

Orust by bike

Promoting bicycle use by designing
conceptual bicycle stations

Abstract

This project investigates sustainable transport alternatives to the car, in this case the bicycle. Through research about cycling, own excursions and interviews, a proposal for developing bicycle stations on Orust has been made. The bicycle stations should enhance and facilitate the use of the bicycle, in connection to development of safe and accessible roads and paths for cycling. The project firstly aims to be inspirational and attract interest of increasing the cycling in our society.

For comments or questions about the project, please contact me at loiskarlsson@gmail.com

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Thanks to everyone whom I have been in contact with during this project!



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Background

This part contains
introduction to the project,
background about Orust
and the situation today.

Introduction

To increase the bicycle use

Choosing the bicycle as transportation is both environmentally friendly, gives health benefits and is accessible for most people. But to make it a common choice of transportation instead of the car, people must have the possibility to do so in a safe, accessible and attractive way.

In rural areas, generally the first choice of transportation is the car. The Swedish model for roads in rural areas proceeds from the travel by car, which results in more developed planning for automobile traffic and very little for unprotected road users, like cyclists. But for several reasons it is important to provide alternatives for car use. (Rosander, Johansson 2013)

10 % of travels in Sweden are made by bicycle (Envall, P.)

50 % of the travels by car in Sweden are shorter than **5 km** (Svensk cykling, 2011)

→ Many short car travels can be replaced with the bicycle!

Historically, the bicycle has played different roles in our society, but always followed the development of the car. Orust is no exception, and is today a car dependent island community. How do we change this and become less dependent of the car?

To increase the amount of people using the bicycle there are some factors that can play important roles: good and safe infrastructure, and a behavioral influence to change people's attitudes. I want to investigate this subject since I think bicycles should, and will be, a big part of society.

The role of this project

In this project I would like to make architecture for bicycle users through designing stations that provide different functions mixed with recreational purposes. The stations could be equipped with for example a shelter or air pump, restrooms or a workshop. It would be a way to promote and facilitate the use of the bicycle, both as an everyday transportation and as a way to enhance and make it possible to experience the natural and cultural richness on Orust by riding a bicycle.

The initial step in my project has been to identify important nodes or interesting places where the bicycle stations could be placed. This was partly done through personal excursions by bicycle, and by discussions with people who has experience of cycling on Orust, for example planners from the municipality.

The second part of the project was to propose design concepts for three different bicycle stations on Orust. These stations will be placed in Hälleviksstrand, Ålgård and Varekil.

This project aims to be a source of inspiration to both planners and politicians that are in decision making positions, but not least to people that more often choose the car as a means of transportation. I hope to inspire these people to become cycling people. I believe that the more cyclists, the better!



Inspiration

Following projects have been part of the idea for this project and big inspiration during the process.



National tourist routes, Norway

In Norway there are 18 so-called national tourist routes, selected country roads, where nature attractions along the way are marked out with new art, design and architecture for resting places and outlook points. Many famous architects were invited to participate. (Visit Norway, n.d.)



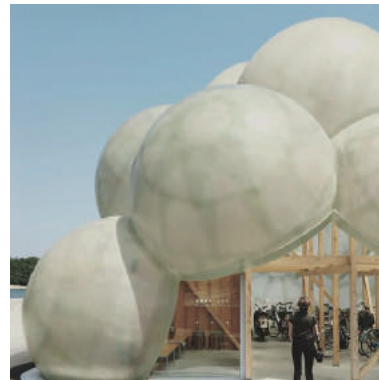
BUS:STOP Krumbach, Austria

The Bus:Stop project was initiated to boost tourism in Krumbach, a picturesque village in Austria, as well as to foster an exchange of ideas with local craftspeople. Seven extraordinary bus shelters were created by invited well-known architects. (Frearson, A., 2014)



Bike Fixtation, USA

Bike Fixtation makes bicycle repair stations in different scales and designs. The idea was born from a flat tire-experience of one of the founders, and he then missed a station like this. The vision then was to enable everyone to maintain their bikes and make small repairs themselves. (Bike Fixtation, n.d)



Bike shelter, Naoshima Island (Sanaa)

A cloud-shaped pavilion on the island of Naoshima made by SANAA, designed to offer visitors a place to park bicycles, as well as public toilets. Its structure, consisting of pillars and wooden beams, serves as a support for the unique coverage of the material that allows natural light inside the terminal. (González, M. F., 2017).

Connection to analysis

In the previous part of the studio, we did thorough analyzes from which we formulated local development goals and strategies.

This indepth project derives from the previous part, so to connect it, the parts that correlate with the project are shown below.

SWOT

A method to analyse strengths, weaknesses, opportunities and threats.

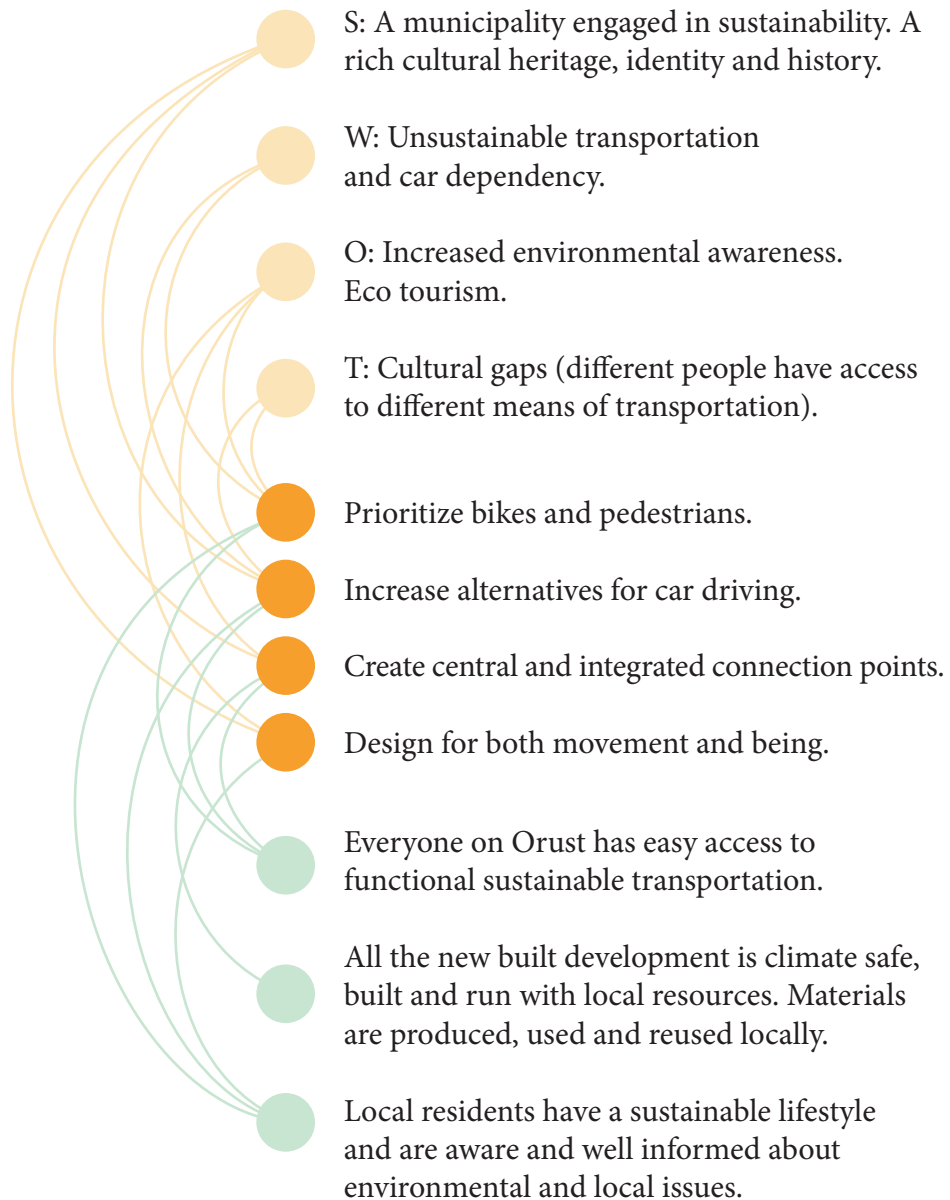
Strategies

Ways to reach the future goals.

Objectives

Local development objectives can be described as future goals.

Connection to analysis



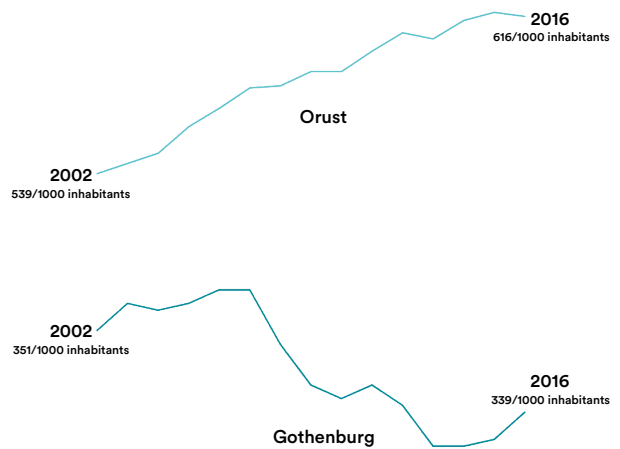
Background: Orust

A car dependent island municipality

Orust is an island municipality located on the west coast of Sweden, 50 km north west of Gothenburg. In the municipality, there are around 15 000 inhabitants, who live either in densely built areas and villages or more scattered in big rural areas.

61% of the inhabitants have a registered car, compared to Gothenburg where the number is 34% (Statistiska Centralbyrån 2016). Of course one has to have in mind that Gothenburg is the second largest city in Sweden, and an urban area. But it is still important to understand the difference of the car use in these places. There is a dominance of car use in Orust, and it has also increased.

The biggest road on Orust is road 160 that goes from Stenungsund and Tjörn in the south and



Per 1000 inhabitants there are 616 registered cars on Orust and 339 in Gothenburg. (Statistiska Centralbyrån 2016)



Background: Orust

continues up to Norway. Smaller roads and country roads connect the denser settlements around the island.

The public transport on the island consists mainly of buses that are run by Västtrafik, and in the areas where no regular bus lines run, a bookable bus, Närtrafik, is an option. Connections to the main land are to Stenungsund, Uddevalla and Gothenburg.

Between some islands there are ferry connections, to Kärringön and Gullholmen only for pedestrians. Bridges on the island goes from Tjörn to Varekil (south) and from Henån to Sundsandvik (north). There are also plans to build a bridge in Svanesund that connects to the main land.

There are big differences in amount of traffic in summer and winter time due to tourism and temporary residents in the summer months. This puts pressure on the infrastructure in the summer months and leaves big empty spaces for parking lots in the winter.



Bicycling today

The infrastructure for cycling on Orust is today inadequate, and relatively few people use the bicycle as a means of transport, but there are bicycle clubs and an increasing interest in cycling.

The existing bicycle paths are mainly located within the densely built areas, and still there are many gaps in the infrastructure. Outside the villages there are in general no paths for bicycling at all. Cycling has to share space with cars and in many cases this can be very unsafe. Although, Orust has a fine mesh of smaller roads that could be suitable for recreation and exercise cycling.

From the comprehensive plan for Orust, and from the new bicycle strategy (see below), one can read that the municipality wants to work for better communications regarding roads and public transport with the whole region since this becomes a development factor. Regarding bicycle paths they plan to fill in missing links within denser areas and also further ahead make better connections between these areas. (Orust kommun, 2009)



Background: Orust

A new strategy

The municipality of Orust has recently developed a bicycle strategy, "Cykelstrategi för Orust kommun år 2017-2027". The strategy contains actions for improving the infrastructure for safe everyday cycling, but also how recreation cycling and bicycle tourism could develop in Orust.

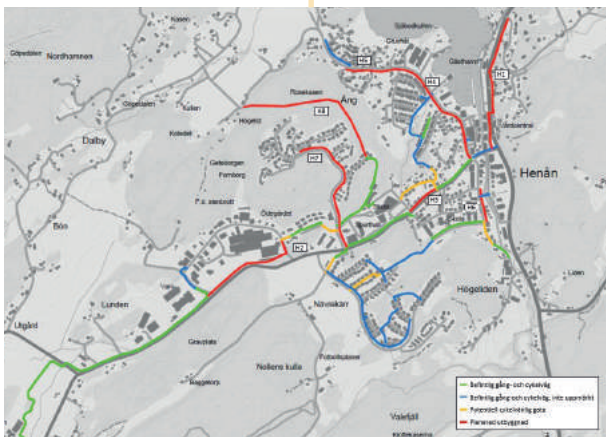
The strategy deals with five prioritized topics: bicycle infrastructure, cycling to work, cycling to school, tourism and recreation cycling, sport and exercise cycling.

Inventories in the strategy work has shown that there is a desire to connect the different denser areas on Orust to improve the possibilities for cycling.

Together with the strategy they have developed an action plan on possible interventions. An example is to integrate cycling in the teaching to increase the number of children cycling. (Orust kommun, 2017)

The municipality has mapped existing infrastructure for cycling, and potential roads for further development. Example: Henån.

They have also showed how the denser areas in the future could be better connected with each other.



- Befintlig gång- och cykelväg
- Befintlig gång- och cykelväg, inte uppmärkt
- Potentiell cykelvänlig gata
- Planerad utbyggnad



Background: Orust

Do you bicycle to work?

As a background for the strategy, the municipality did surveys for travel habits on Orust, one for traveling to work and one for traveling to school.

22 % of the respondents live within 5 km from their job.

15 % of the respondents live within 10 km from their job.

Distances considered to be reasonable for cycling, still...

82 % of the travels to and from work is done by car.

5 % of the travels to and from work is done by bicycle.

In total, 435 people answered the survey for traveling to work, whereas 83 % of these people work for the municipality.

22 % of the respondents live within 5 km and 15 % within 10 km, and these distances can be considered reasonable for cycling, still the car is the most common means of transport. 82 % of the travels to and from work is done by car, only 5 % by bicycle.

On the question about what could make people bicycle to work more often, a majority answered that safer bicycle paths and shorter distances or shorter travel time would be the key. Some also answered that their distance to work is so short that they rather walk than cycle.

The biggest reason why people bicycle to work (around 50 %), is exercise, and some people bicycle because it's the fastest option. The biggest reason why people don't bicycle is because it takes too much time and that there is a lack of good paths between home and work.

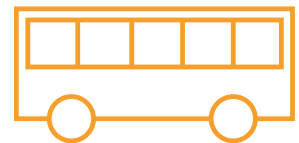
Other comments in the survey was that the roads are too narrow and motorised vehicles keep a high speed, which is perceived as unsafe and dangerous. (Koucky, M. & Zajc, A. 2013)

Do you bicycle to school?

In the school survey, 267 people answered. Among the respondents 33 % live within 5 km of school and 24 % within 10 km.

The proportion of school trips that are made by car is bigger among students living within 5 km from school. An explanation for this could be that long distance students travel by bus while the students that live closer does not have this opportunity and therefore gets a ride with a car. (Zajc, A., 2014)

> 5 km



< 5 km



The bicycle in our society

This part describes the role of the bicycle in our society, historically, today and in the future.

The history of the bicycle

The historical importance of the bicycle should not be underestimated: it was the first human driven two-wheeled vehicle, a part of the liberation of women and is a symbol of progress, freedom and joy!



Around 1890, women started using the velocipede. It had big effects on women's role in society. Women who cycled became more visible and took bigger space in public life.

Load cycles became popular for several companies for transportation of goods.

1860

It is said to be a wagon manufacturer that first brought the velocipede to Sweden in the 1860's after visiting an exhibition in Paris.

Around 1870 the velocipede was very fashionable in Sweden, not least in Stockholm.



After WW1, the sales of bicycles rose and went steadily upwards.

Particularly in rural areas, the velocipede had a major and important role. The possibility of seeking work further away increased, social relations increased and the dissemination of information increased.



The history of the bicycle



In 1938, the summer holiday became statutory in Sweden and bicycle holidays became more common.



People used to commute to work and the car was used on weekends for family trips. The interest in cycling started to slow down.

After WWII, economy got better in Sweden which led to the start of the car boom.

1960

During WWII the bicycle became the most important private means of transport while the train was common for the long journeys.

The car became Sweden's primary vehicle which became visible in the infrastructure, where the roads expanded rapidly. In 1959, the Swedish parliament adopted the first comprehensive long-term road plan for the country.

Separation between means of transportation was part of the vision of the car city. Separated functions increased distances.



The history of the bicycle

Walking and cycling paths began to be built and a cycle road network grew slowly during the 70's and 80's.



During the 1970's oil crisis, the bicycle became a popular and important vehicle.

When the 1970's arrived, the bicycle was seen as a recreational tool and the car had become Sweden's largest export product.

Between 1995 and 2014, the number of bicycle trips decreased with 38 % (calculated per inhabitant).



Because of increased flows of cycle traffic in the cities, there are more problems with the current infrastructure.

It has become more common to use the bicycle for daily use again, especially in cities.

2017

In the 1990's, the cycling decreased a lot, and the largest difference was measured in rural areas. One of the reasons was considered to be the distance to service stations, schools and workplaces.

In April 2017, the Swedish government published a national cycle strategy.

Parallel with the government's work with the national cycle strategy, there has been a review of rules with importance for cycling. They have listed 5 areas of action.

- Lift the role of bicycle traffic in community planning.
- Increase focus on groups of cyclists.
- Promote a more functional and user-friendly infrastructure.
- Promote safe bicycle traffic.
- Develop statistics and research.

Regeringskansliet. (2017)

(Fasth, J., n.d)



The future of the bicycle

Looking to the history, the bicycle could be said to embody hope and fits perfectly into a future that faces major issues such as climate change, health issues and population growth!

How could the bicycle be part of our future society?

The development gives possibilities for more people to cycle in different ways!

The rapid development of the bicycle leads to a larger variation than ever before. This includes, just to mention a few, electric bicycles, load cycles, recumbent cycles and paracycles for people with physical disabilities.

All new innovations and new technology affect the transport system, the bicycle and vehicles, which in turn can affect both safety as well as the cycling scope and attractiveness. The interest of cycling can be more widespread and the difference of users can increase (Svensk cykling 2016). New types of bicycles can also provide new solutions to logistics. Load cycles



A paracycle that facilitate cycling for people with physical disabilities.

can be used in places where the distances are relatively short and the space is limited. Pling Transport, a company in Gothenburg, is doing just this. A large part of today's motorized freight transports have so little goods and are so short distances that they can be driven by a bicycle instead (up to 51% actually). Pling seeks to take over these small transports from motorized vehicles and do them by bike instead. Better efficiency and less negative impact on the environment! (Pling transport 2017)

It might be a necessity to deal with environmental issues!

In a time when humanity drastically needs to change behaviour and stop using the earth's resources in an irresponsible way, the bicycle could be a tool for many people to take the step towards a more sustainable lifestyle.

It contributes to a more human scale of infrastructure!

The streets and roads in our society today is built for big motorized vehicles of high speed that many times can act as barriers for people in the built environment. An infrastructure that has lower speed, shorter distances and takes up less space could contribute to more social interactions between people and safer environments.



A Pling cycle and a load cycle spotted in Gothenburg.

Benefits from cycling

Kind to the environment

Bicycling is the most environmentally friendly way of transporting yourself that exists today, it doesn't leave any pollution and the only energy used is your own.

According to Trafikverket about 50 % of all car travels are under 5 km and in urban areas 70-80 % of the car travels are under 4 km. By replacing these short travels usually made by car, the negative impacts on the environment

can be reduced. This would be most substantial in urban areas where cars contribute to big CO₂ emissions.

Using a bicycle helps decreasing noise pollution, greenhouse gas emissions, emissions of particles and other air pollutions and contribute to better health for both people and environment (Svensk cykling 2011).

Time efficient

When looking at travel time efficiency, the bicycle is an efficient means of transport up to 10 km. In cities, the bicycle is often the fastest way to move, but in rural areas this is not always the case.

Changing mindset and also seeing the bicycle as a means of transport for longer distances can contribute to possibilities for new ways of regional bicycle planning (van der Meulen, J. 2015).



Economic

It's cheaper than public transport (tickets). It's cheaper than using the car (buying it, fuel, service, parking etc). The bicycle in itself can cost quite a lot, but a good one can be used for at least 10 years, so it can be seen as an investment. The only thing cheaper is walking!

Choosing the bicycle is beneficial from many economic perspectives: better private finances, reduced waste of resources, reduced absence

due to illness, more attractive and better functioning cities. It is also important to see the economic benefits connected to public health because of lower costs for healthcare (Cykelfrämjandet n.d.).


Bicycle tourism can also contribute to development of rural areas, thanks to stimulation of local businesses connected to tourism (Koucky, M., & Envall, P. 2005).

Benefits from cycling

Healthy

Regular exercise is beneficial for people's health and consequently increased cycling can be good for public health. A person who regularly cycles prevents diseases connected to physical inactivity, for example diabetes, heart disease and even some forms of cancer. A survey in Copenhagen showed that everyday cycling led to 40 percent less risk of mortality linked to diseases and other causes of death.

Cycling is also good for general well-being and increased life quality (Svensk cykling 2011). Cycling is proven to prevent and treat anxiety and depression and also improving cognitive functioning and increasing subjective well-being. Human-scale environments that support cycling and walking can improve social interactions and increase community livability. (Garrard, J. & Rissel, C. & Baumann, A., 2012)



Research shows that the risk of getting diseases connected to being physical inactive is a bigger risk than getting injured in a traffic accident.

Svensk cykling. (2011)

The more cyclists, the safer

The risk to die in a traffic accident is bigger when bicycling than driving a car. This shows the importance of preventive "interventions" to make cycling safer (Bonander, C; Gustavsson, J; Andersson, R. n.d.). In the Netherlands, they benefit from the concept of "safety in numbers". This means that the more people who bicycle, the safer the environment for cyclists gets since car users and others become more aware of the presence of cyclists in traffic. (Svensk cykling 2011).

Accessible

The bicycle takes up 1/6 of the car's space in traffic. In one parking lot for a car, there can fit 10-12 bicycles. (Ståhle, A., 2015)

If the infrastructure were built for bicycles, our built environments would look very different. There would be more space for social activities in our societies and big empty spaces (car parks) would be replaced with life!

It also opens up possibilities for more people to travel around safely; disabled people and old people that use wheelchair or walker can move more safely to interesting places on their own. This is of course also good for children and school classes that can make bicycle excursions. Increased possibilities to move by bike creates accessible environments for more people (Koucky, M., & Envall, P., 2005).

Different kinds of cycling

There are many different types of cyclists on the roads; differences in age, gender, function and health conditions, the use of different types of bicycles and the purpose for cycling. But the differences between cyclist don't necessarily have to be conflicting. By generally creating better conditions, it will benefit all cyclists! In this project, I will primarily focus on three different groups: everyday cycling, recreation and exercise cycling and bicycle tourism.

Everyday cycling

Everyday cycling means commuting to work, going to school, shopping, visiting friends etc, travels in the daily life basically. This kind of cycling has a specific goal, and the bicycle can be the "tool" to get there. It can occur all year round (all seasons) everyday, mostly in the mornings and in the afternoons.

The everyday cycling, or commuting with bicycle, is a time efficient choice which combines transport and exercise. If the infrastructure is good, commuting with bicycle is common up to about 15 km, and is often combined with other means of transportation (for example bus or ferry). The average commuting distance in Stockholm is 10 km (Ståhle, A., 2015).

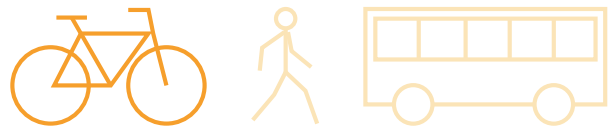
The electric bicycle can be a help for people to commute longer distances. In The Netherlands the distance with an electrical bicycle increases with 50 % between 6,3 km to 9,8 km. (van der

Meulen, J. 2015). Commuters often like to take the shortest and fastest road, and not have too much difference in height and not too many stops or hindrances along the way. Children under 12 should have maximum 5 km to school if going by bike. Both groups of course need safe roads.

To be a choice for as many people as possible, it is good if the bicycle route is the given choice to many different target points.

Another important issue is the possibility to safely lock the bike in bigger target points, for example bus stations where the cyclist might leave the bike for a longer time. This is mainly to prevent theft (Koucky, M., & Envall, P., 2005).

Increased everyday cycling makes people more interested in cycling for recreation, exercise and tourism (Region Blekinge, 2014).



Recreation and exercise cycling

Cycling gives exercise, relaxation and nature experiences that no other means of transport can offer. There are different kinds of recreational bicycling; locals that take bicycle tours with family or friends as a nice weekend activity, and the cyclists that like to go fast and far for exercise purposes.

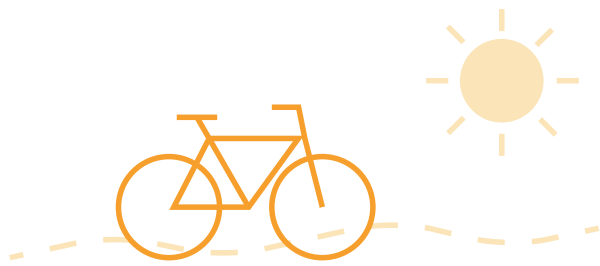
Something they have in common is that during their weekend trips or fast exercise rounds they like to stop for a rest now and then. Many

Different kinds of cycling

people that does recreational bicycling brings their children, therefore, there should be simpler resting possibilities at least every 5 km (Koucky, M., & Envall, P., 2005).

Except for a place to rest, it is good to have the possibility to eat along the route. Furthermore, good signage and information is important for people to easily find their way.

The fast exercise cycling can often come in conflict with cars since they share the same space on the roads if there are no better alternatives like bicycle paths next to the car road.



Bicycle tourism

Bicycle tourism is an important part of the economy in many European countries, but is still quite little developed in Sweden. This is mainly because there is a lack of safe, comfortable and attractive cycling routes.

The potential for development of bicycle tourism is big since there is a big market in Europe and the interest is also increasing in Sweden. Sweden also have good conditions for bicycle tourism: long summer days, not too hot climate, great access to the sea, lakes, forests etc. To invest in bicycle tourism also benefits the other types of cycling (everyday and recreation).

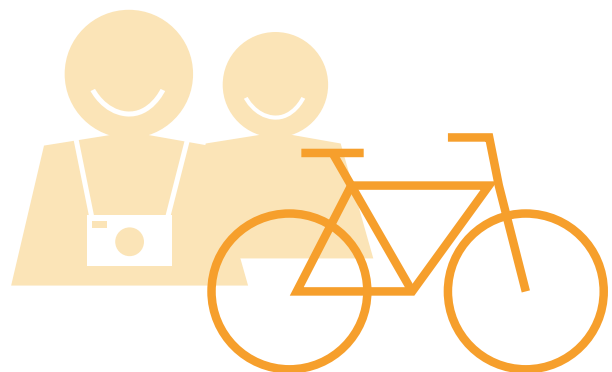
What is good about bicycle tourism is that it is environmentally friendly, has great health benefits and gives fantastic possibilities to experience local nature and culture.

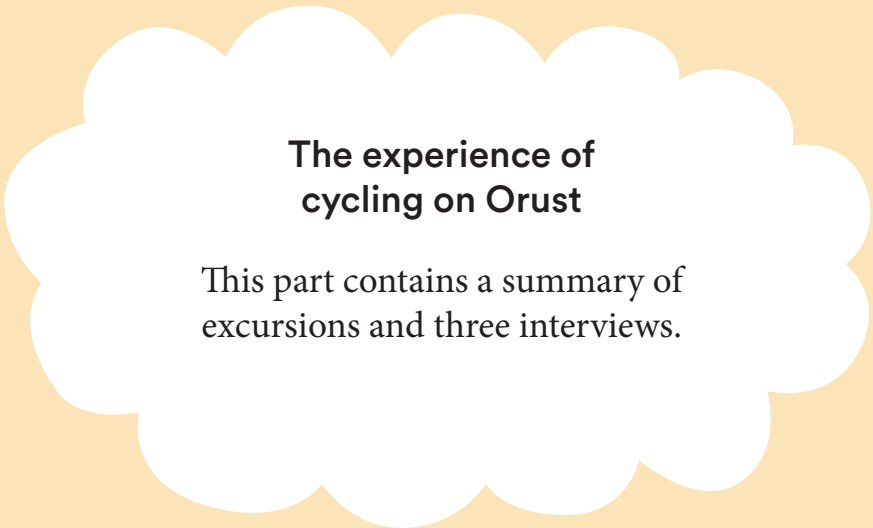
Most tourist cyclists appreciate breaks now and then and also attractions that don't primarily induce car users to stop (Region Blekinge, 2014).

Bicycle tourists either make day trips on bicycle or cycles longer distances and stop for lodging along their route. Bicycle tourism can be very important for the local tourism business since the tourists will need both food and shelter. This opens up to possibilities for smaller businesses like cafés, bed & breakfasts etc. Interesting places with nature and culture experiences along the routes are important.

Tourist cycling is mainly during the summer, but could have potential to expand to spring and autumn.

Except good infrastructure (ex car free bicycle routes) it is also good to have: signage, lodging possibilities, places to eat, resting places and restrooms, accessible connections to public transport, bicycle rentals, luggage transport, bicycle repair, maps and brochures (Koucky, M., & Envall, P., 2005).





**The experience of
cycling on Orust**

This part contains a summary of
excursions and three interviews.

Excursions

My experience of bicycling on Orust

To get my own feeling of what it's like to bicycle on Orust, I took the opportunity to bicycle when we did our visits to the island.

The first time we were there in september, my group and I bicycled from Stockens camping to Hälleviksstrand and Edshultshall. We went by a small path through Slätterna and out on the road through the villages. Although it was quite windy it was a very nice way to experience the environment.

The second time we visited the island in november, my plan was to bicycle as much as possible. The first day the weather was wonderful and the wind was quite still. I started from Tofta gård and went up north, out to Tuvesvik and then up through Ellös and to Malö-Flatö and back to Tofta. It was nice to experience the coastal landscape from the bicycle.

The second day I went from Henån to Ålgård and then to Slussen and back. This trip wasn't as fun as the previous day, partly because of the weather, I took a wrong turn, it was super "hilly" and the bike was really "slow". The distances felt longer since I mostly was surrounded by forest.

On the two last bicycle trips I met only one other person on a bicycle. As soon as the sun went down it got really cold and I wanted to hurry back to the hostel. When it got a bit darker it was quite unpleasant to meet cars. The cars seldomly slowed down, but still kept a distance to me.

Conclusions

There are very few cycle paths separated from the car lanes. In some places there are quite wide pavements/sidewalks that are possible to bike on, but they can suddenly end and then you are out on the car road again. Most smaller roads are very nice to bicycle on thanks to beautiful views and landscapes. To be passed by or meet big trucks or cars in a high speed is quite unpleasant, and I can imagine that this is worse in the summer season when there is much more traffic. In many cases, the roads are surrounded by dark forests, this can feel a bit threatening.



Excursions



Interviews

During the process I've had the opportunity to talk to three different people who all have experience of cycling on Orust. Luckily they also represent the three different groups of cycling that are discussed in the project.

Rickard Karlsson, the everyday cyclist

Rickard finds that there is a culture on Orust evolving around motor vehicles, that there is a car norm that is in sole control.

"As a cyclist you are constantly questioned". For Rickard, the bicycle has always been the best way of transporting himself. Many people think it's too long to bicycle to work, but Rickard thinks that "10 km is nothing!". And if the weather is bad there are good rainwear nowadays.

He believes it is important to reverse the car norm, and believes it has to be done through a combination of better planned infrastructure and attitude impact. It is expensive to build completely new bicycle paths everywhere. He believes that the best is a combination of new and existing bicycle paths, as well as improving existing infrastructure, such as road markings. New cycle paths should also be made in connection with other infrastructure projects, to make it more cost efficient.

In order to turn the car norm, it would also be good to start with impact work already in school and show children that cycling is a good alternative. Furthermore, to also make it easy for schoolchildren to cycle to school, with 2-3 km safe cycle paths around schools.

There is a fine mesh road network on Orust which provides good conditions for cycling, and there are good opportunities for cycling to Gothenburg. Only 6-7 km of cycle paths from Svanesund to Gothenburg is "missing".

It is important to visualize cycling as an alternative, and then Rickard believes a project like the bicycle stations can be a kind of symbolism.

(Rickard is a planner at the municipality of Orust and has also been a part of developing the bicycle strategy for Orust).



Elisabet Hedenberg, the exercise cyclist

Elisabet is in the board of Svanesund's GIF, which is a sports club including exercise cycling. The club was founded in 1938 and has organized the bicycle race "Orust runt" for 47 years, so there is an interesting bicycle history in Orust.

The roads in Orust are good for exercise cycling, then it's good with some curvy roads and steep hills. Actually, there are no bad parts of cycling in Orust, except that there is bad asphalt in some places. But, of course, it depends on who you are and what purpose you have with your cycling. If you want to commute to work, you have other requirements than an exercise cyclist or a tourist. Despite the bicycle club and good conditions, there are not very many people who practice this sport. In order to increase cycling overall, she believes it is important to understand

Interviews

the connection between health and the environment. When measuring the emissions from car travels to work and doing surveys regarding people's exercise habits, the connection can be clearly seen. After doing a similar project in Gothenburg herself, the results showed that the people who exercised too little were also the people who took their car to work (AND lived quite close). When seeing the connection it gets easier to solve the problems of high emissions from cars and increase people's exercise habits and thus improve their health.

Elisabet also mentioned that kids cycling to school has decreased 50% since the 1990's, for several reasons. It proves that it is important to invest in getting children to use the bicycle more often.

Svanesunds GIF wants to cooperate with the municipality and local businesses when they are arranging bicycle events. Last year they held the race MTB Giro for the first time. They had 285 people enrolled and also arranged a food market and cultural cycle tours. In this way Orust is marketed, and also slowly but surely this can increase the interest in cycling.

I asked her what kind of functions she would like to find in a bicycle station as an exercise cyclist. She said that when you are exercising with the bicycle you would like to come to a beautiful and picturesque place, preferably a café where you can get something to eat and drink.



Johan Ranch, the bicycle tourist

Last summer my friend Johan cycled from Gothenburg up to Fiskebäckskil via Orust in one day, camped there, and then continued up north. He thinks that the best part of cycling on Orust is to experience the beautiful nature and above all the coastal landscape. The worst thing about cycling on Orust, he said, is to cycle on the bigger roads where the cars have quite a high speed. In these cases it would be good with better and safer paths for cycling.

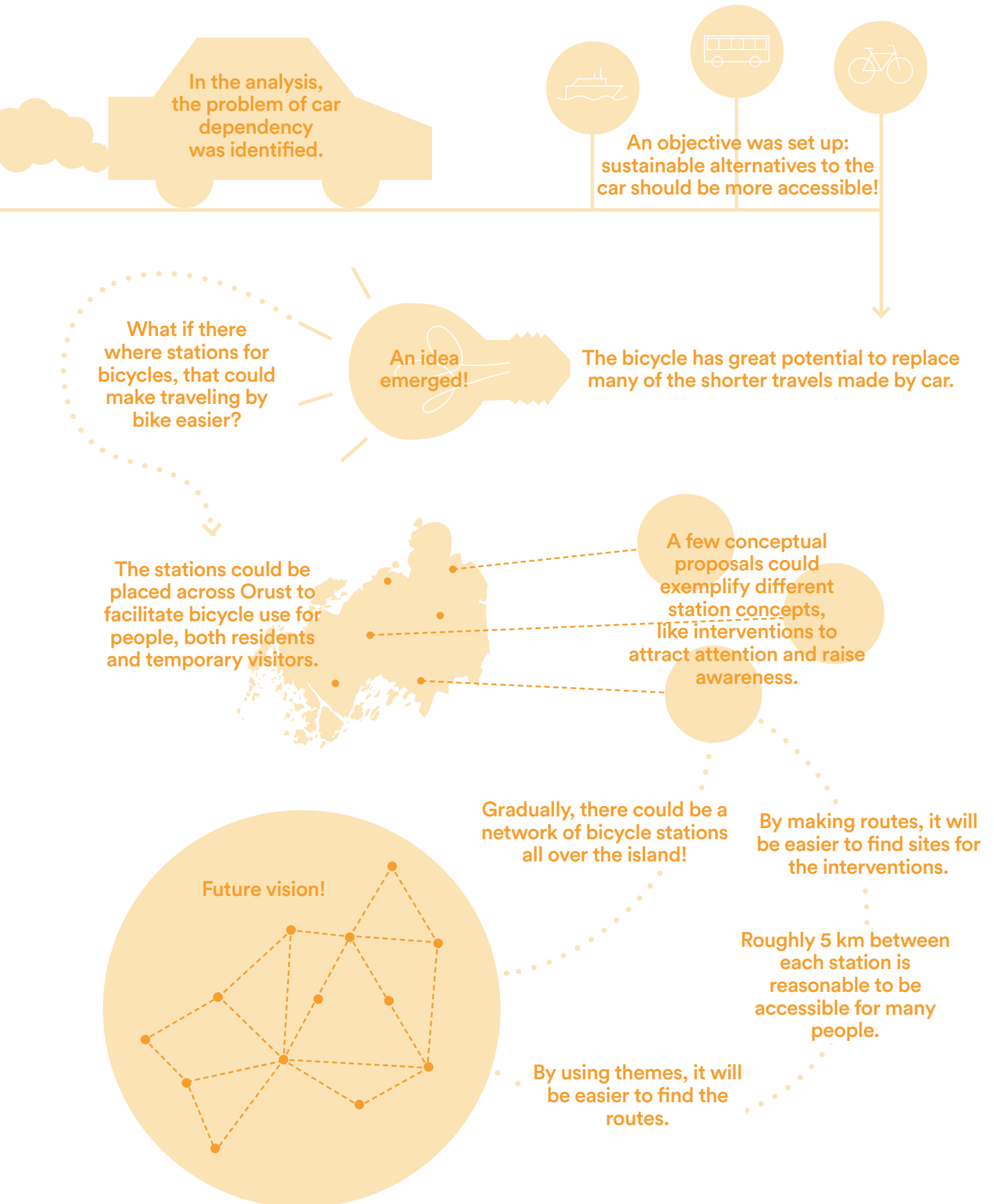


We discussed what he could find valuable in a bicycle station as a tourist. Firstly he mentioned that it would be interesting with information about the place (nature, culture, history), but also some shelter that could protect you from a sudden rainfall. Johan also thought that it would be convenient with a restroom and maybe even a charging station. Furthermore he mentioned that maybe one should be able to buy or borrow rainwear and lamps to put on the bike when it is getting dark.

The future vision

After collecting all the information about cycling in general and cycling on Orust, a vision is developed.

Future scenario: a network



The route themes



A commuter route

Commuting implies people going from their homes to their workplace. If the conditions are good, commuting up to 15 km with bicycle is reasonable. This kind of cycling happens everyday, all year around, all seasons.

Commuters prefer fast routes with good roads and few hindrances along the way. Many times, it is favourable if the travel could be combined with other means of transport as bus. The route should preferably connect different nodes.



A tourist route

Bicycle tourists either make day trips on bicycle or cycles longer distances and stop for lodging along their route. Most tourist cyclists appreciate breaks now and then and also attractions that don't primarily induce car users to stop.

Tourist cycling is mainly during the summer, but could have potential to expand to spring and autumn.

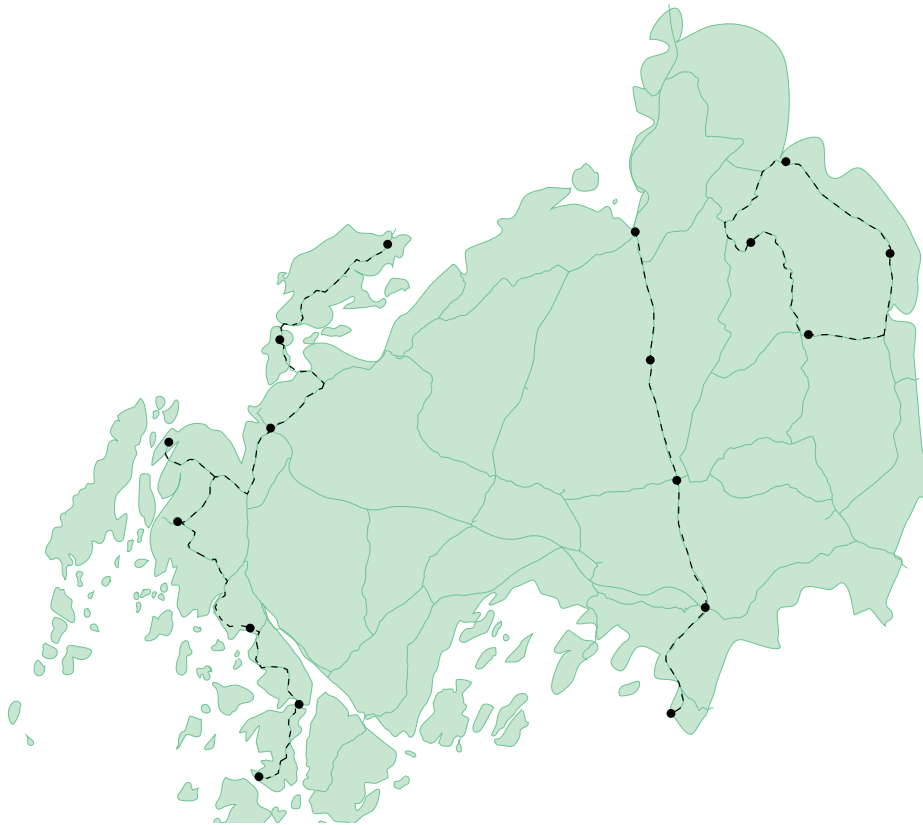


A recreation route

The recreation route is aiming either for local people making trips in weekends or exercise cyclists that also want a nature experience. This kind of bicycling mostly occurs in summertime but also spring and autumn, as far as the weather allows.

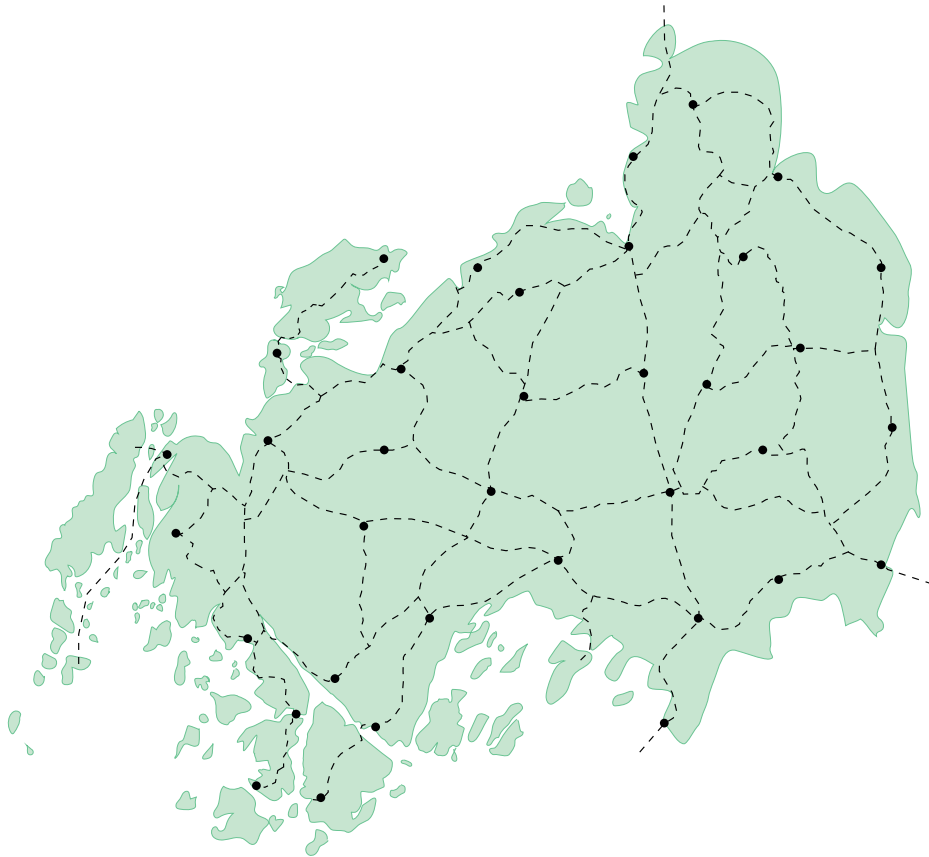
For both groups it is preferable to have breaks now and then to be able to rest or have a fika in a nice area. Stops should therefore be situated in places where there are also other attractions or functions.

Routes



The proposed routes in this project.
Along these three routes, one station
along each will be exemplified.

Routes



In the future scenario, there are bicycle stations all across the island. All interlinked with safe connections.

Design principles

Even though the stations will be of different scale and in different local conditions, there are still design principles that can be applied to all stations to keep the same standards.



Well visible

The station should be eye catching and well visible from roads/routes.



Connect to surroundings

The station should be connected to movement patterns and the specific local situation.



Local resources

Materials, craftsmanship etc should be from Orust as much as possible.



Inviting

The station should be inviting, welcoming and including to all people who wants to use it.



Good lighting

To be visible and safe at all times the stations should be well lit.



Small ecological footprint

Just as bicycling is sustainable, the station should leave the least possible impact on the environment.



Signage

The routes and stations should be marked out to make it easy for people to orientate.

Functions



Bicycle parking

There should be good possibilities to safely lock your bike for a shorter or a longer time.



Drinking water

System for filtrating and purifying rain water.



Weather protection

Protection from wind and rain.



Place for resting

Nice places to sit down for a while or maybe even spend the night.



Information

Provide information about the place. History, culture, nature, maps, service etc.



Restroom

Public toilets.



Tools, charging and airpump

Basic tools for fixing your bicycle, charger (electricity from sun panels) and airpump to fill the tires.

The bicycle stations

In this part the different bicycle stations are presented and illustrated.

Station: Hälleviksstrand



Station: Hälleviksstrand



Tourist route

The tourist route stretches from Flatö in the north to Mollösund in the south and is in total around 30 km long. Stops along this route are connected to attractions and services suitable for tourists.

Either people can do the whole route at once, or stop along the way for lodging and food. The tourist route could contribute to development of smaller businesses along the route.

Along the tourist route the nature and topography is varying, which only enhances the experience when bicycling. It becomes a bodily experience to cycle the route.

The tourist station does not necessarily have to be situated in bigger nodes, but preferably where people normally wouldn't have planned to go if they didn't have a bicycle.

Hälleviksstrand

This old fishing village is located on the southern part of the west coast of Orust. There are around 200 inhabitants that live here permanently, but 1500 in the summer months.

The site chosen for this station, the tourist station, is located between Hälleviksstrand and the nearby village Edshultshall. The site is located quite high, and is reached after cycling uphill a couple of hundred meters.

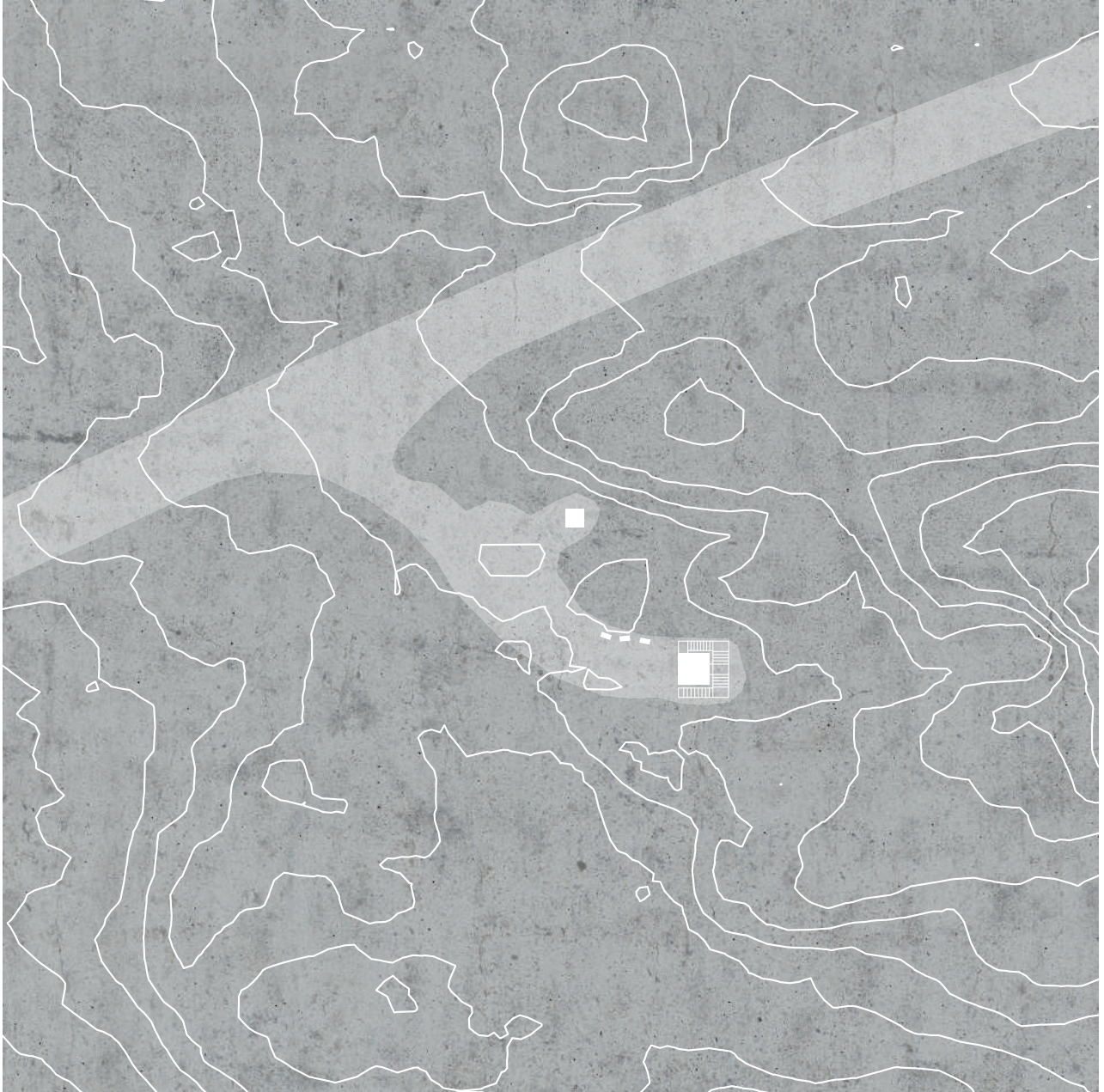
From this highly located place one can look out over the sea and smaller islands, while feeling the strong winds coming in from the sea. The nature is quite barren, with cliffs and rocks partly covered in heather and with trees and bushes leaning because of the wind.

There is already a pic-nic area here, a bit hidden from the wide road passing by, still it opens up to the view.

To be seen from a distance, and to incorporate the topography in the experience of getting to this station, I want to work with the height and build something that is even higher.

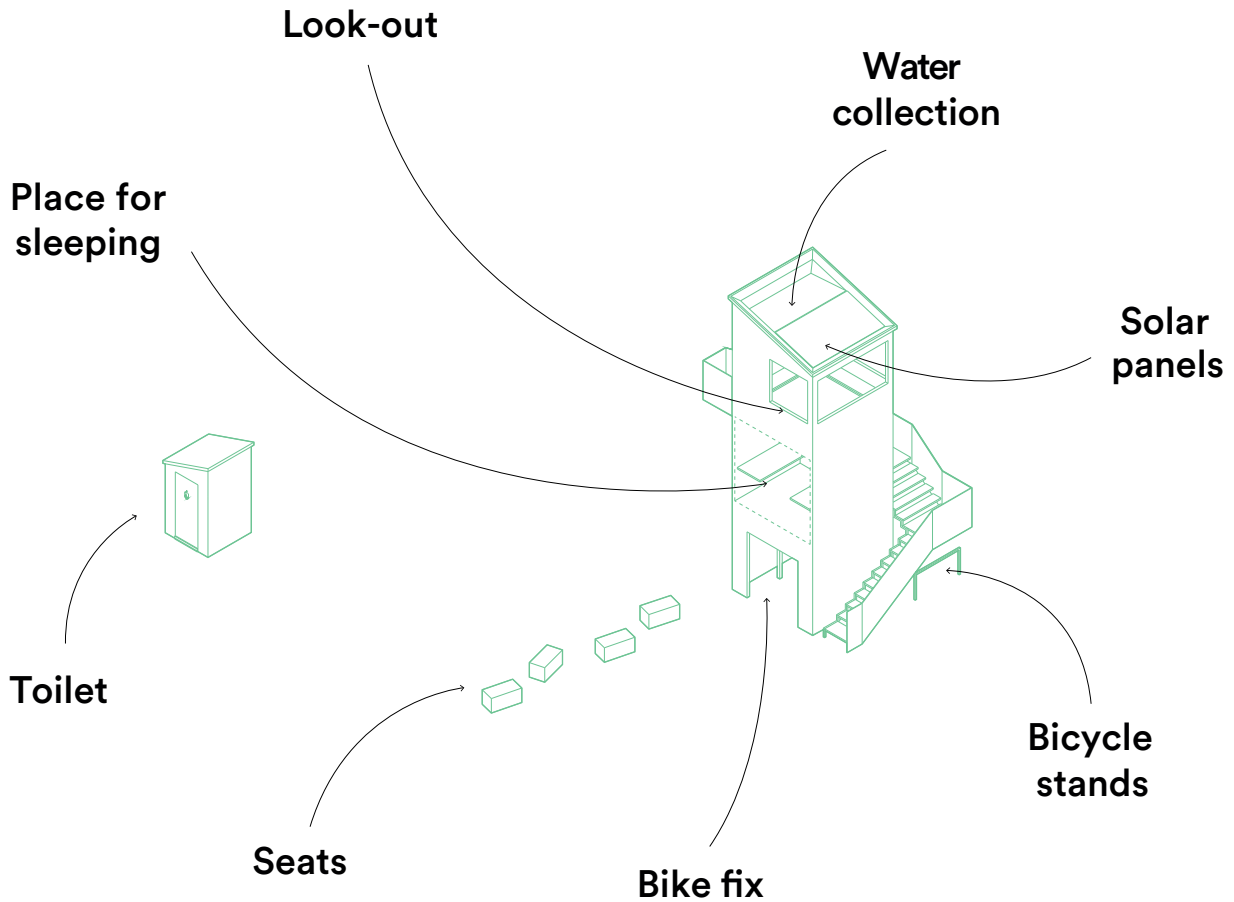


Station: Hälleviksstrand



Site plan 1:500

Station: Hälleviksstrand



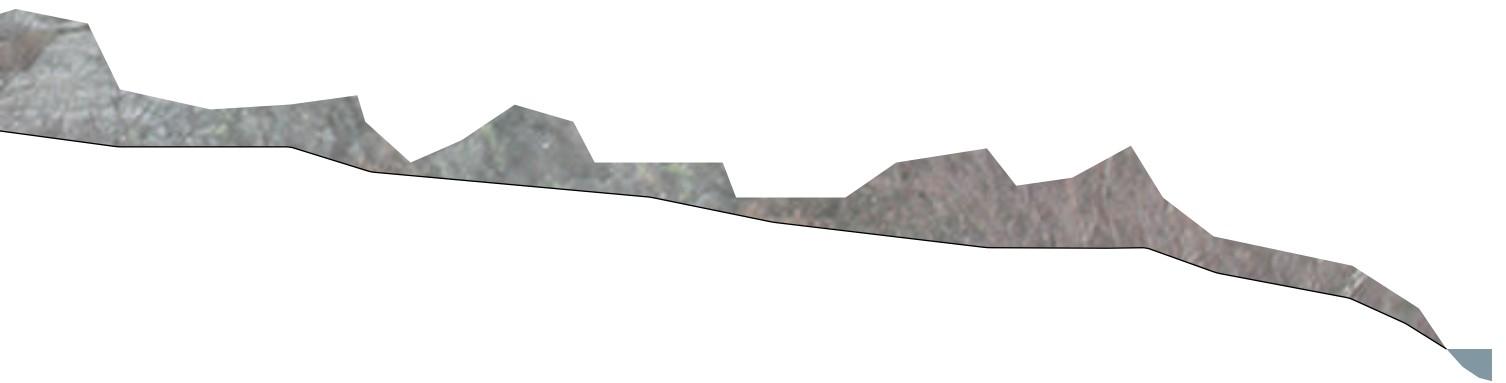
Since the site is located quite high, I wanted to work with the height so that it could be visible from a distance. The result is a small tower with bike fix functions in the bottom, a shelter for resting or sleeping in the middle and a look-out at the top. The composting toilet is in a separate building where one can be more

private. On the roof of the tower there are solar panels to provide lighting and power outlets. Rain water is collected on the roof and filtered to be drinkable. Bicycle stands are behind the tower to be a bit hidden if there are people staying in the tower over night.

Station: Hälleviksstrand



Station: Hälleviksstrand



Section 1:300

Station: Hälleviksstrand



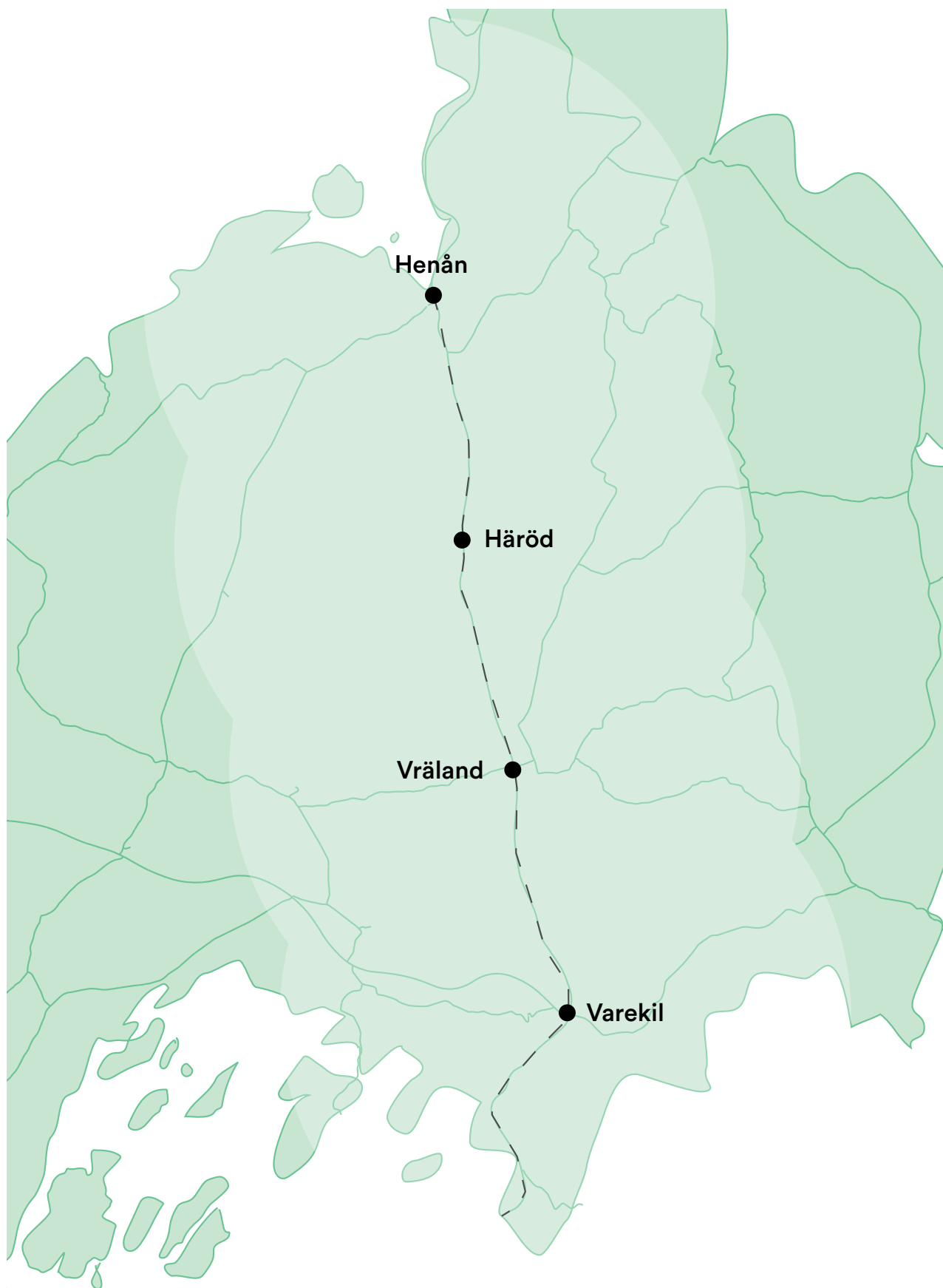
When approaching the station, it's rising among the bushes and trees, almost like a lighthouse.

Station: Hälleviksstrand



The facade of the wooden structure, consisting of shingles is supposed to resemble fish scales.

Station: Varekil



Station: Varekil



Commuter route

The everyday route goes from Henån in the north to Skåpesund in the south. This route goes along a very busy road, road 160. Today it is not suitable to bicycle on the road here, so this route is possible only if the traffic situation is made safer for cyclists, for example with a separate cycle path next to the road.

The most important function for this route and the stations along it, is the connection to smaller surrounding roads and paths. The stations become nodes for a 5 km radius. Since people live widespread in the rural areas it is important to reach as many people as possible. By putting a route across the island many people around the stations have access to a traffic node where it's easy to switch means of transportation or to fix their bicycles.

Since Varekil is already an important traffic node I'm not adding a node, but rather strengthening it through adding another dimension of infrastructure for cyclists.

Varekil

Varekil is located in the southern part of Orust, in close connection to Tjörn. This place is an important node for public transport, used by commuters and school children.

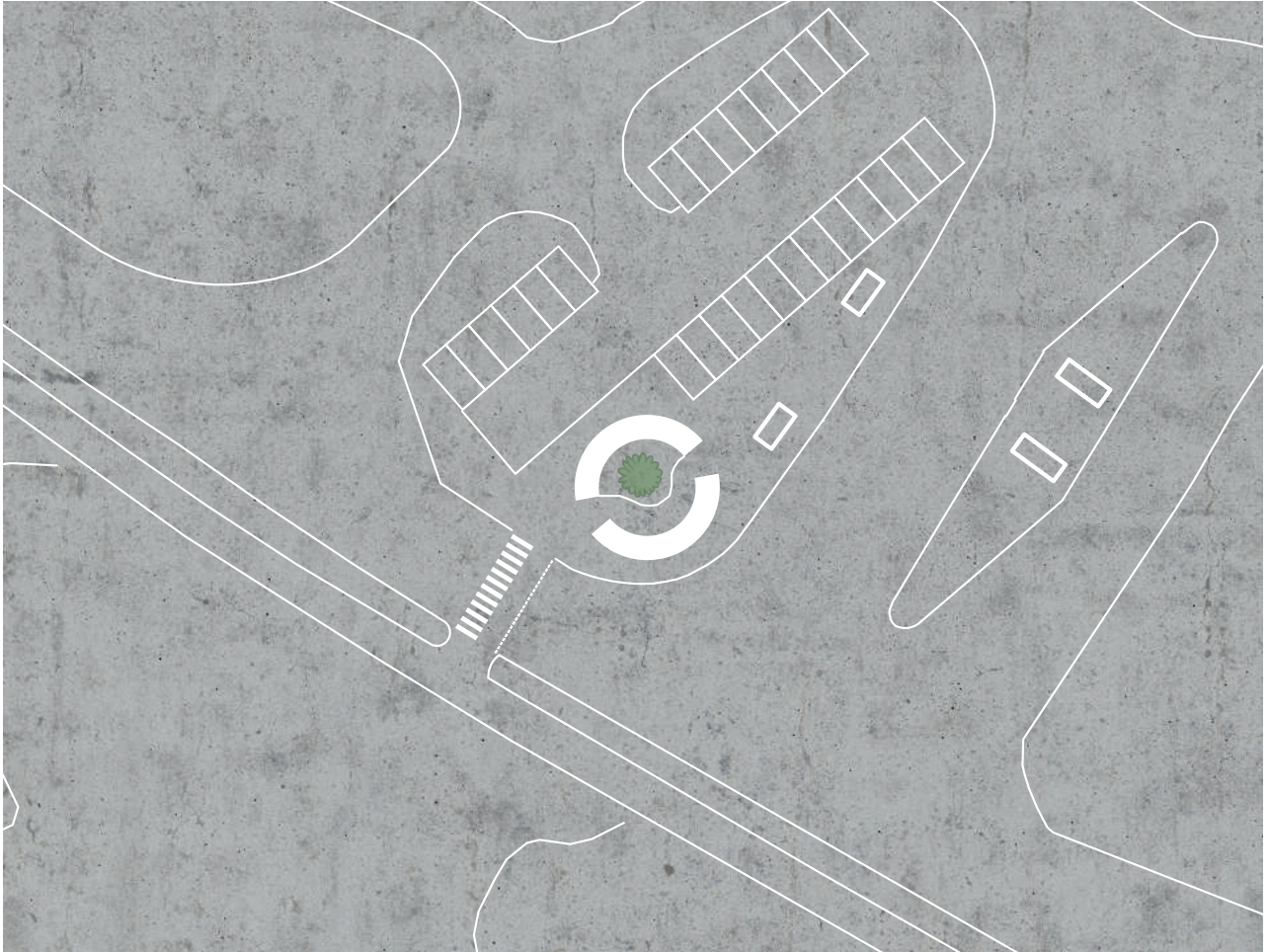
The site for the station, the bus station, is mainly characterized by the infrastructure for motorised vehicles. There are big roads passing by, parking lots and big asphalted areas. It is a quite boring and inhumane place. The bus station is located by a big traffic crossing, and there are not very safe crossings for pedestrians and cyclists.

By the parking lots, next to the bus station, there are chargers for electric cars. Nearby, there is a café and a gas station.

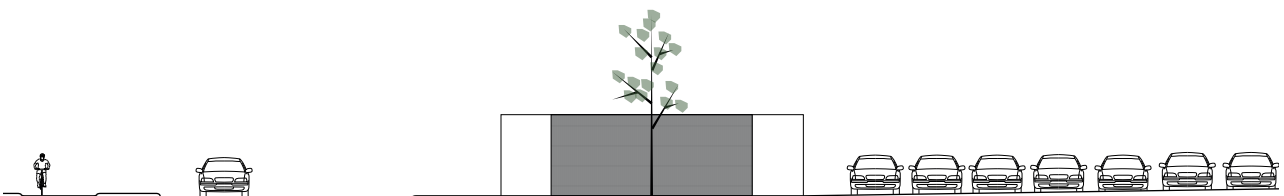
There are already parking for car and bicycles, but the space feels quite empty. Here, it's important that the station is visible from whichever way you are approaching the crossing.



Station: Varekil

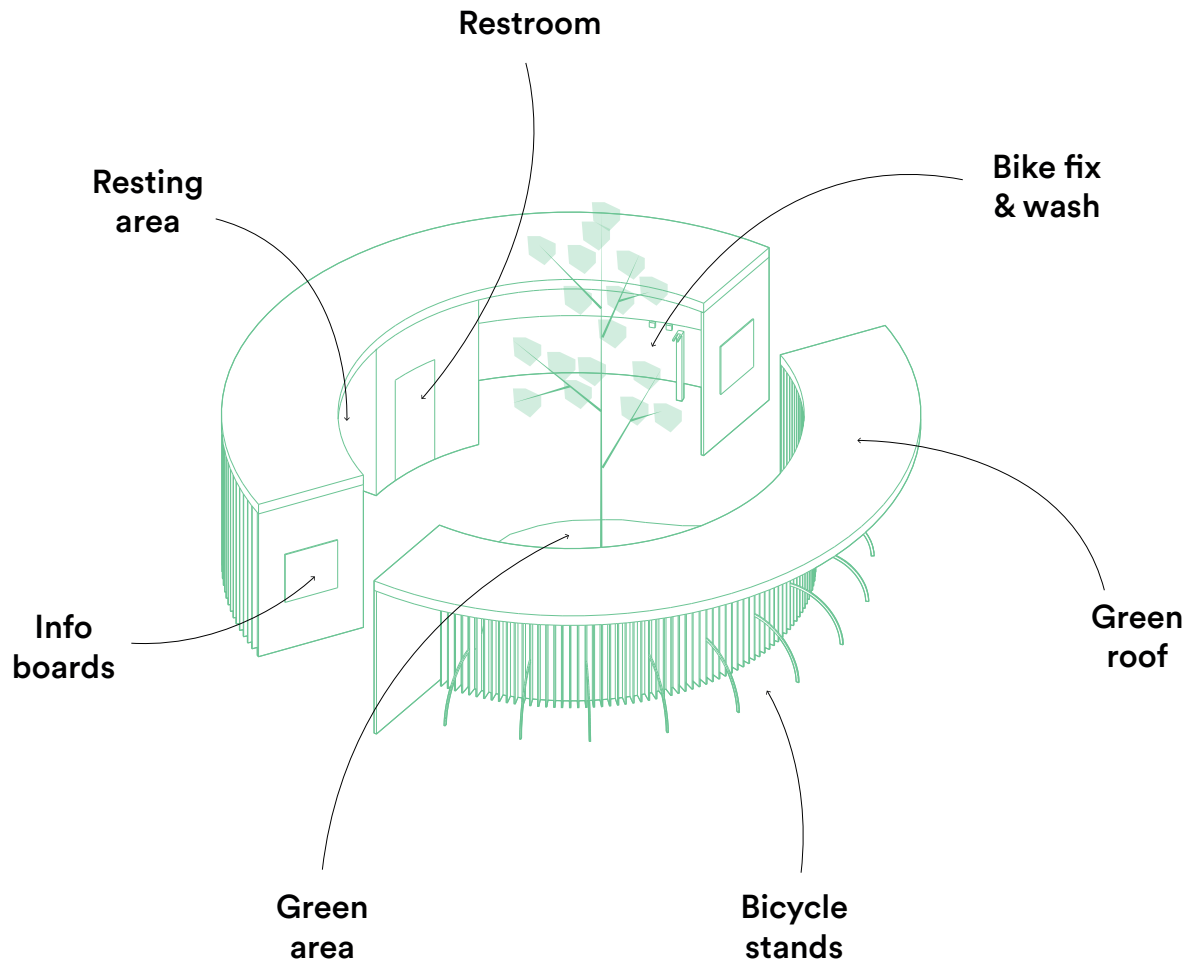


Site plan 1:500



Section 1:300

Station: Varekil



Since the site is located near a crossing, it is important that the station is visible from many directions. To make it face several directions, the shape of the building is circular (seen from above). The building is divided in two parts, with possibilities to move in between. One part

is a bicycle stand and in the other part there are bike fix functions, a toilet and seatings. There is a small green area in the middle, and the building's roofs are green. This is to add more "nature" to this hard surfaced area.

Station: Varekil



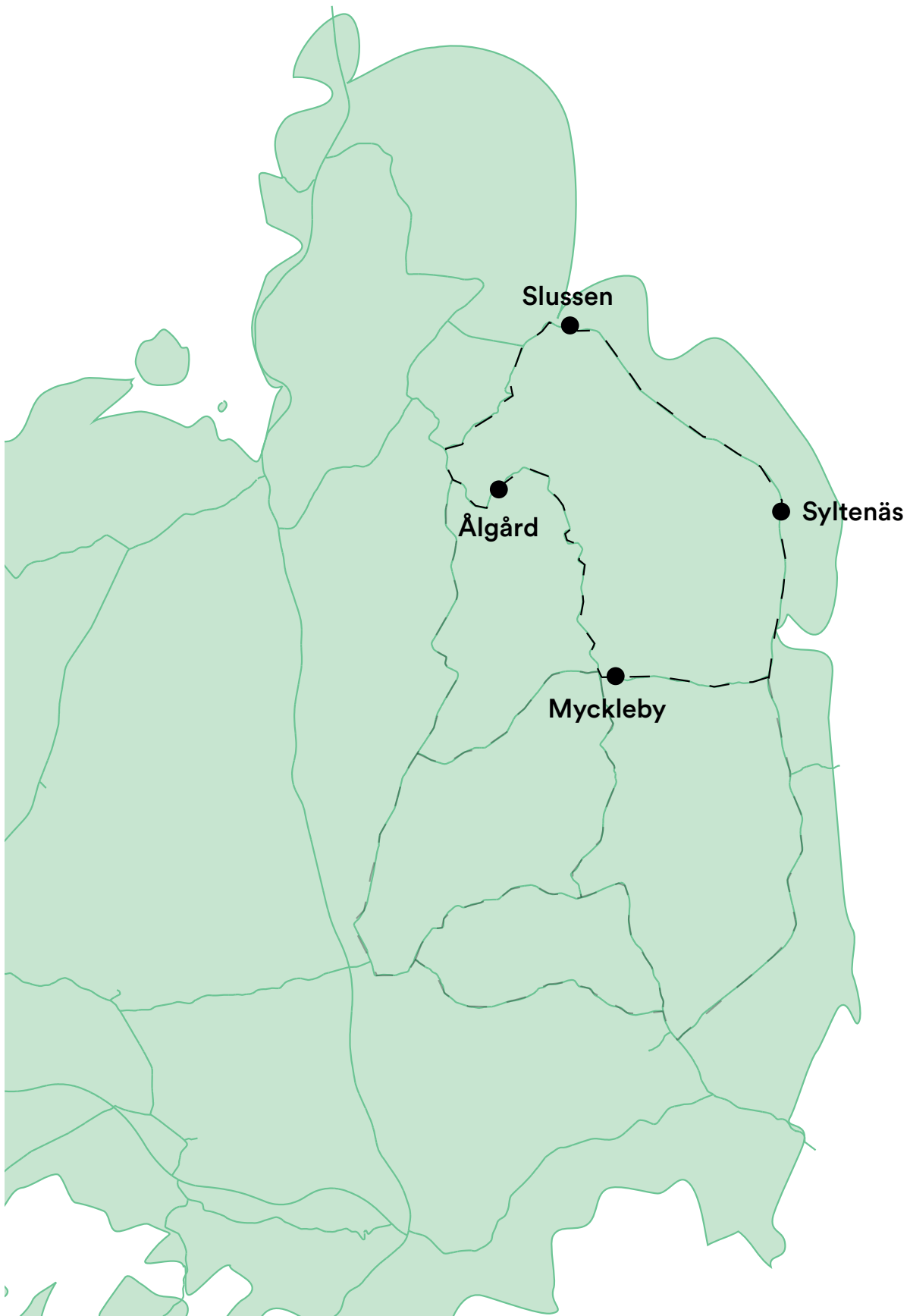
The building is placed just between the bus station and the carpark to be visible and accessible for many.

Station: Varekil



The wooden structure is enclosing and calm to be inside as a pause from the busy traffic passing by, still it is possible to see through.

Station: Ålgård



Station: Ålgård



Ålgård

The site by the old Ålgård Mill is located between two lakes and surrounded by woods. Here, there is a strong presence of history and cultural heritage where several old buildings tell a story of the once life lived here.

Friluftsfremjandet has a little cabin with fireplaces and seats to rest. Since there are already many functions and attractions, this station will be more discrete and integrated in the already existing buildings.

An old stable, currently used for storage and has a recently added restroom, will be the object for this station. The stable is just next to the road, and behind the yellow doors there are stables, where people used to put their horses while milling their grain to flour in the mill.

Recreation route

This route is a round of about 20 km but it can be part of bigger routes if cyclists want to go longer distances.

In this part of Orust, there are many smaller roads with little traffic that are suitable for cycling, especially exercise cycling.

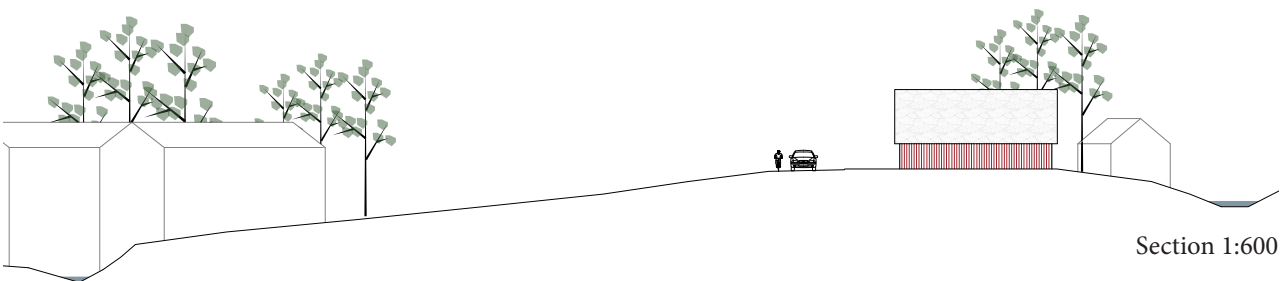
The recreation/exercise route provides both attractions for visitors and pleasant roads for cycling.



Station: Ålgård

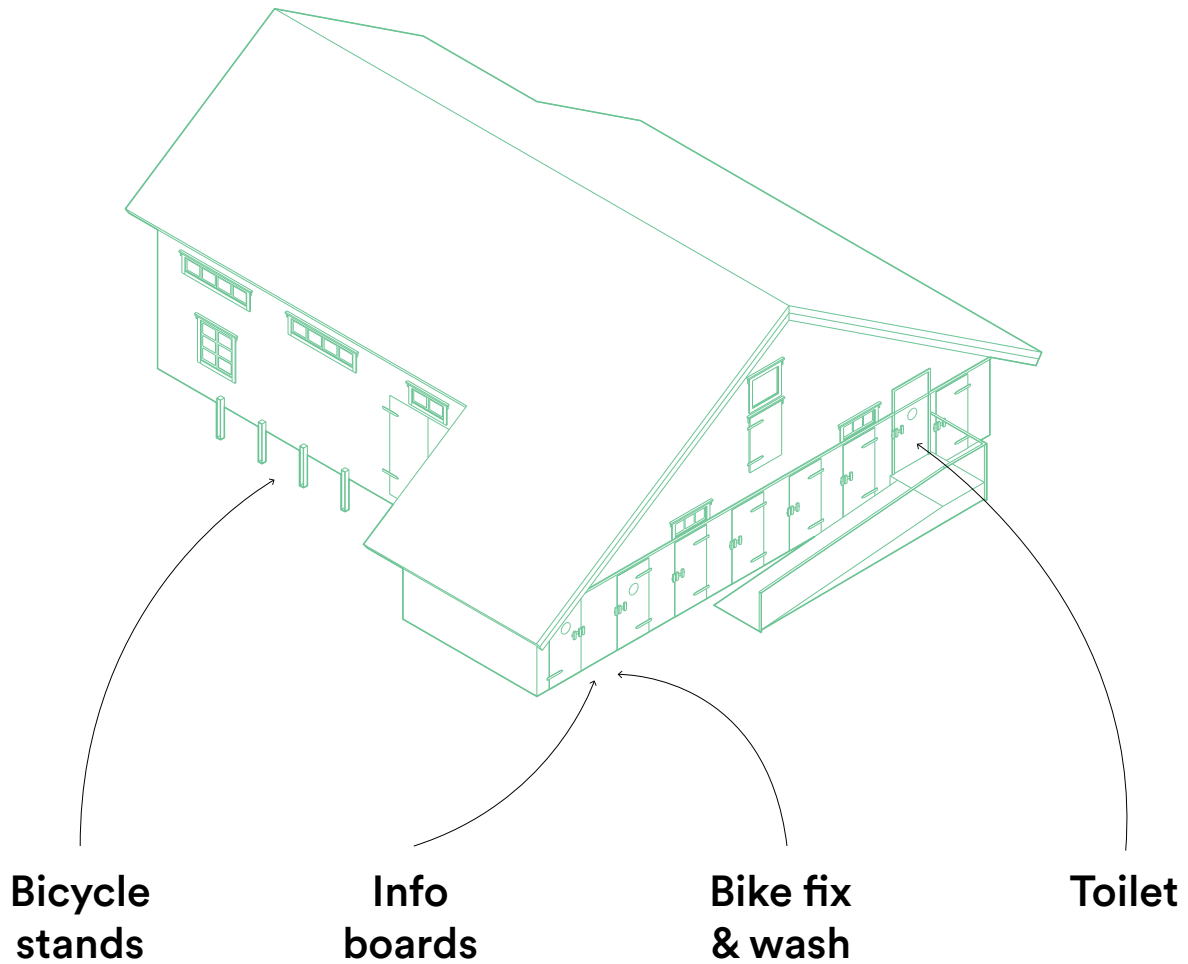


Site plan 1:500



Section 1:600

Station: Ålgård



The stable building is restored and broken parts are fixed. Behind two of the yellow doors, there will be functions that form the bicycle station at Ålgård mill. The door for the restroom will resemble the original facade material to be more discrete in the facade. Also, the ramp up to the restroom will be altered to be

more discrete. To communicate the different functions behind the doors, there are symbols painted on them. The bike fix functions does not harm the building itself, but is like a box that stands behind the doors. Bicycle stands are placed on the long side of the building.

Station: Ålgård



The facade of the stable as a whole. The functions behind the doors are communicated through symbols.

Station: Ålgård

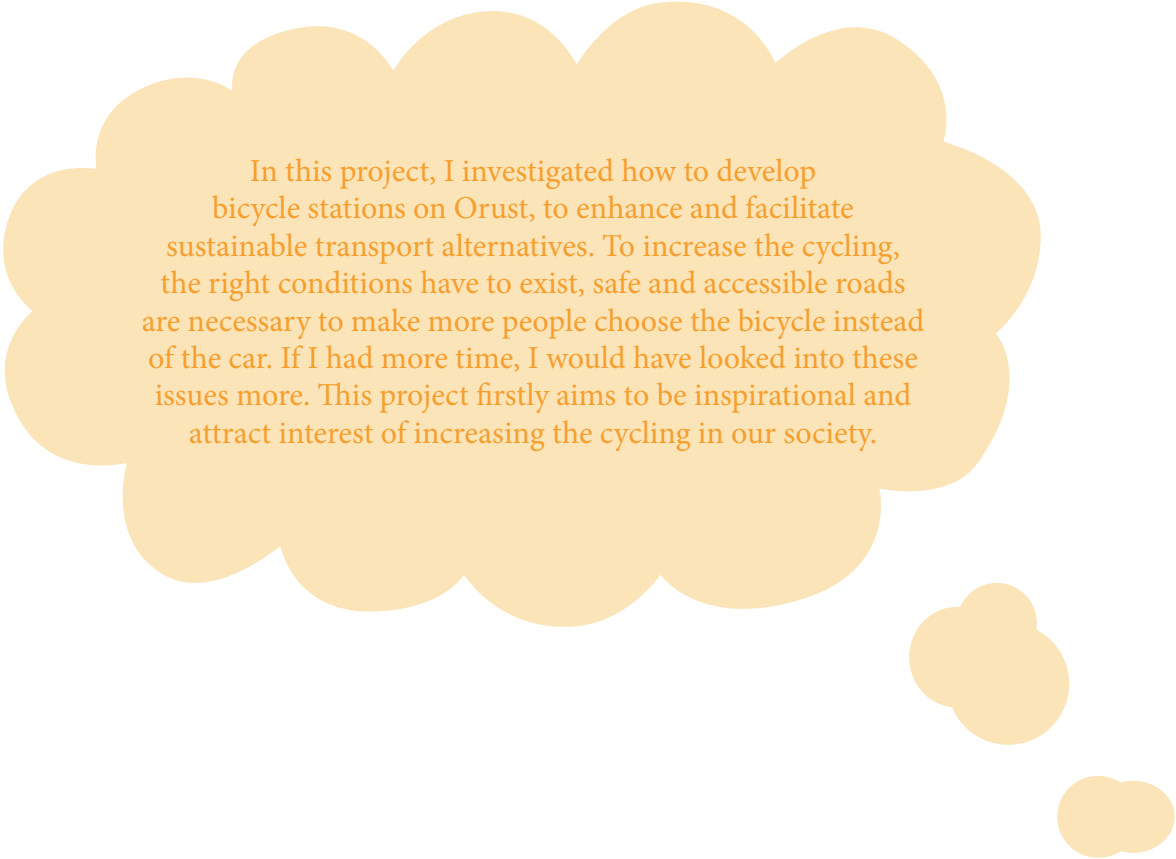


Behind two of the doors are functions such as bike tools, air pump, power outlet, water and info boards about cycling on Orust.



**Conclusions
& references**

Reflections



In this project, I investigated how to develop bicycle stations on Orust, to enhance and facilitate sustainable transport alternatives. To increase the cycling, the right conditions have to exist, safe and accessible roads are necessary to make more people choose the bicycle instead of the car. If I had more time, I would have looked into these issues more. This project firstly aims to be inspirational and attract interest of increasing the cycling in our society.

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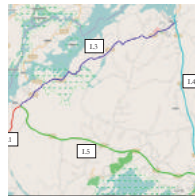
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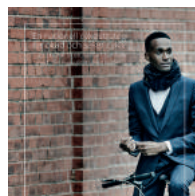
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ARKITEKTURSKOLA

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