

Shared and digital mobility hubs Implementation plan Tønsberg

Interreg
North Sea



Co-funded by
the European Union

ShareDiMobiHub



Summary

- Project goal: Launch three mobility hubs in the city centre of Tønsberg (Norway) in 2023. Learn and experience how shared mobility can contribute to reduce the reliance on private cars and contribute to more use of active, shared modes, and combined travels and urban attractiveness.
- Target group: primarily residents, secondarily companies, commuters and visitors
- Pilot periode: Autumn 2023 - autumn 2024
- Consider upscaling/permanent operation after autumn 2024



Photo: Emilie Bue Lassen

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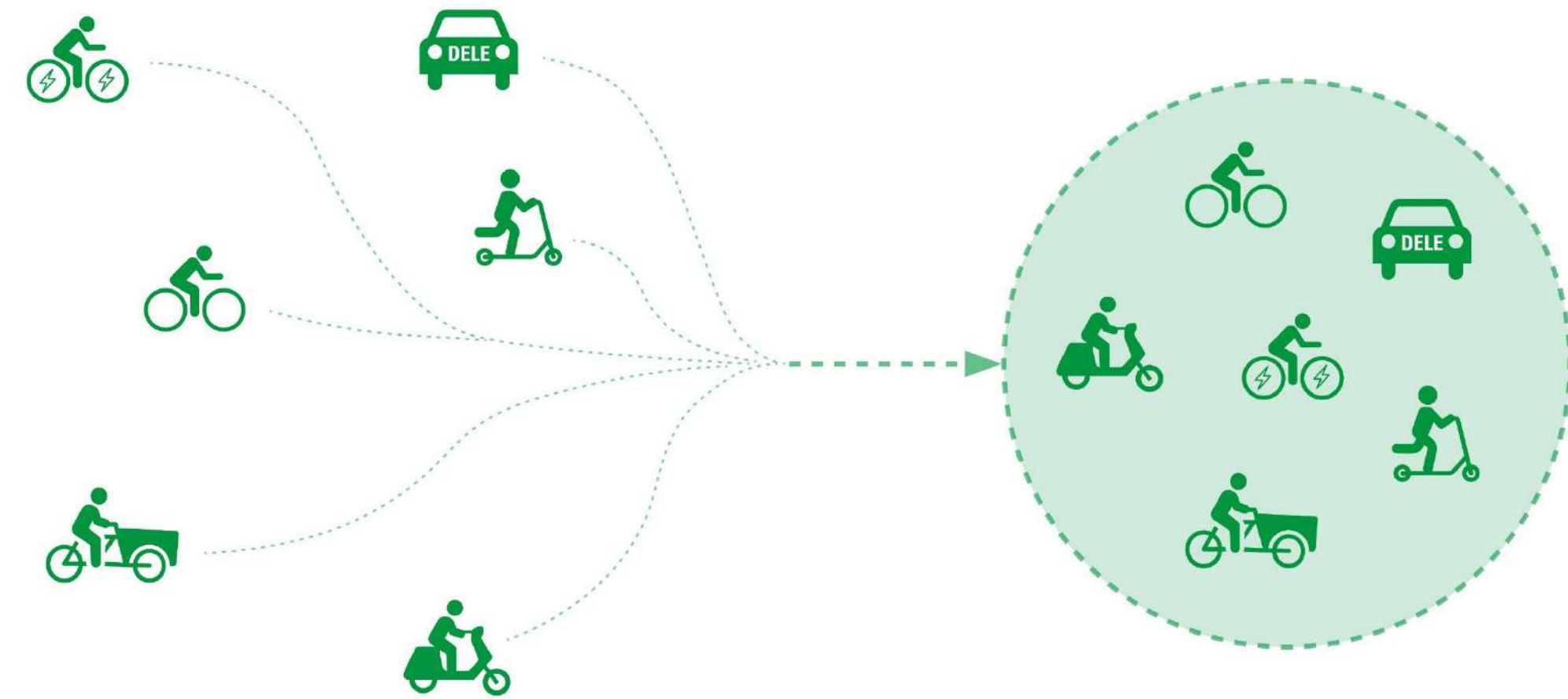
1-INTRODUCTION



What is a mobility hub

A mobility hub is a central location where various modes of transportation are seamlessly integrated to facilitate easy and efficient travel. These hubs are designed to enhance connectivity and provide a range of mobility options to the public.

Mobility hubs aim to create a user-friendly, interconnected transportation network that reduces reliance on private cars, promotes sustainable travel, and improves overall accessibility and convenience for travelers. They are typically located in areas with high demand for transportation services, such as city centers, residential neighborhoods, and major transit stations.



This pilot study

This pilot study is a preliminary small-scale study conducted to evaluate sustainability, accessibility, economic issues and use of mobility hubs in the pilot phase.

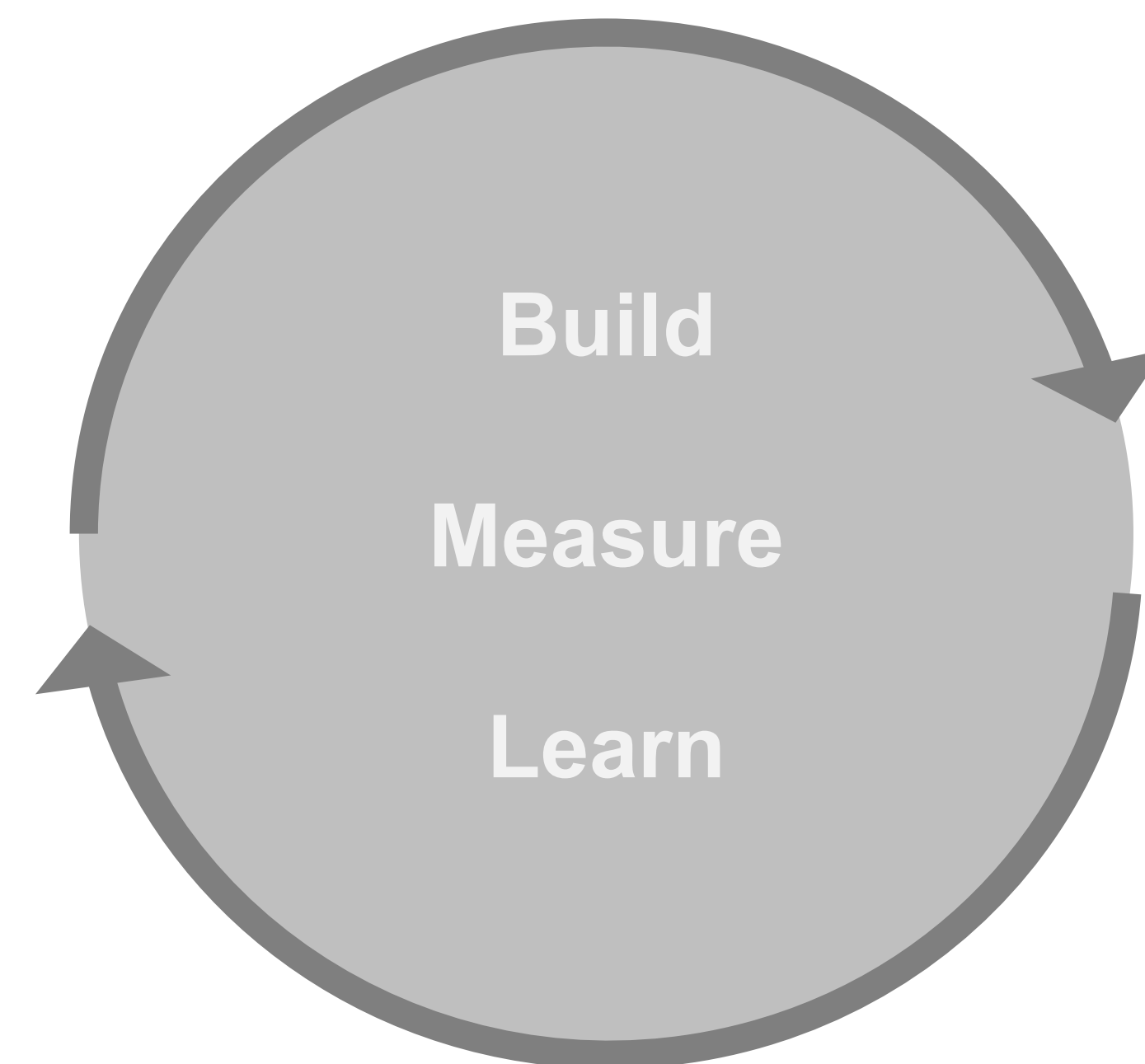
About the project

This project is initiated by the county of Vestfold and got financial support form climatefunding for phase 1; making a plan for implementation. The municipality of Tønsberg joined as «test-arena» and necessary political support is anchored in Tønsbergs plan for urban mobility. Tønsberg raised funding for phase 2; depolyment and operation of the hubs.

The county of Vestfold has been the lead partner in phase 1, making the plans for implementation. The municipality of Tønsberg is the lead partner in phase 2, operating and further developement of the hubs in the city centre.

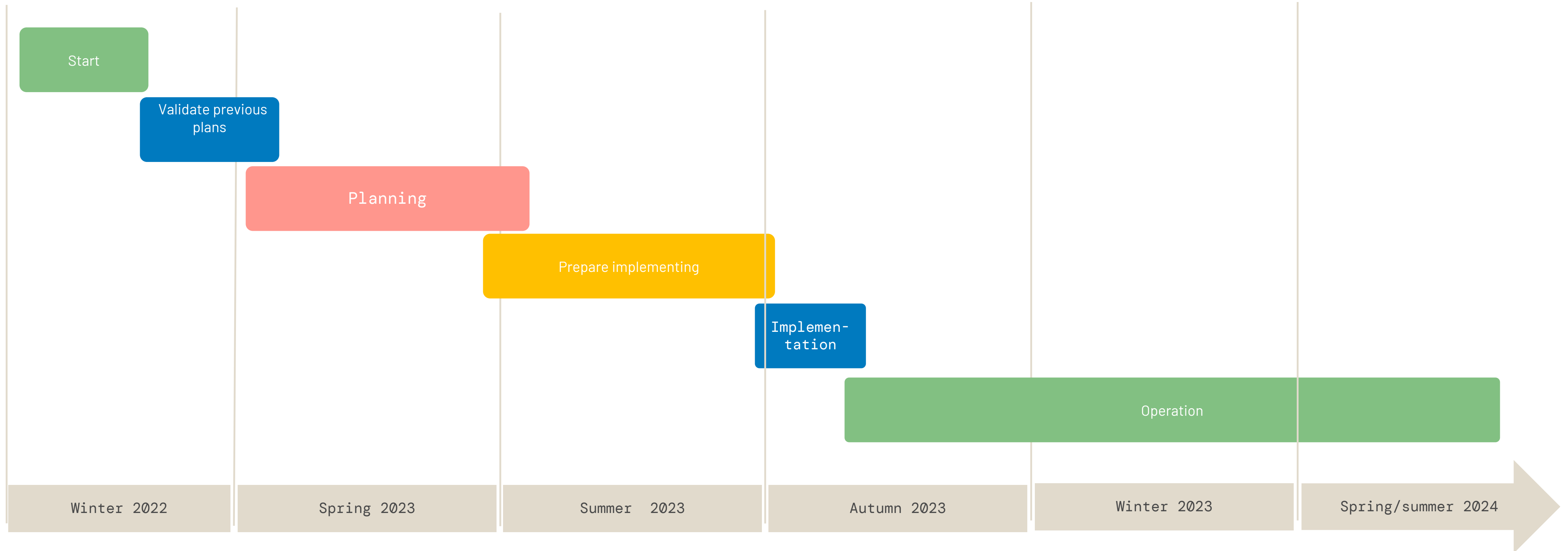
Lene Stenersen from the county of Vestfold and Emile Bue Lassen form the municipality of Tønsberg has been leading the prosjekt together in both phases. This has proven to be a very fruitful way to work.

Beta Mobility and Jaja Architects has contributed in both phases as consultants. In september 2022 our project became a partner in the EU founded Interreg project Shared and digital mobility hub. **Shared and Digital Mobility Hubs (ShareDiMobiHub)** aim to improve urban multi-modal accessibility by increasing the introduction and uptake of shared mobility hubs, resulting in a modal shift and changed behaviour towards shared mobility hubs. The project-period (ShareDiMobiHub) will end in 2025.



Early sketch proses

Project plan



2 - BACKGROUND



About Tønsberg

- Tønsberg is one of Norway's oldest towns, established around 871 AD. Located in Vestfold county, it serves as a regional hub with a rich history dating back to the Viking Age.
- The town's coastal location makes it a vibrant center for maritime activities, tourism, and commerce. About 1 hour south of Oslo.
- Tønsberg is a key player in the region's economy and cultural landscape.
- Tønsberg is an important commuter town, attracting a substantial number of workers from neighboring areas. The city's robust transportation infrastructure, including its railway connections and highways, facilitates efficient commuting, making it an attractive location for both businesses and employees.

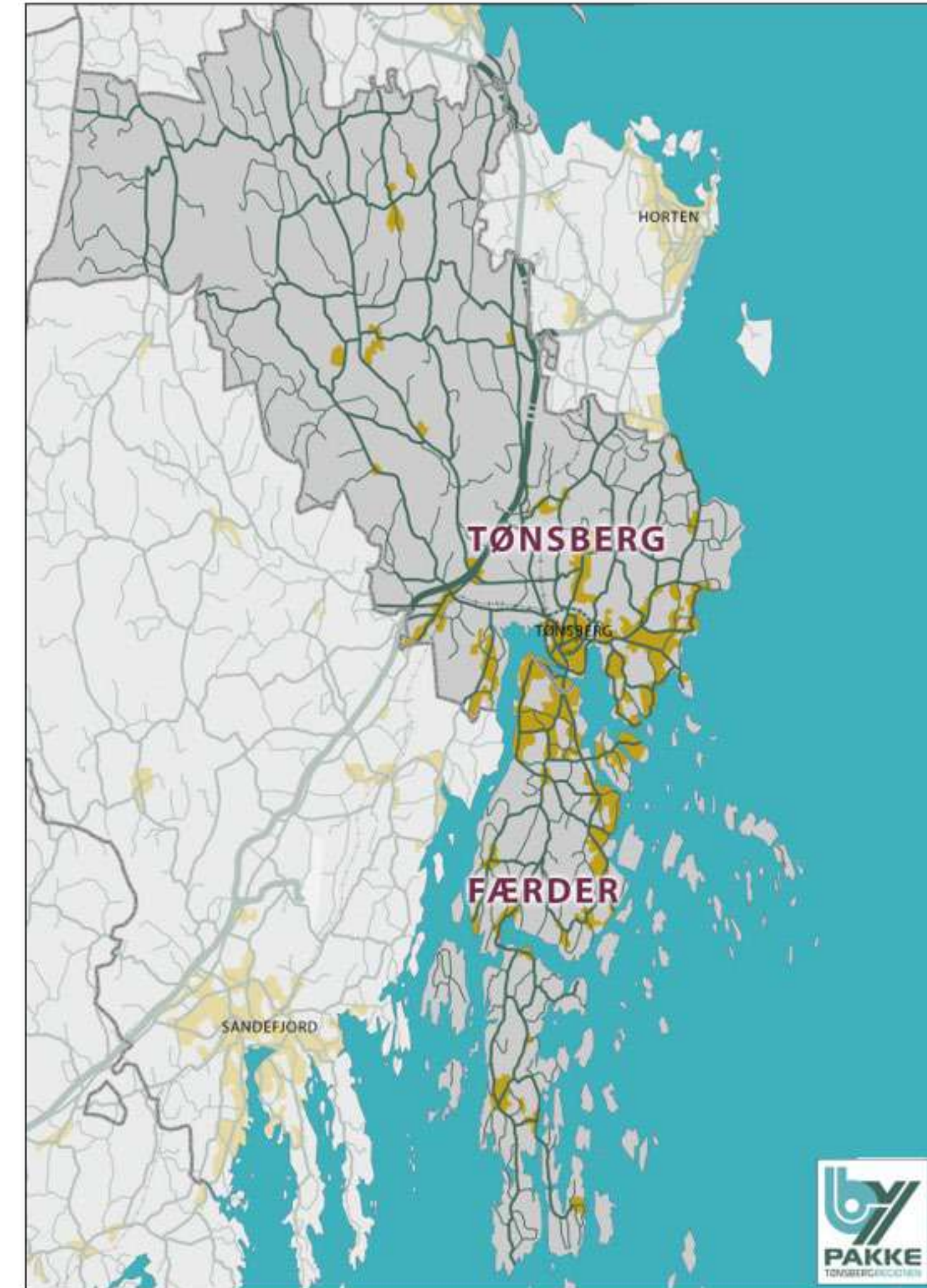
Inhabitants



Density



Source: SSB



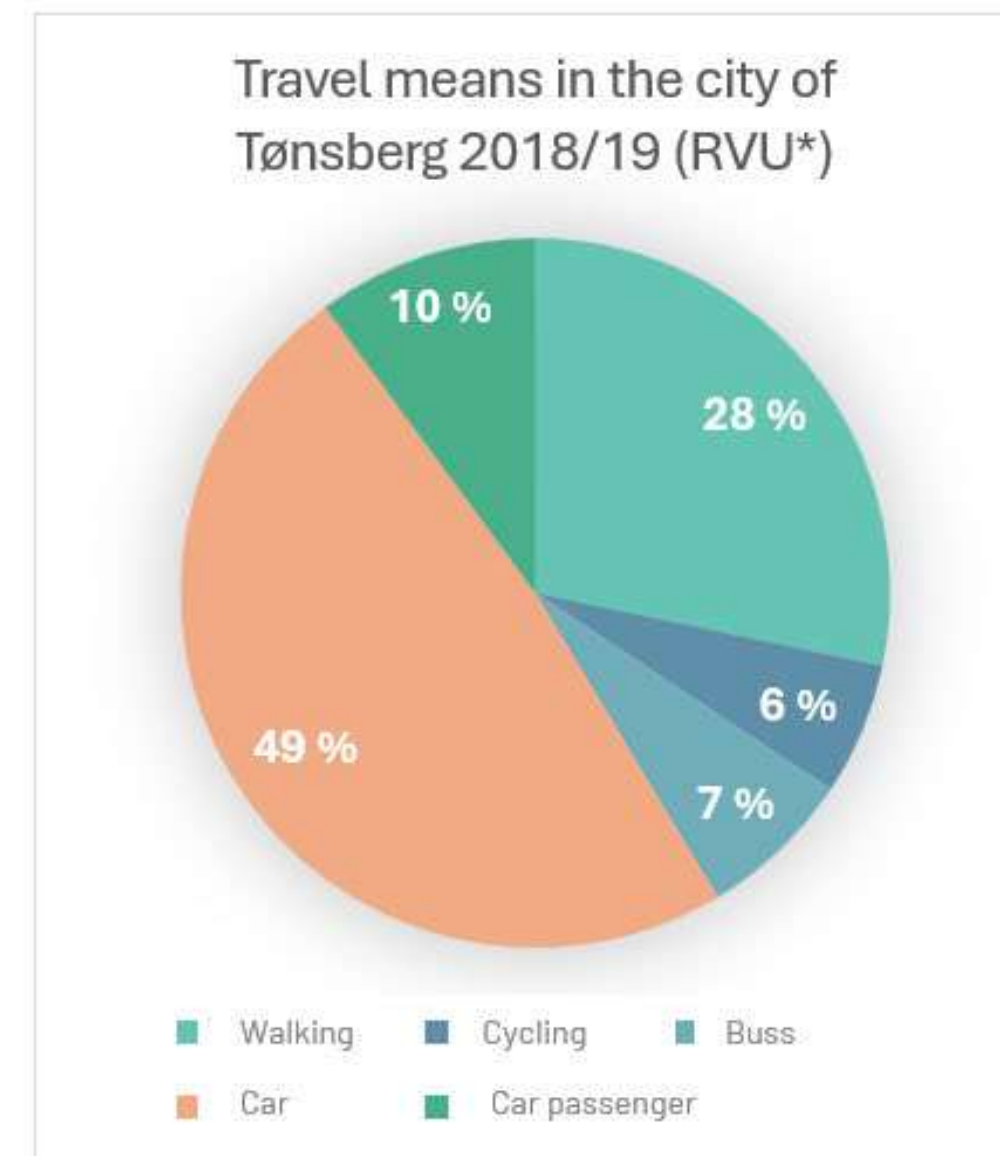
Tønsberg and Færder municipalities in the county of Vestfold. All together 82 000 inhabitants (55 000 in Tønsberg, 27 000 in Færder)

Travel behavior in the city of Tønsberg

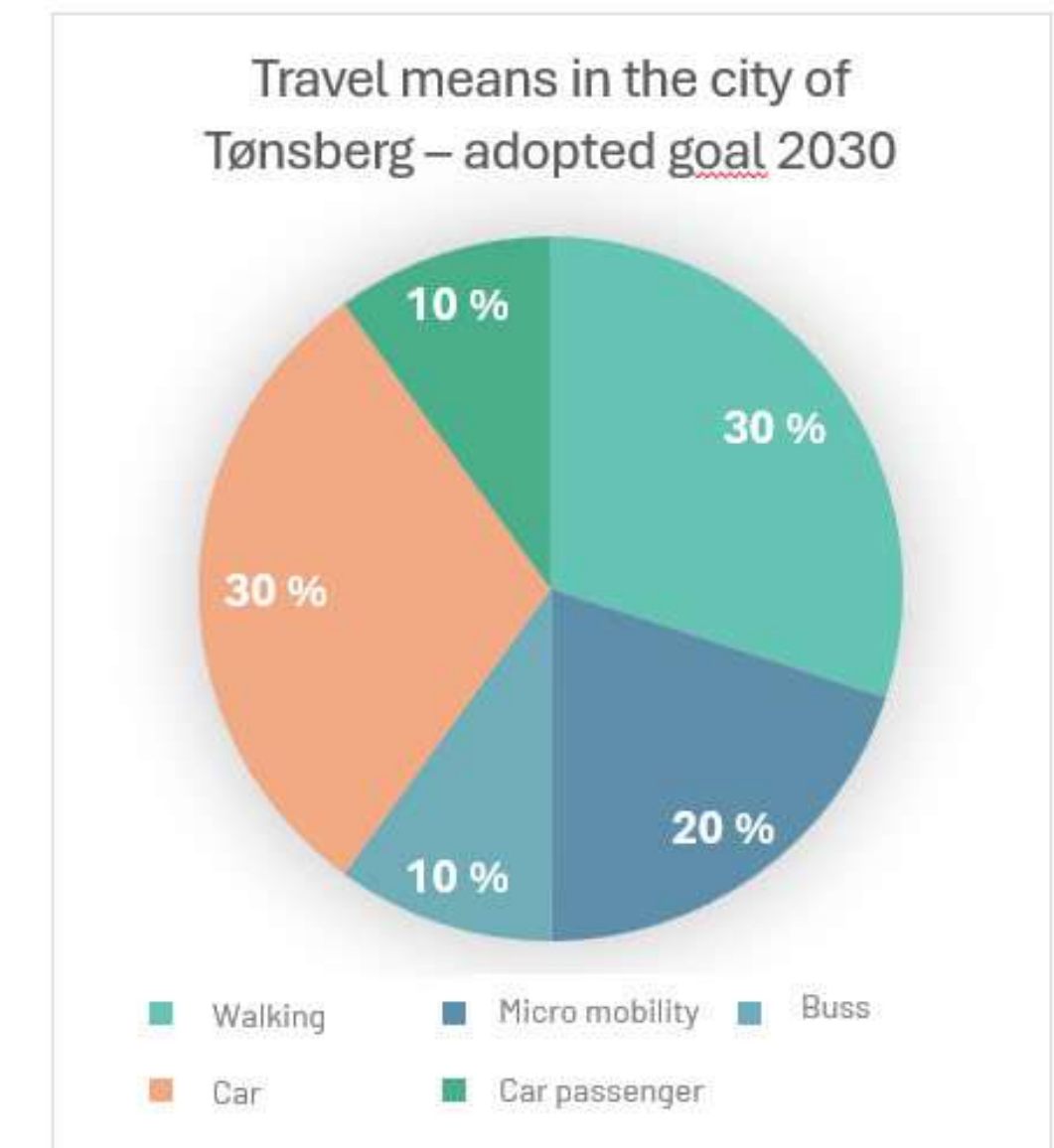
Public transport, cycling and walking stands for 41% of all trips. The municipality's mobility goals is that the percentage of green transport increases to 60% within 2030.

The green shift in transport and increasing the use of shared mobility is challenging for several reasons:

- National policies favoring electric cars is a challenge all over Norway
- Shared mobility is a relatively new concept in Tønsberg, e-scooters were introduced in 2021.
- Limited planning resources – both in terms of people and financial resources



*The national travel behaviour survey



Source: Mobilitetsplan for Tønsberg sentrum (2021)

Several local and regional plans indicate change in Tønsberg

Short term

- Upgrade streets in the city centre
 - ✓ New water supply/drainage, paving, blue-green infrastructure
 - ✓ Reduce parking space for cars
 - ✓ Better facilities for pedestrians and cyclists
- Cycle infrastructure
 - ✓ Cyclepaths, cycleparking, guidance
- Public transport
 - ✓ More frequent busses
 - ✓ New products (tickets)

Longer term

- More frequent train-connection
- «Mobilityhouse»
- New infrastructure, giving more space for green mobility



3 - PURPOSE AND GOAL OF THE PROJECT



A photograph of a snowy street in a city. On the left, there are multi-story buildings with windows and a sign that says "speak". A pedestrian bridge with a glass railing spans across the street. In the foreground, a dark car is partially visible. The ground is covered in snow, and there are some trees and utility poles. The overall atmosphere is cold and wintry.

This is

... a pilot project that offer mobility services as an alternative to private cars

The purpose



Illustration: Jaja Architects

Positive contribution to
Tønsberg



Photo: Emilie Bue Lassen

Relevant for as many as possible

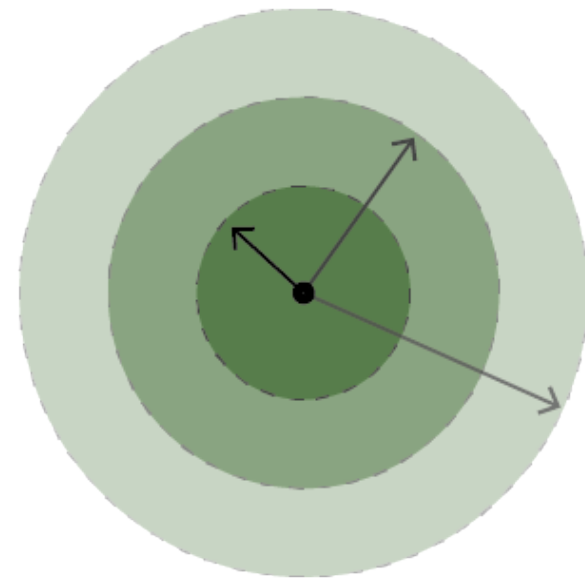


Illustration: JAJA Architects

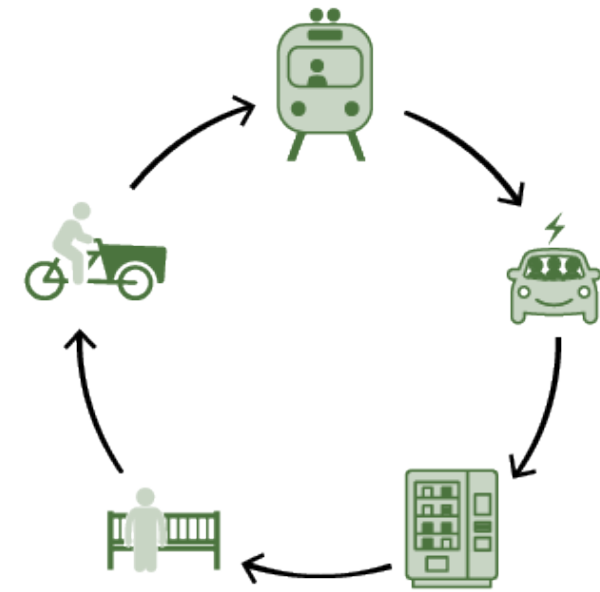
Easy integration between
different modes

Goals

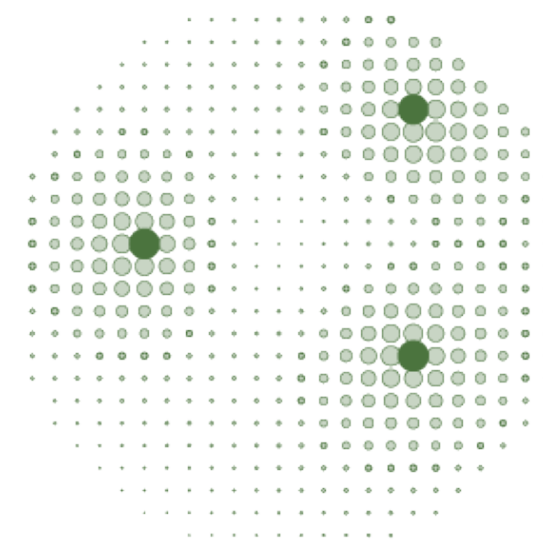
Performance goals:



Increase mobility



Intergrate new mobility and other relevant services



An attractive contribution to the neighbourhood

Process goals:

- Selfsustained offering
- Demonstrate appetite for mobility hubs and build from there
- Start small, iterate and adjust
- Take a facilitation role and avoid subsidies for operators

4 - CONCEPT DEVELOPMENT

- Scale and content (S, M and L)
- Location
- Design



Scale and content

We wanted to pilot different localization, scale and content in our project because different hubs have unique transportation needs and user groups. Piloting various localization, scales and content allows testing of concepts tailored to these specific environments.

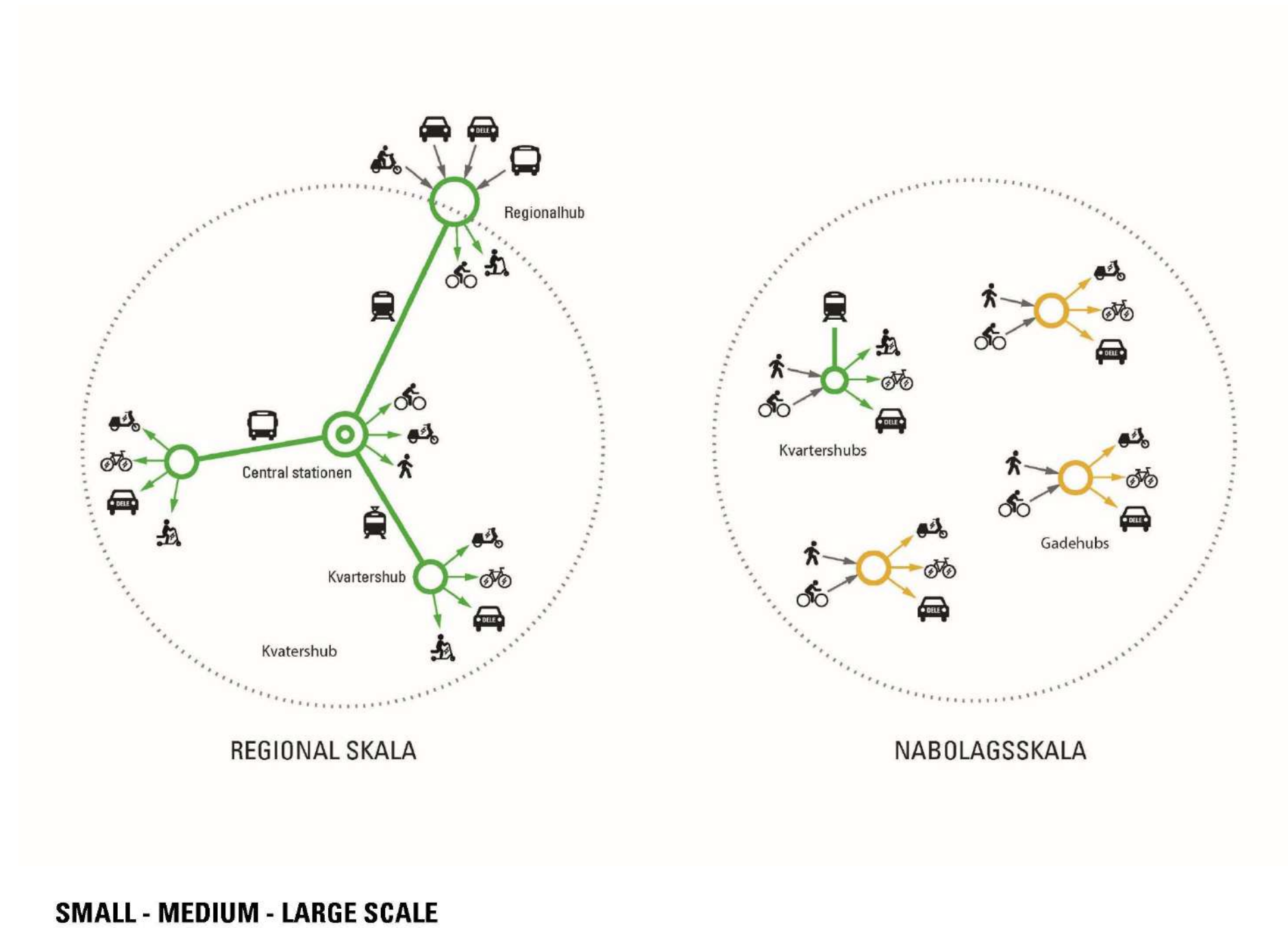
Three different scale of hubs were developed:

- Large (regional skala) – regional scale
- Medium (nabolagsskala, kvartershub) – block/quarter hub
- Small (nabolagsskala) – neighborhood hub

The concept of the large hub was developed around the idea of a pop-up bicycle workshop.

All hubs were to offer car sharing and e-scooters.

The large and medium hubs were to offer safe bike parking.



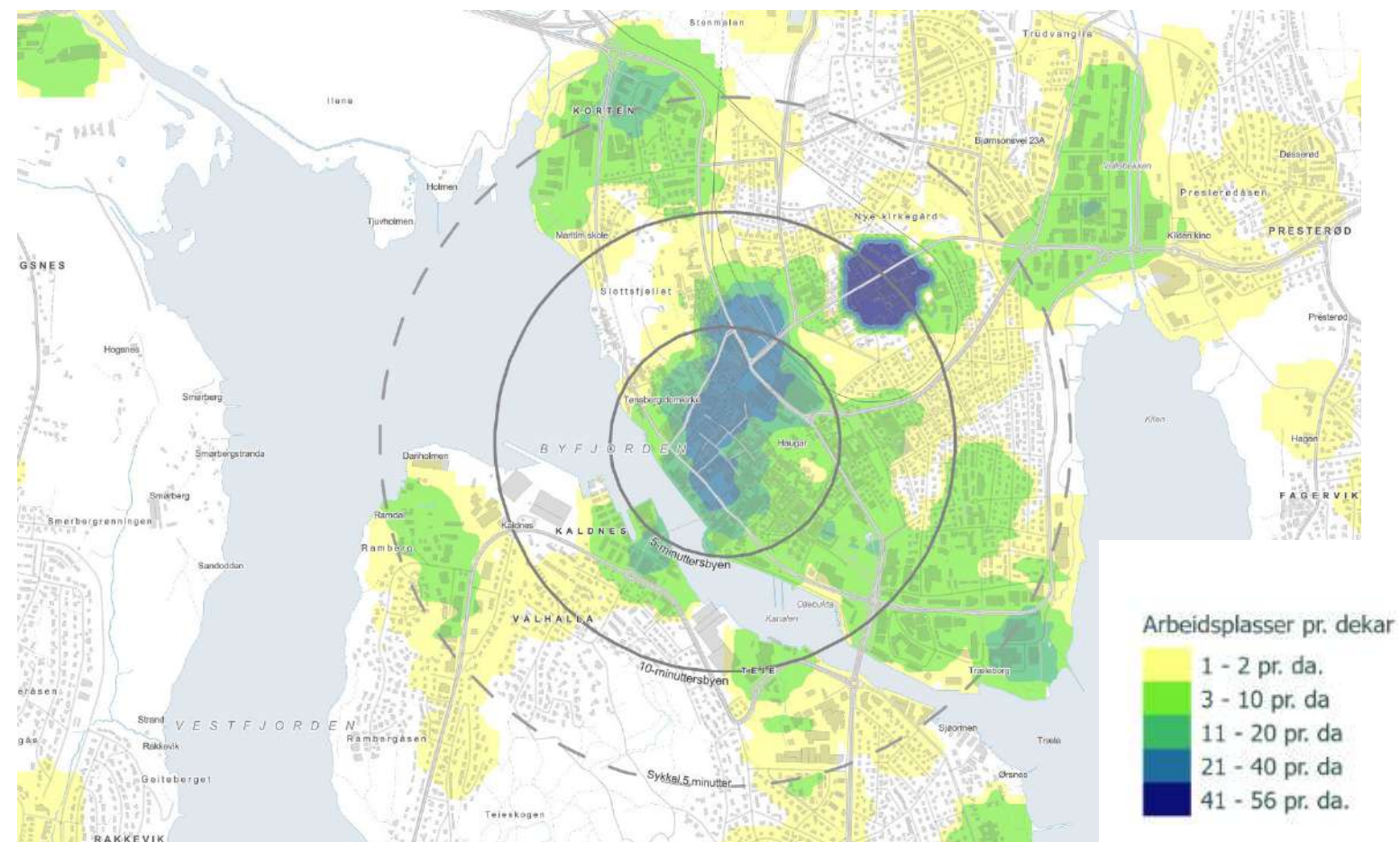
Localization

We were assessing the following parameters when studying localizations in the city centre of Tønsberg:

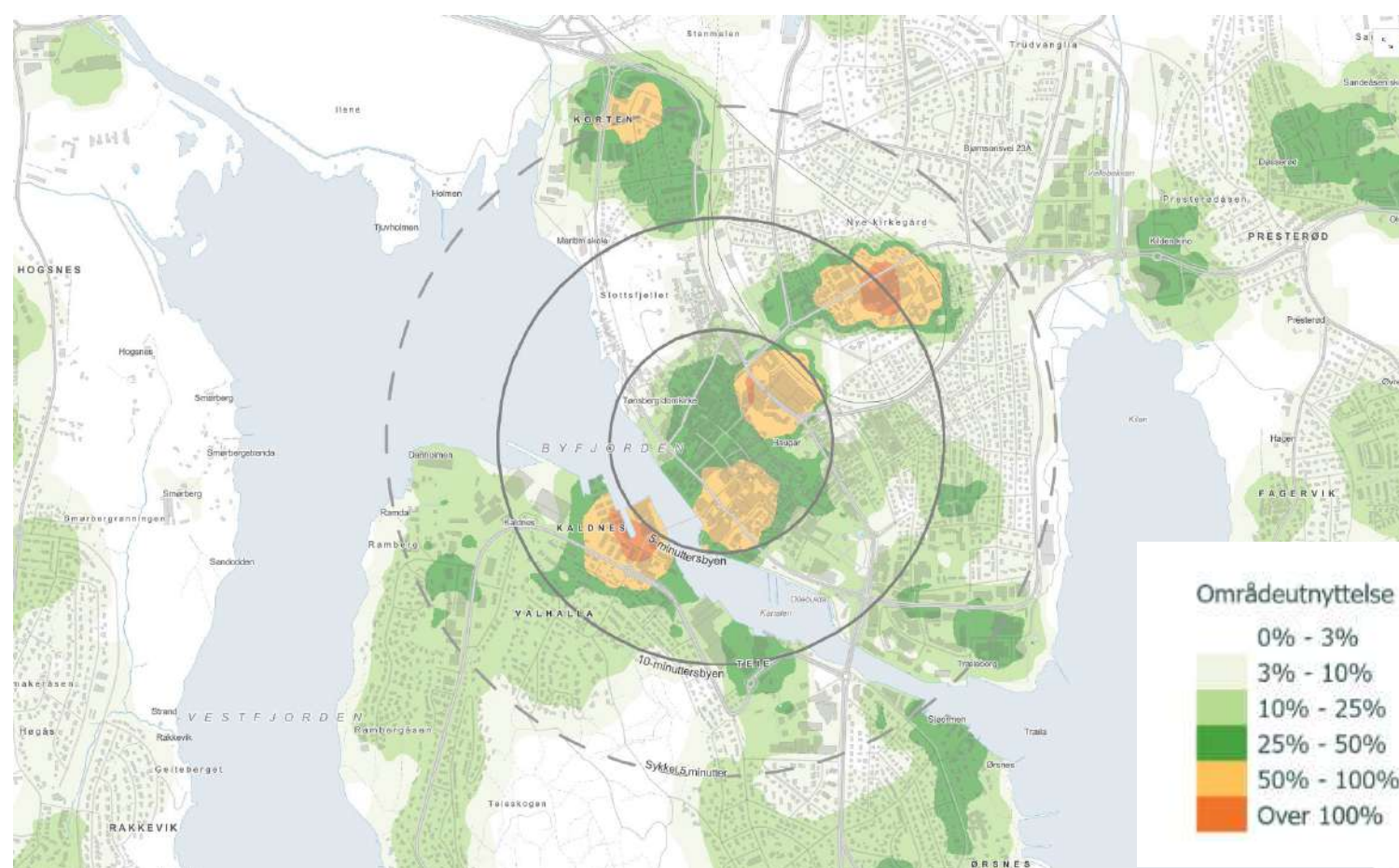
- intersections of various transport modes
- high-density residential areas
- near areas with high density of workplaces (support the daily commute of employees).

This gave us the three following places:

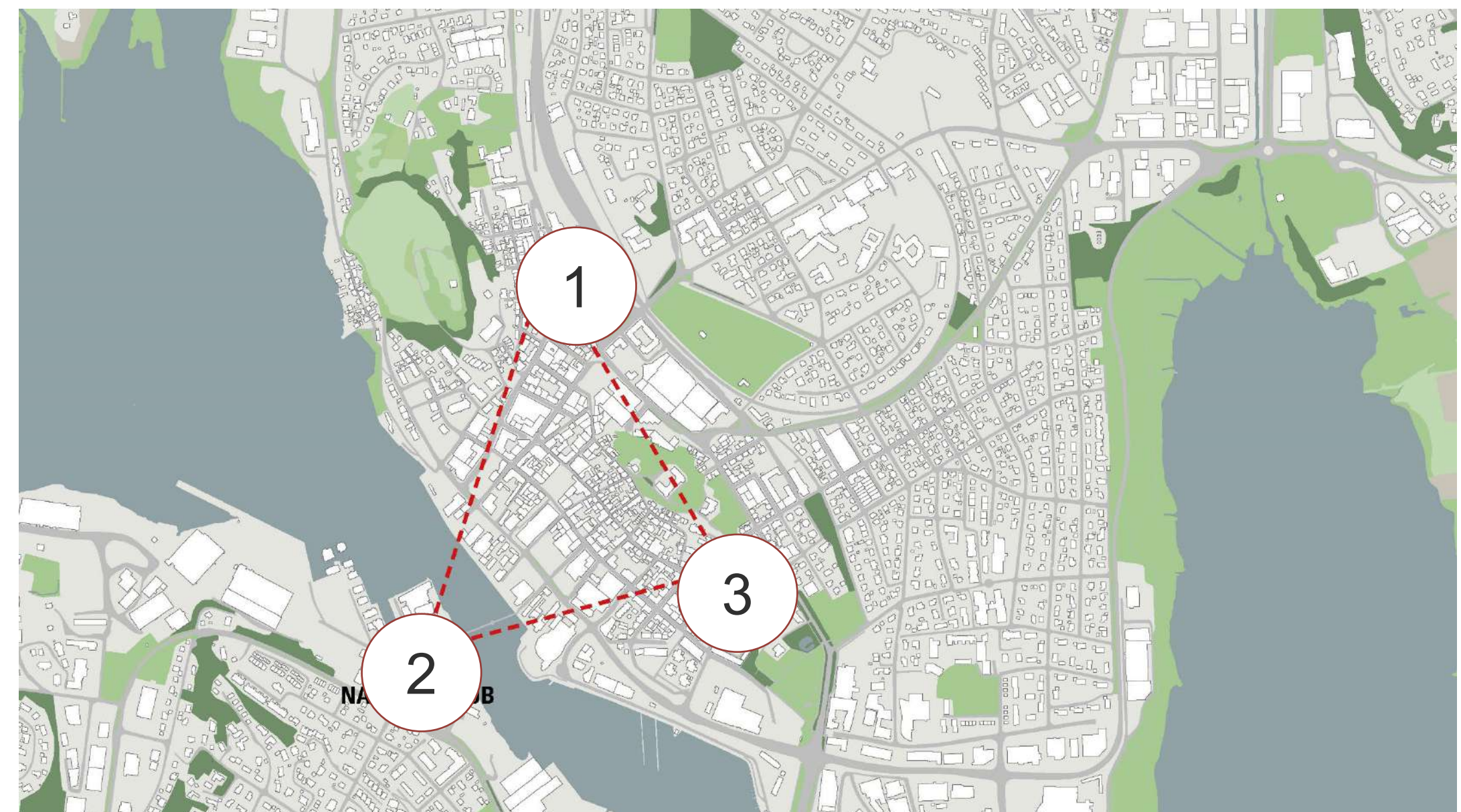
1. **The railway station** - intersection of various transport modes and high density of workplaces
2. **Kaldnes** - high-density residential and workplace area
3. **St. Olavs gate** - high-density residential area



Map shows number of workplaces pr. 1000 m2 within 5 and 10 minutes walking and 5 minutes cycling from the city centre. Source: Byregnskap for Vestfoldbyene (2023)



Density of buildings within 5 and 10 minutes walking and 5 minutes cycling from the city centre. Source: Byregnskap for Vestfoldbyene (2023)



Analysis of potential user groups

As a basis for evaluating the pilot, an analysis of potential user groups for each mobility hub has been conducted, based on numbers of people located within a radius of 200 meters and 400 meters from the hubs:

Avstand: 200m

Nr	Navn	Bedrifter	Ansatte	Boenheter	Beboere
1	Tønsberg stasjon	241	1315	359	449
2	Kaldnes	216	846	932	1043
3	St. Olavsgate	521	1107	696	897

Avstand: 400m

Nr	Navn	Bedrifter	Ansatte	Boenheter	Beboere
1	Tønsberg stasjon	646	4125	1181	1525
2	Kaldnes	811	2473	1366	1681
3	St. Olavsgate	1363	3623	1490	1943

avstand = distance

bedrifter = companies

ansatte = employees

boenheter= housing units

beboere = residents

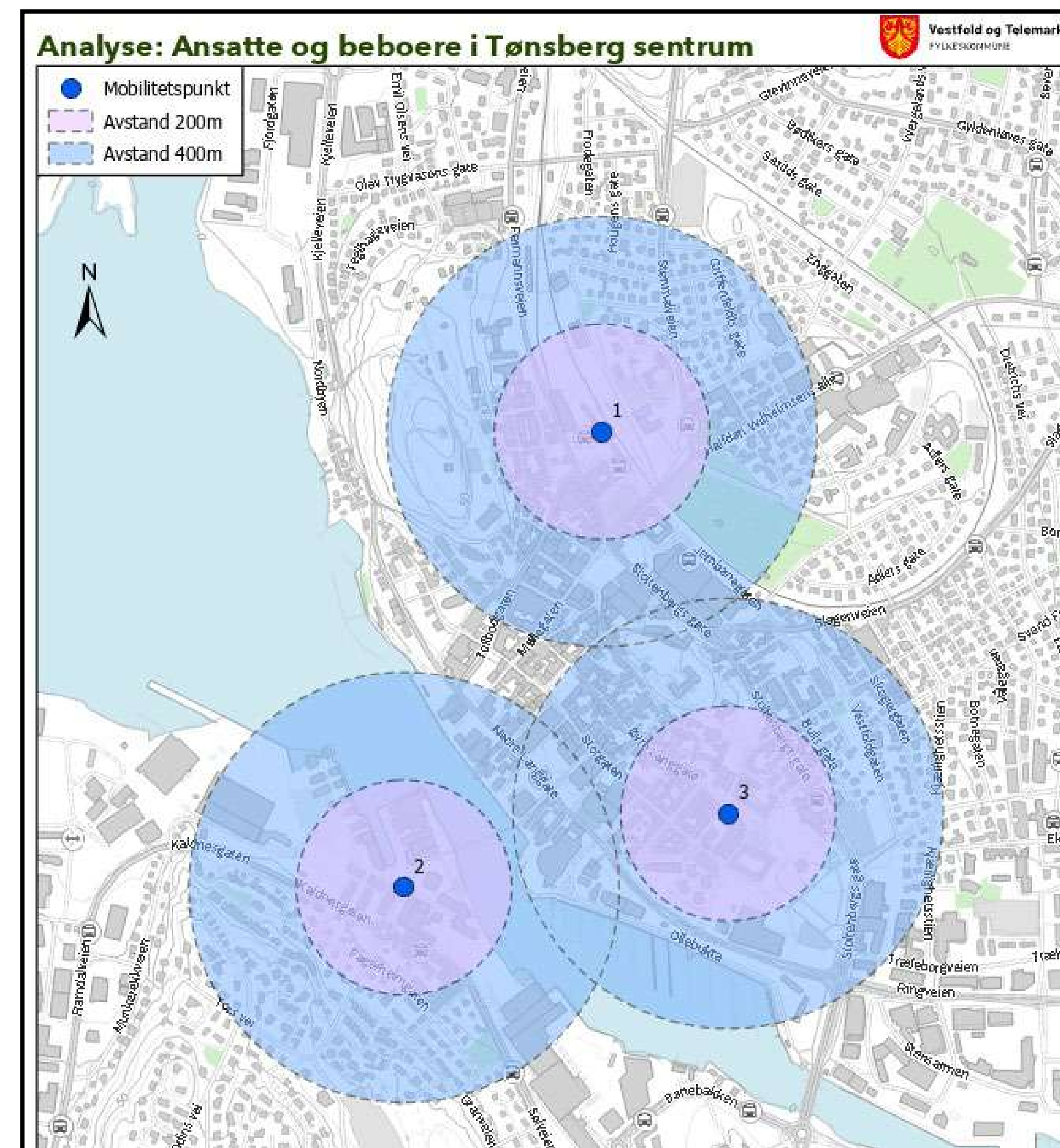


Illustration: Asplan Viak

Design concept

Following elements were emphasized in the design concept phase:

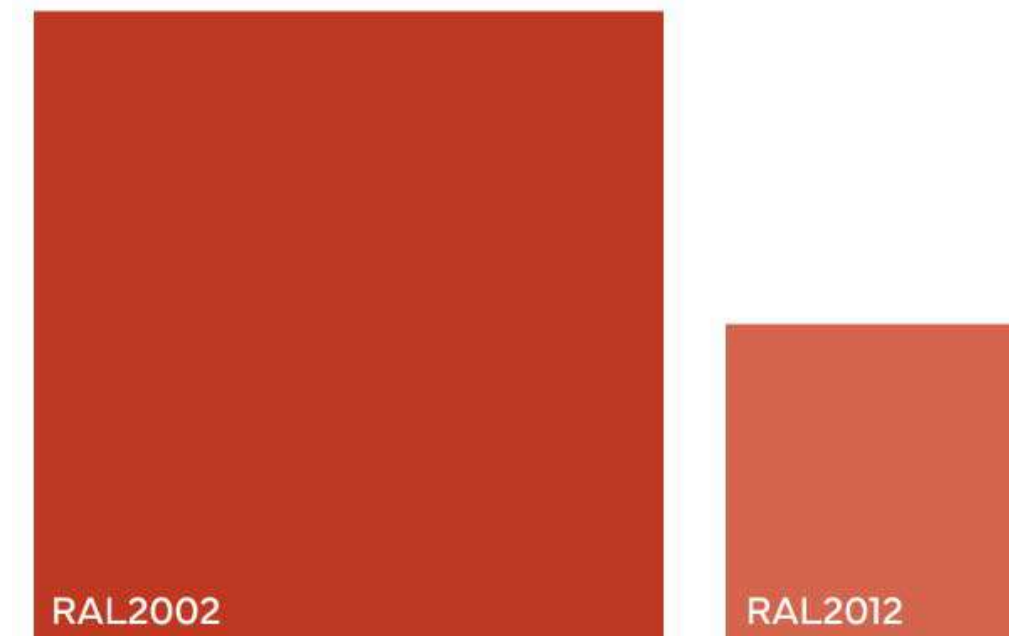
- multimodal integration
- wayfinding
- user accessibility
- safety

A design team was established to develop the design concept.

We chose a clear visual profile with bold colors that fit the urban environment in Tønsberg. Several color combinations were tested before we settled on a red-orange color palette.

A TT symbol (Tønsberg/transport) was developed to give the hub a recognizable profile. The TT symbol, signs for wayfinding and a bench designed for urban environment were put together and formed an icon with a clear visual profile for the hubs.

Farger



Veiskiltkatalog

Stasjonsplassen



Kaldnes



St Olavs Gate



5 - IMPLEMENTATION



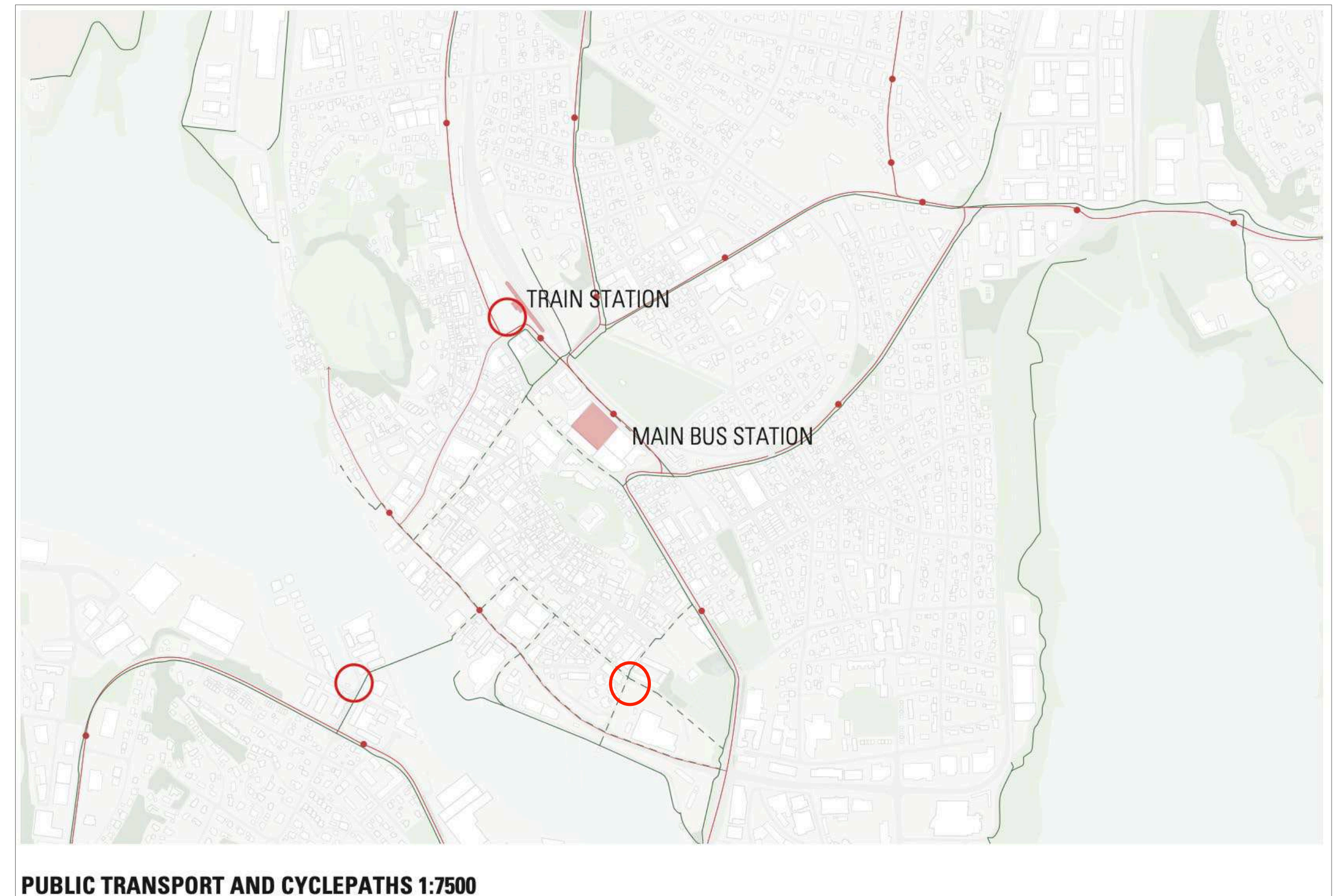
Design process

Plans with site layout were created for each location. Consultant Jaja Architekters design team worked in close cooperation with the municipality and the county.

Technical and operational staff from the municipality contributed in the process, as well as planners and leading staff.

Some important matters to look into during planning:

- Infrastructure and traffic
- Infrastructure in the ground
- Landownership
- Safety matters
- Norms for road construction and design
- Norms for signing and road marking
- Local design guidelines
- Parking facilities
- Revenues (or rather lack of revenues) by removing parking spaces for cars



Map showing the main structure of bus and bike infrastructure in Tønsberg. Red circles indicate the location of the hubs. Illustration: Jaja Architects

Dialogue with stakeholders

Parallel with developing plans and design elements, meetings were held with different potential stakeholders.

Tønsberg has already a contract with Surf, a stakeholder offering e-scooters. Tønsberg also offers safe bike-parking and this service is delivered by Bikely.

With rather limited resources we needed to look into the local market for potential collaboration partners. A local car-company, a car-sharing company and a social contractor were contacted.

Due to the fact that the pilot is small scale and the pilot face is limited to one year, no tenders were made and contracts were signed within these limits.



Photo: Frelsesarmeen



Photo: Bikely



Photo: Gjermundsen Auto



Photo: Surf

TØNSBERG STATION - LARGE SCALE

first sketches of layout

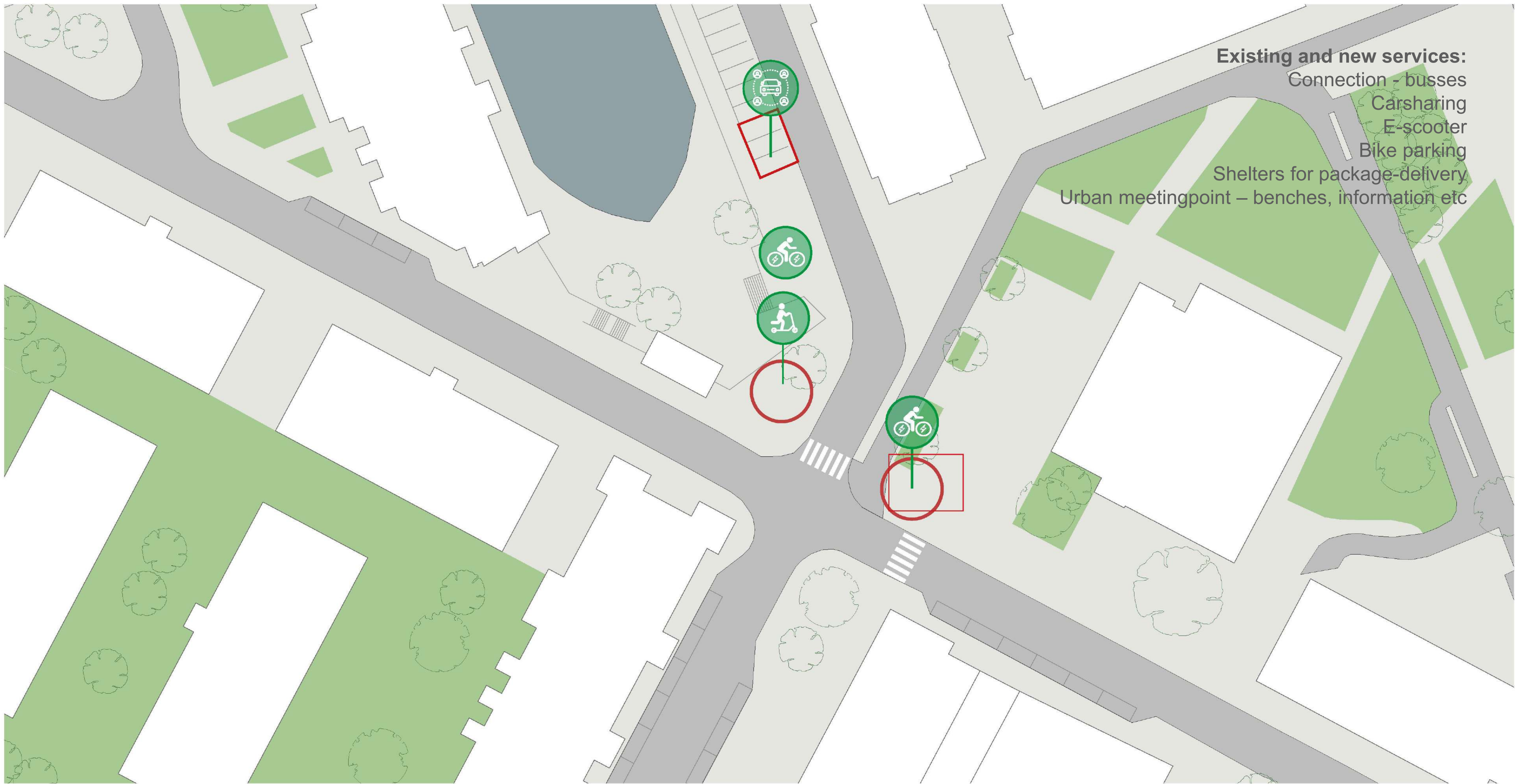






KALDNES – MEDIUM SCALE

first sketches of layout







MOBILITYPOINT KALDNES : 200 METER RADIUS 1:2000

Illustration: JAJA Architects

ST OLAVSGATE 2 - SMALL SCALE

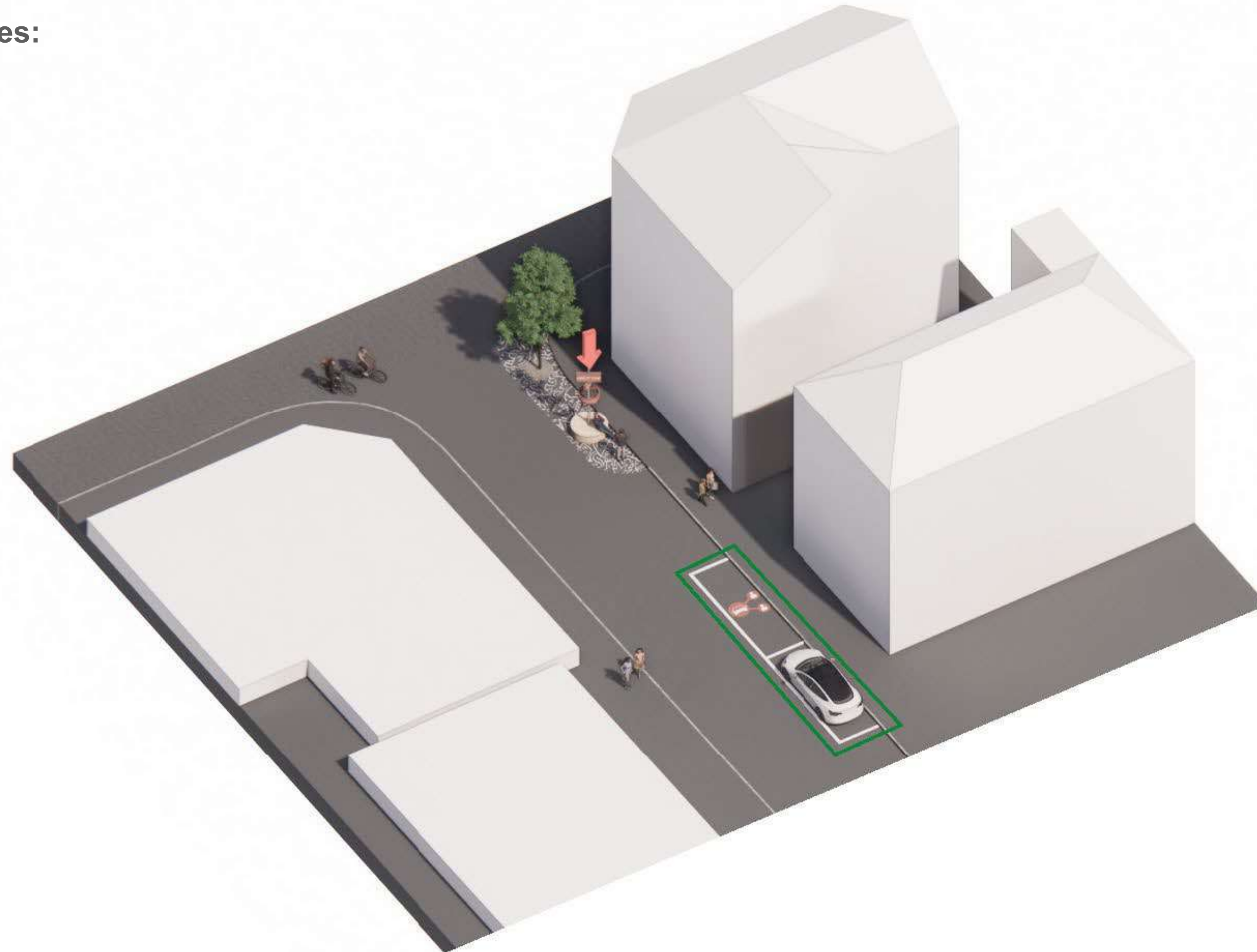
first sketches of layout

Existing and new services:

Connection - busses

Carsharing

E-scooter



6 - EVALUATION



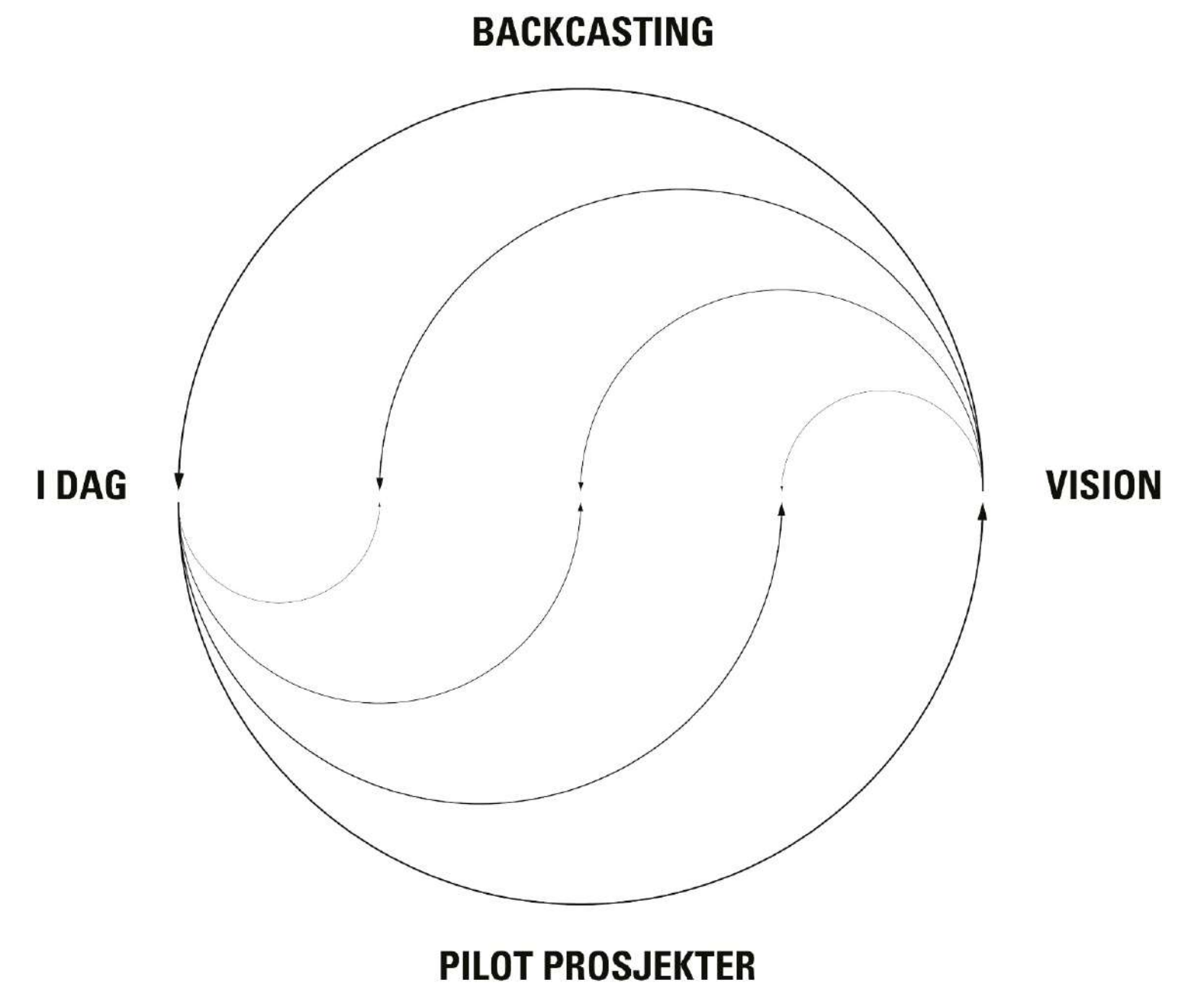
Experience through piloting

The goal is piloting mobility hubs that will contribute to reduce the use of private cars in the center of Tønsberg.

Some insight is needed to test.

A lot of insight is needed to upscale.

We base our knowledge on experience from other mobility hubs. From the pilot we will learn more about what is functioning in Tønsberg and build new knowledge based on this experience.



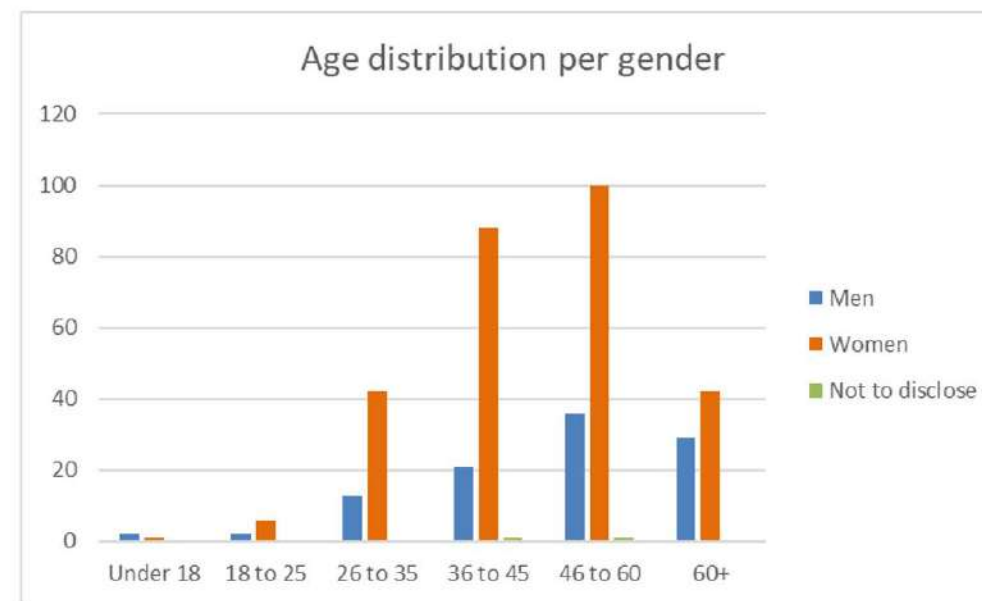
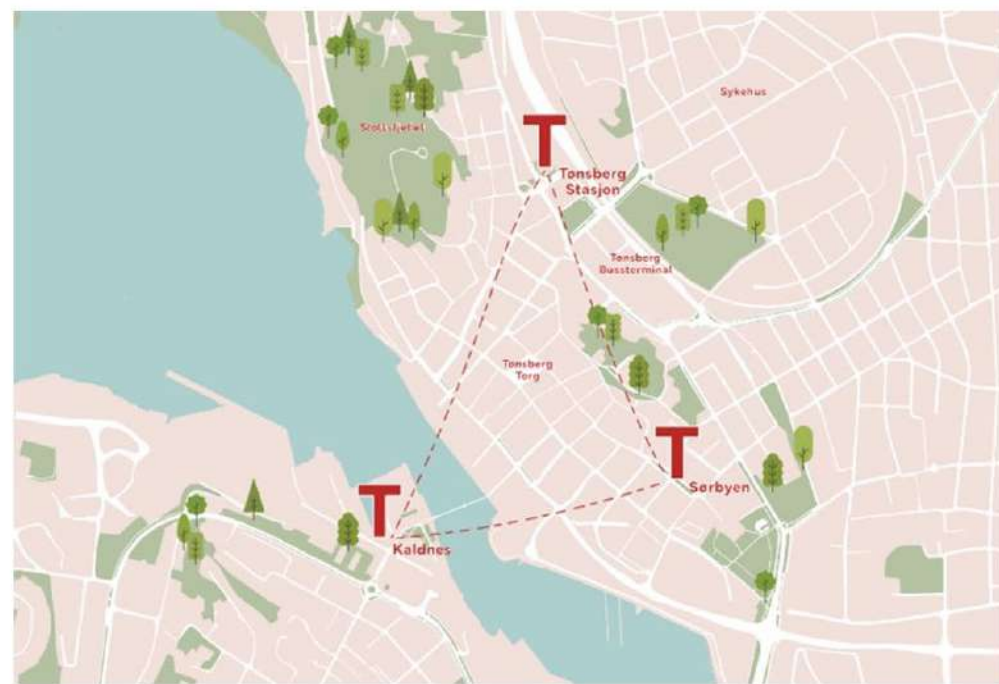
Key performance indicators

The University of Antwerp has developed a methodology for measuring the impact of mobility hubs. Four themes will be measured in a survey carried out by a team from Antwerp; sustainability, accessibility, economic and end user.

<p>Sustainability</p>	<p>Benchmark and post-implementation survey determine CO2 consumption using (KPI):</p> <ul style="list-style-type: none"> Perception/needs of mobility services % multimodal trips % of trips by mode (bike/car/scooter) for work/school, leisure, errands Number of trips travelling as a passenger (car users) % short trips done by car/bike/shared car/cargobike 	<p>Parameters to measure:</p> <ul style="list-style-type: none"> Demographics Hub characteristics Questions of modal choice Questions of trip purpose Questions of trip distance Questions of perception Questions of travel needs CO2 usage per mode Subscription and usage costs
<p>Accessibility</p>	<p>Benchmark and post-implementation GIS spatial study of catchment area (KPI)</p> <ul style="list-style-type: none"> % of household living with high/medium/low spatial accessibility 	<p>Parameters to measure:</p> <ul style="list-style-type: none"> Catchment areas per mode Allocation transport cost Frequencies of mobility services Census information
<p>Economic</p>	<p>Post-implementation assessment of the business model of the hub:</p> <ul style="list-style-type: none"> Cost structures, revenue streams, private partners, suppliers 	<p>Parameters to measure:</p> <ul style="list-style-type: none"> Costs factors Revenues
<p>End-user</p>	<p>Benchmark and post-implementation assessment of the bookings per mode and trips per zipcode:</p> <ul style="list-style-type: none"> Origen-Destination trips and bookings from the hub, per mode # trips booked in the hub per zipcode registration 	<p>Parameters to measure:</p> <ul style="list-style-type: none"> Number of bookings x mode Number of bookinds hub Aggregated zip codes bookers

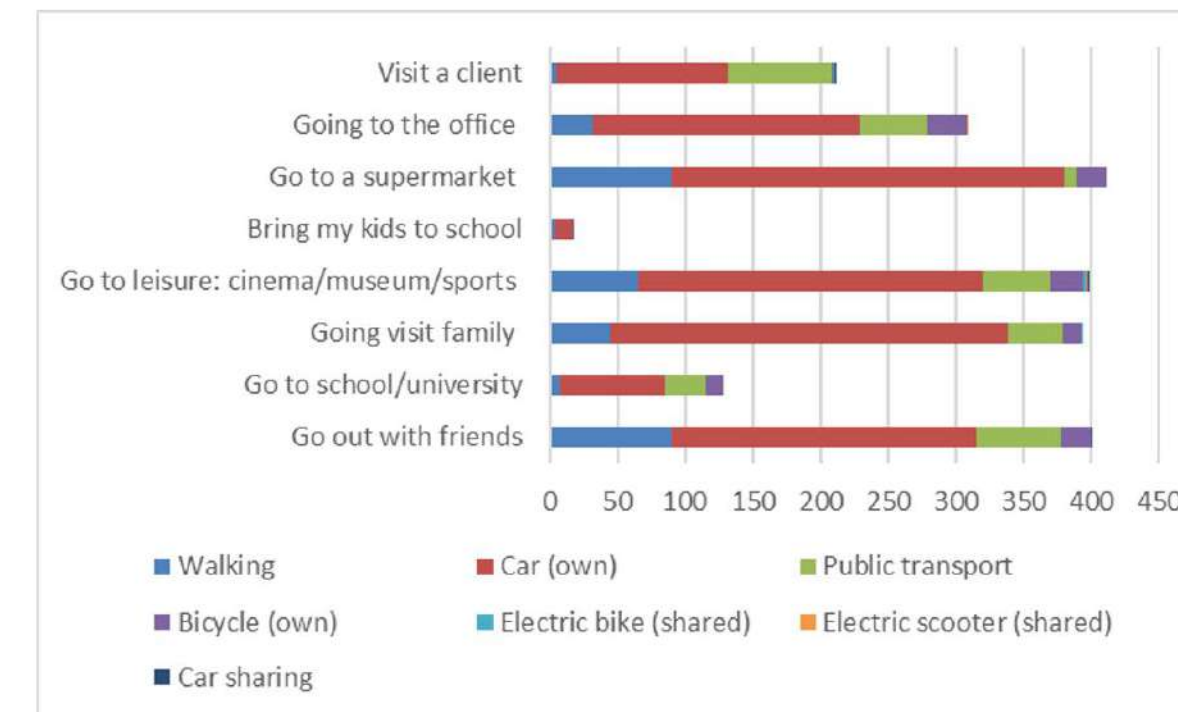
Some preliminary results

First survey results: Tønsberg

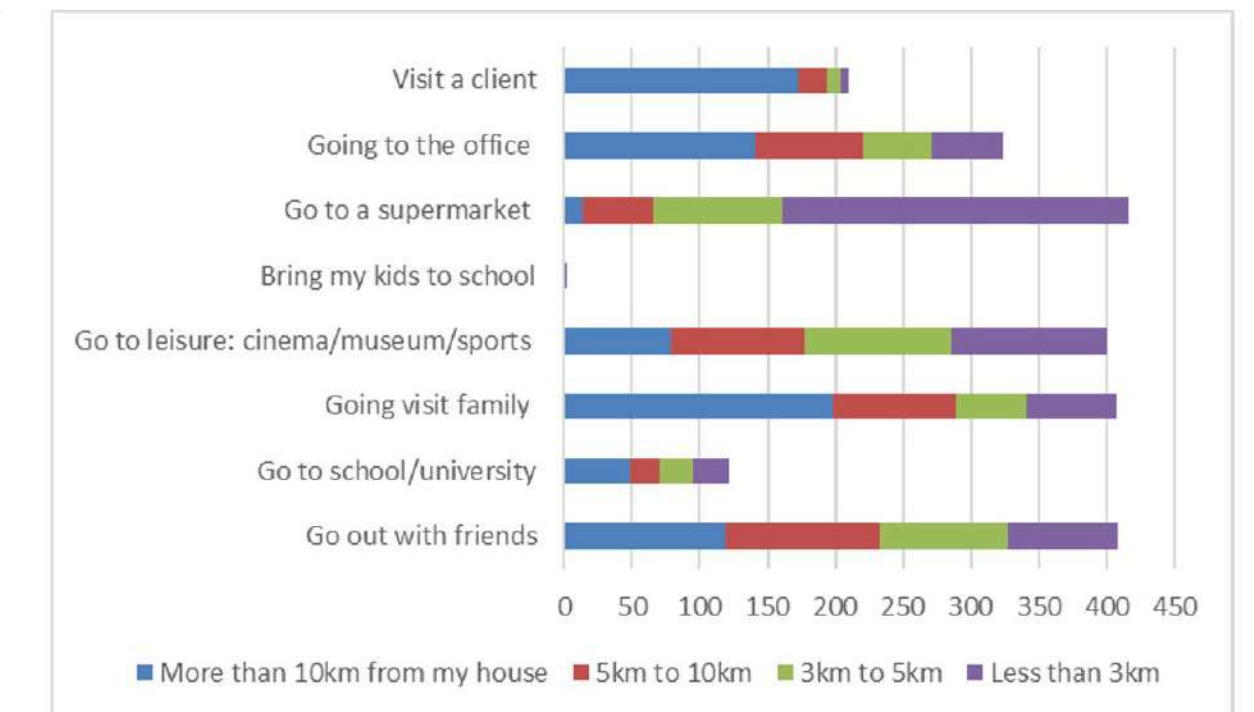


- Female (277)*: 71% master or above, 83% no migration, 28/29 (%end-means), 58% no children*
- Male (105)*: 60% master or above, 86% no migration, 21/38 (%end-means), 74% no children*

First survey results: Tønsberg



- All activities are predominantly done by car
- Relatively low use of biking, compared to walking – same for car sharing and e-scooter



- Leisure and supermarket trips are the shortest, whilst people travel longer distance for work (including visiting clients) and visit family
- Supermarket trips short and predominantly done by car