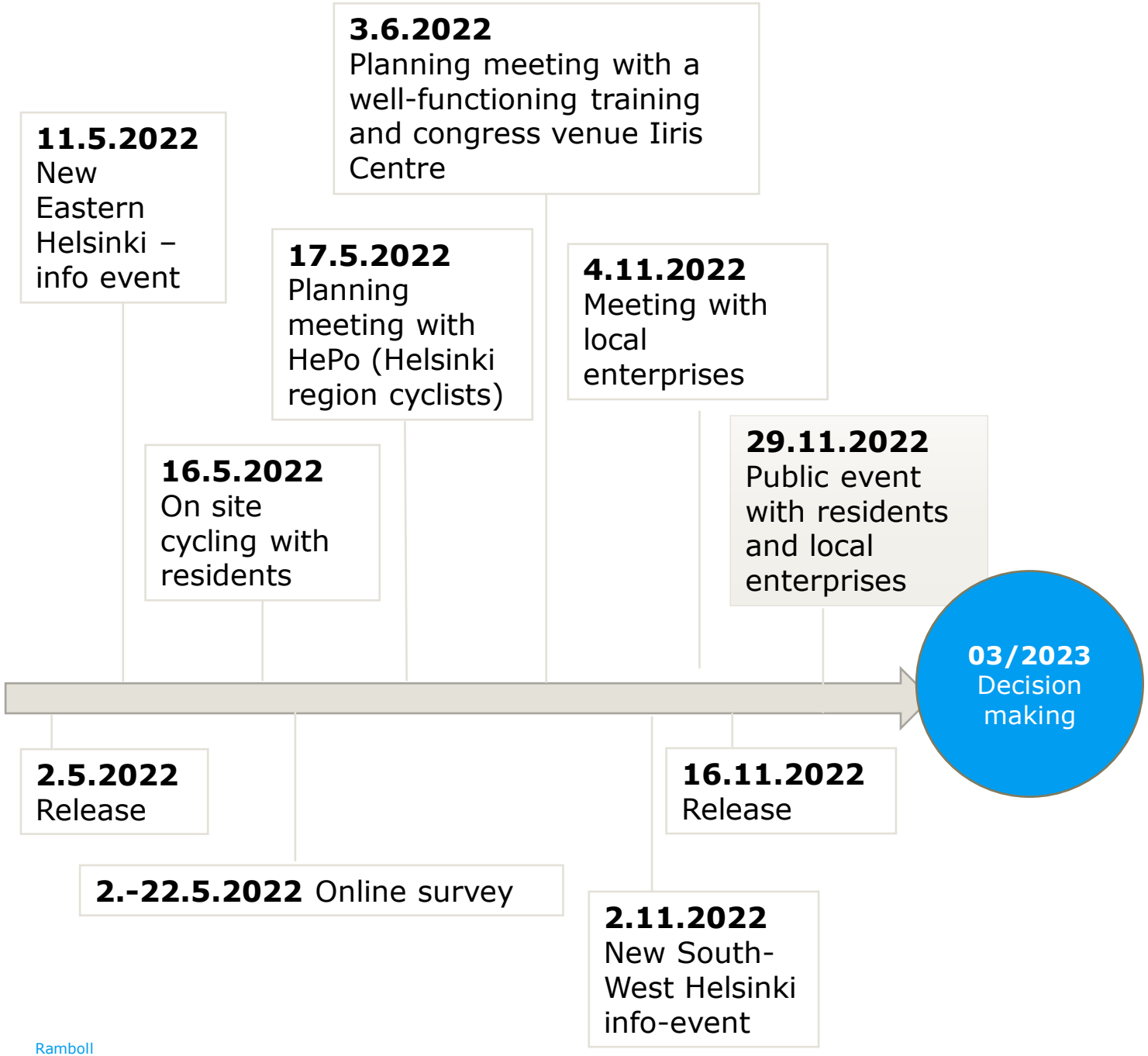
Negative perception of ‘reckless cyclists’ led to resistance to proposed Active School Travel routes.

What we did

Public engagement and promotion. We showed that there were also families with children all over the county who would like to cycle as long as their concerns about safety would be met.

Effect

Change the perception of cycling in DLR County so that more more children would get a chance to walk and cycle to school.



Communication plan of Eastern bicycle highway in Helsinki

The Challenge

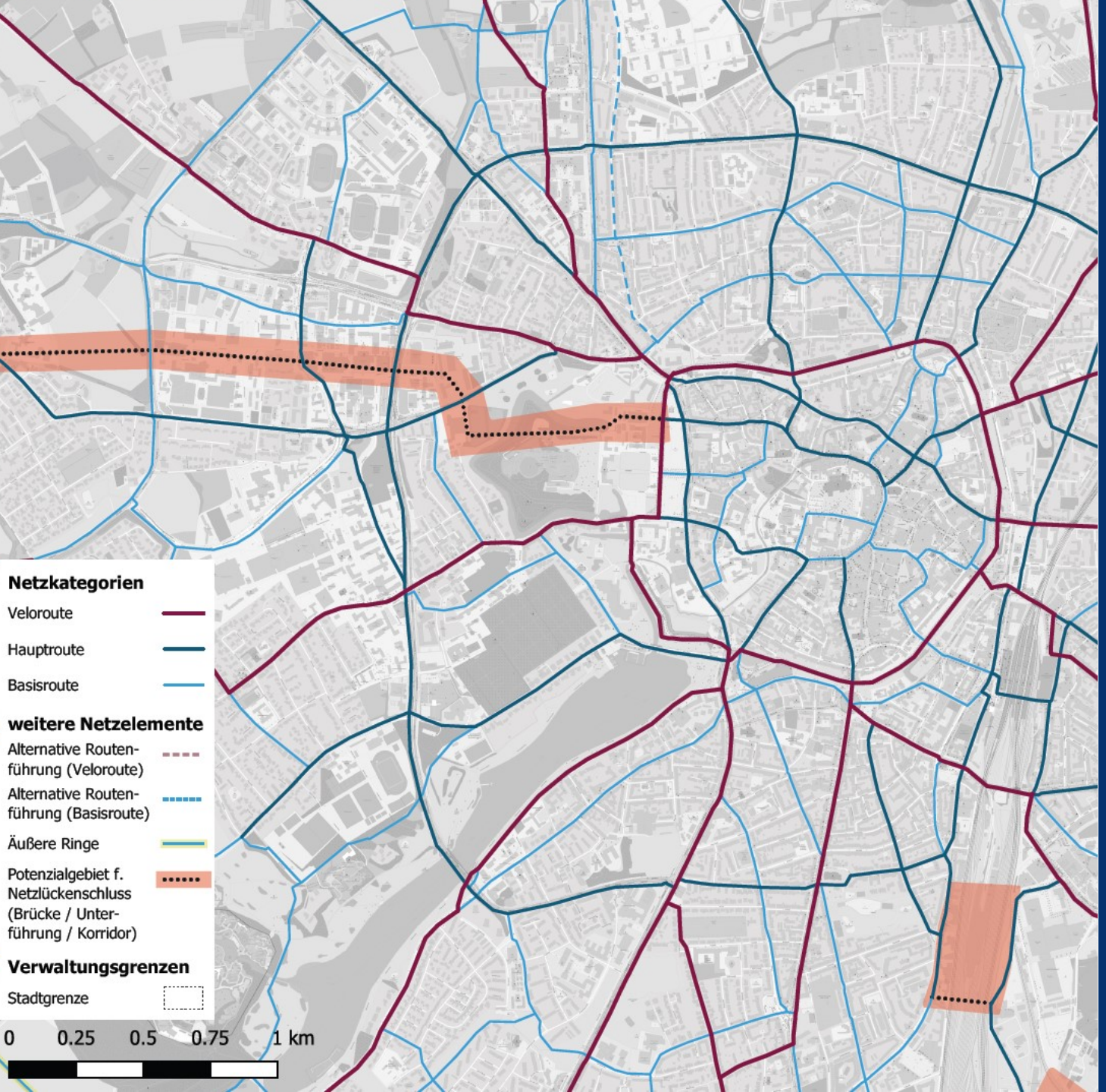
Bicycle highway will require space re-allocation and the public acceptance can be a challenge

Our approach

Together with the city of Helsinki, we planned the communication throughout the planning process. Acceptance can be improved with careful communication with all the relevant stakeholders, residents, NGO's, shop owners etc.

The result

The city of Helsinki and Ramboll carried out a relatively large set of communication. The communication resulted in a way that the plan was improved. The whole route was changed from the initial corridor to a new one.



Ramboll Transport

Bicycle Network 2.0 Münster

- Description: The City of Münster (315,000 inh) has on of the highest modal share of cycling in Germany (40% of all trips). To further increase this share and to improve conditions for cycling a coherent and hierarchic network of cycling infrastructure has been developed.
- Project Manager: Torsten Perner (DE)
- Client: Münster municipality
- Scope:
  - Macroscopic simulation of bicycle traffic with Brutus
  - Network planning
  - Communication, participation and stakeholder management including a tracking campaign
  - Redesign of selected streets and intersections
- Delivery period: 08/2020-06/2023
- Ramboll Business Units: Ramboll DE, DK, SE, FI

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