

CHILDREN - THE CHANGE OF MOBILITY

Malmö University BY260E

Group 4

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KIRSEBERGSSTADEN AND VÄSTRA HAMNEN

INTRODUCTION

This is a society that has been planned around peoples accessibility by car which has given vulnerable groups a harder time and been a burden to the planet. What is the difference in transport planning in different districts which has been planned 400 years apart? In today's society we have a will of making mobility and accessibility for everyone. Kirsebergsstaden and Västra Hamnen are planned in two different ways and both have potential changes for a safer and more including transport. A vulnerable group who doesn't have access to private cars and can have trouble transporting by themselves - children, who also have the right to mobility and accessibility. What needs to and can be changed for better independent mobility?

BACKGROUND

Malmö is an old city with a history over 800 years old. The city was for long known as one of Sweden's largest industrial cities but has now changed direction from an industrial city towards a city of knowledge (Malmö stad A, u.å.). As a result of Malmö's history, the different districts in the city are characterized by different time eras, which is shown in its nowadays urban form.

The chosen districts Västra Hamnen and Kirsebergsstaden are two areas characterized by different time eras and traffic standards. This makes the urban form of the districts different from each other which was the main reason these two areas were chosen in this project. Kirsebergsstaden has been a well-known district in Malmö since the 16th century and became a working class suburb at the beginning of the 20th century (MKB, u.å.). In the 1990s Malmö stad started producing a new area called "Västra Hamnen" with focus on creating a sustainable neighborhood where people could live, work and play (Malmö stad B, u.å.).

Our cities represent centuries of planning and building. These are material, economic and social values and resources. With the climate changes we are facing, urban planning has today a major focus on creating an ecologically sustainable and energy-efficient society. Västra Hamnen is an area that represents today's ideal of urban planning. The area has become an international model for sustainable urban development (Malmö stad, 2022). There are more perspectives than the sustainable city that has developed in recent eras of urban planning. The children's perspective in the city and in traffic has become more central in today's urban planning. On January

1, 2020, the Convention of the Rights of the Child became part of Swedish law. This increases the need to focus on work with children's rights in physical planning and urban development (Malmö stad, 2021). In this work, we have therefore chosen to analyze the category of children in traffic and their perspective on traffic safety in Kirsebergsstaden and Västra Hamnen.

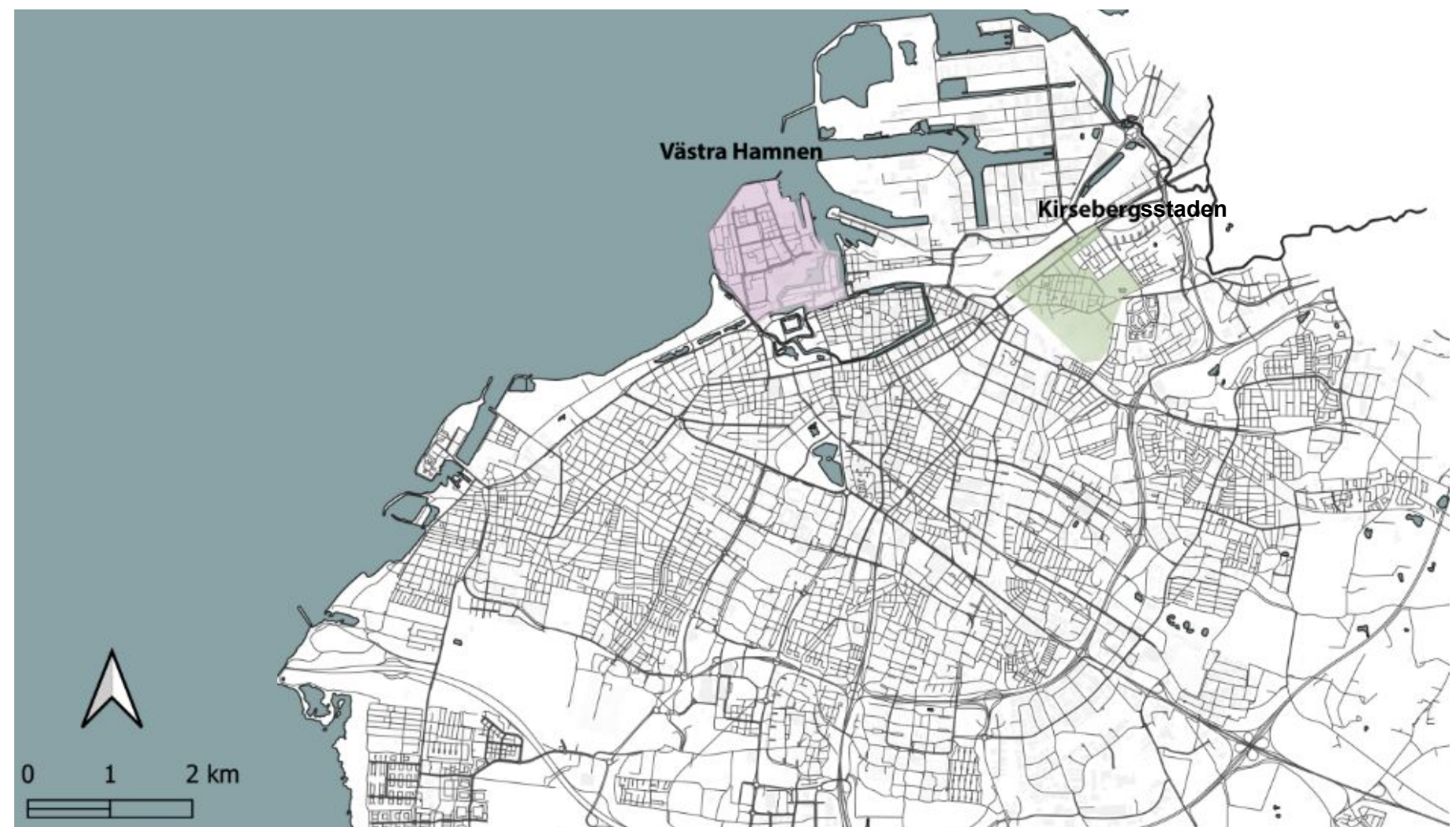


Figure 1. Overview map of the two districts Västra Hamnen and Kirsebergsstaden.

MAPPING

TPOLOGY AND MORPHOLOGY

Västra Hamnen is located in northern Malmö in close proximity to the inner city. The district has a large variety of building blocks and street networks. The street network is characterized by well-planned separation between walking, cycling and car traffic throughout the area. On most roads, there are pedestrian and cycle paths on both sides of the road. Public transport is also well planned in the area, for instance separate bus-lanes.

Kirsebergsstaden is located in north-eastern Malmö with a longer distance to the inner city compared to Västra Hamnen. The area has grown gradually, which means that the area is characterized by different types of buildings from different time periods. This also means that Kirsebergsstaden has a street network that has had to be rebuilt and adapted as new buildings have grown. The street network today consists much narrower roads than in Västra Hamnen. The district has many one-way streets and the sidewalks are often narrow, especially in the older parts of Kirsebergsstaden. Cycle paths are only found on the major roads and then usually only on one side of the road and there is a significant lack of separate bus-lanes in the area.

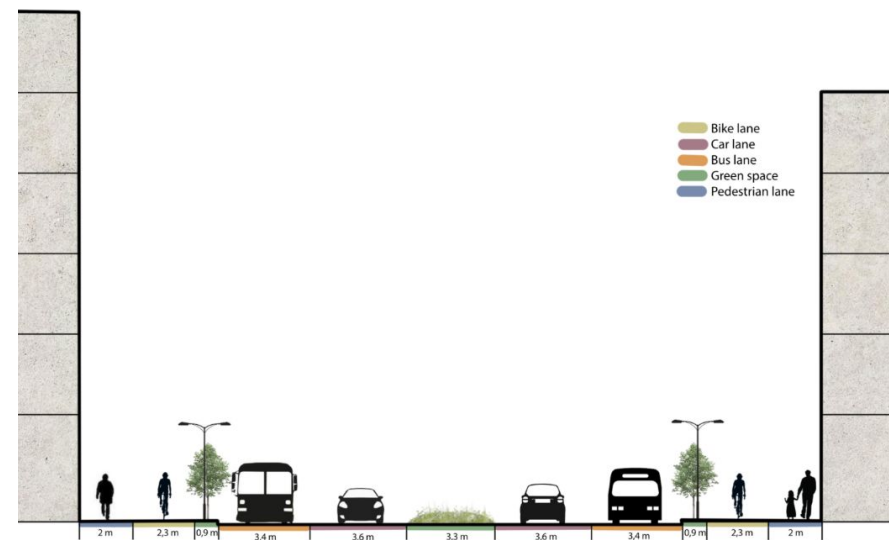


Figure 6. Section AA of Östra Varvsgatan, showing the relationship between cyclists, pedestrians and motor vehicle in Västra Hamnen.

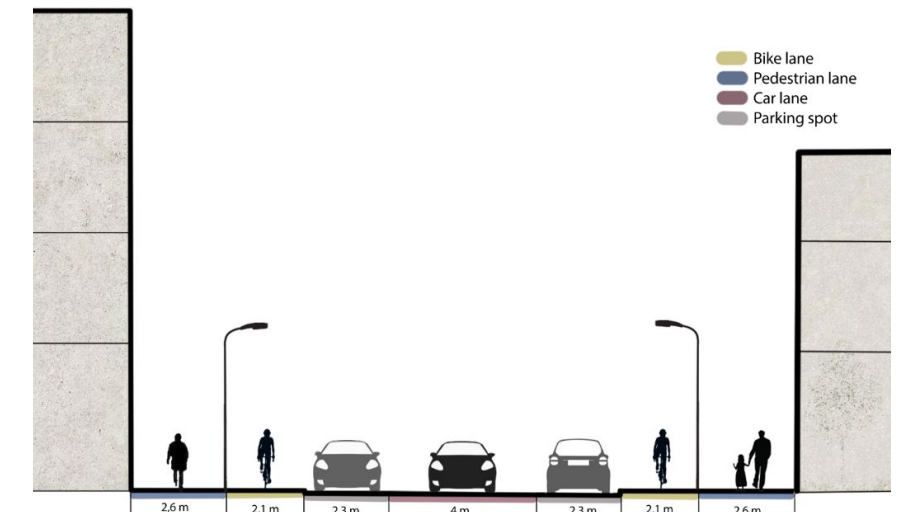


Figure 7. Section BB of Norra Bulltoftavägen, showing the relationship between cyclists, pedestrians and motor vehicle in Kirsebergsstaden.

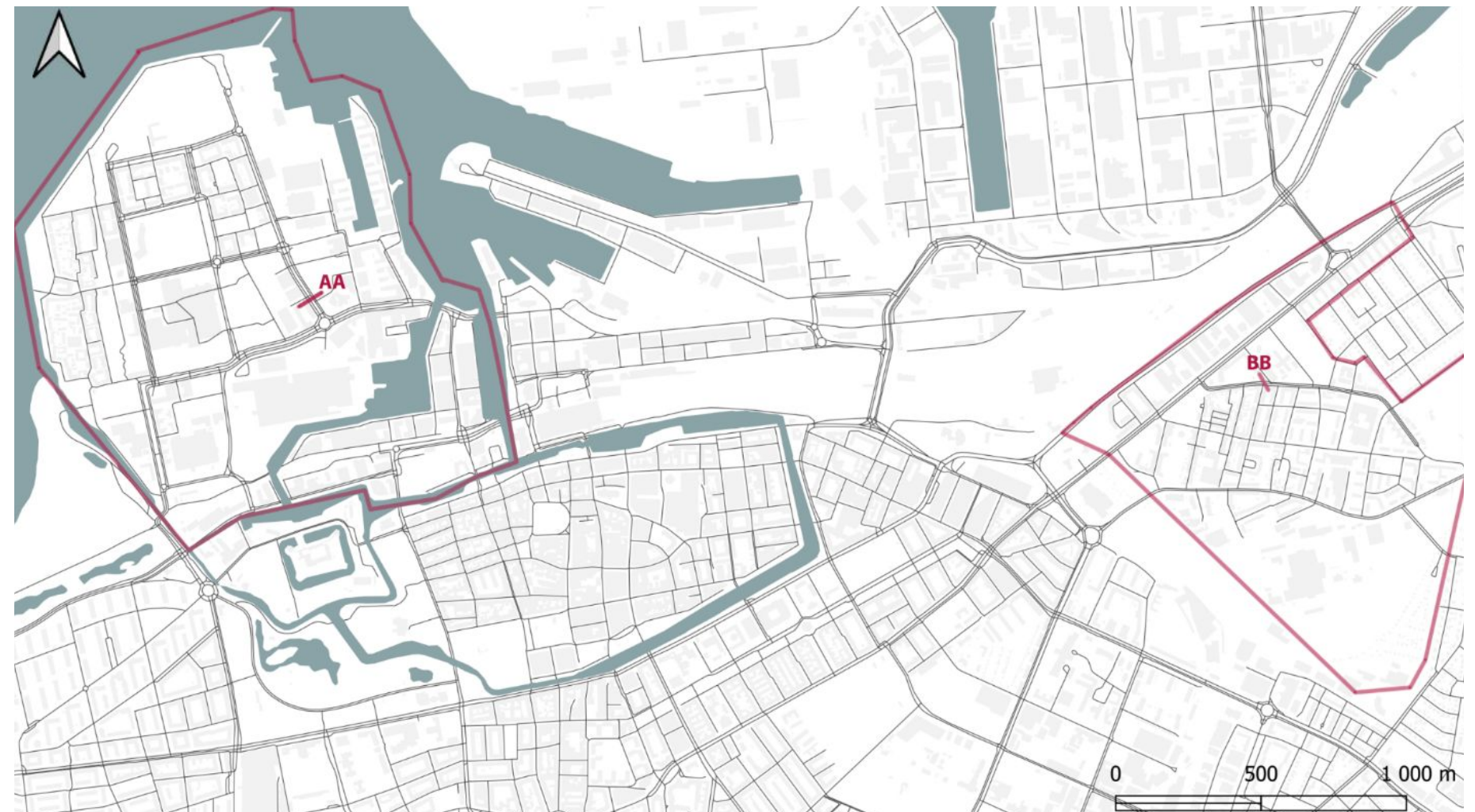


Figure 8. Orientation map of the districts and sections.

MAPPING

ROAD NETWORK

The spatial accessibility in the two chosen districts in Malmö is presented through two maps of the road network. Some state the problem with categorizing streets in an hierarchical order (Marshall, 2004). In an attempt to structure reality it presents a modell of reality that has some advantages in understanding what possibilities an urban space has when it comes to access and mobility . The roads can be categorized depending on their function as a *distributor road* or an *access road*. The distinction is that the normally larger *distributor road* is a road that circulates traffic and connects access roads, while access roads only has one main function and that is to connect the more secluded residential areas to the road network (Marshall, 2004).

The two chosen districts have very different contexts which has an effect on how the road network is outlined and planned. Västra Hamnen is established on an artificial peninsula surrounded by the sea which makes access on land a challenge. While Kirsebergsstaden is a district that is landlocked it has similar limits to its accessibility which is created by the fact that it is surrounded by railway tracks in the north and the west. Plans to reintroduce the railroad in the south of the district destined to go between Malmö and Simrishamn would risk the district to become more segregated if not necessary precautions are made (Malmö stad, 2020).

Västra Hamnen

Västra Hamnen is a district which has been going through radical change the last three decades and they are still proceeding. This means that the road network is expanding into new residential areas and adapting to changes in the urban environment. The existing network consist of three main roads that connects the district to the rest of the city; Stora Varvsgatan, Neptunigatan and Västra Varvsgatan which are categorized as tertiary distributor roads in the map.



Figure 2. Motor traffic road network in Västra Hamnen.



Figure 3. Road network for cycles and pedestrians in Västra Hamnen.

The district is cut through by residential distributor roads in a grid pattern dividing the district into a number of superblocks which then connects to a network of living streets and service roads. The network of cycle lanes and pedestrian roads is quite extensive throughout the whole district. Majority of the tertiary roads and residential streets are accompanied by separate both cycleways and pedestrian roads. The pedestrian roads network does extend beyond the motor vehicle-network into some of the living quarters.

Kirsebergsstaden

Situated along one of the older roads in the eastern part of Malmö that connects Malmö with the city of Lund, Lundavägen, Kirsebergsstaden can be described as a quite calm oasis beside the rambling roads of Lundavägen and the passing railroad tracks. Lundavägen can be categorized as a secondary distributor road that passes through the district and is connected to two tertiary distributor roads namely Södra- and Norra Bulltoftavägen. The two roads connects to the center of Malmö in the west to east of the district and frames the center of the district. Which is accessed by residential distributor roads mainly through the central "spine" of the district center Vattenverksvägen.

Along most of the tertiary roads and some of the residential distributor roads cycle lanes are available. There are dedicated sidewalks in most of the central parts of the district and in the residential quarters there are dedicated pedestrian roads with no motor vehicle access. Dedicated access roads are sparsely implemented throughout the district.

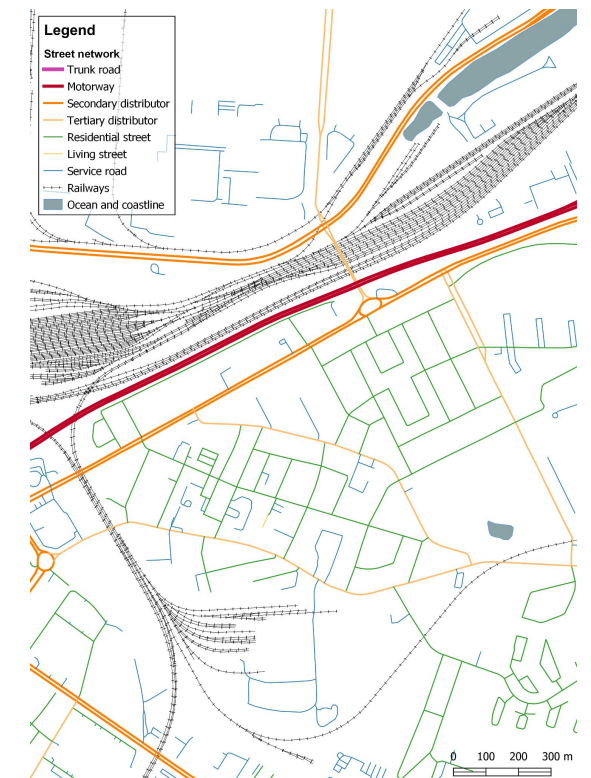


Figure 4. Motor traffic road network in Kirsebergsstaden.

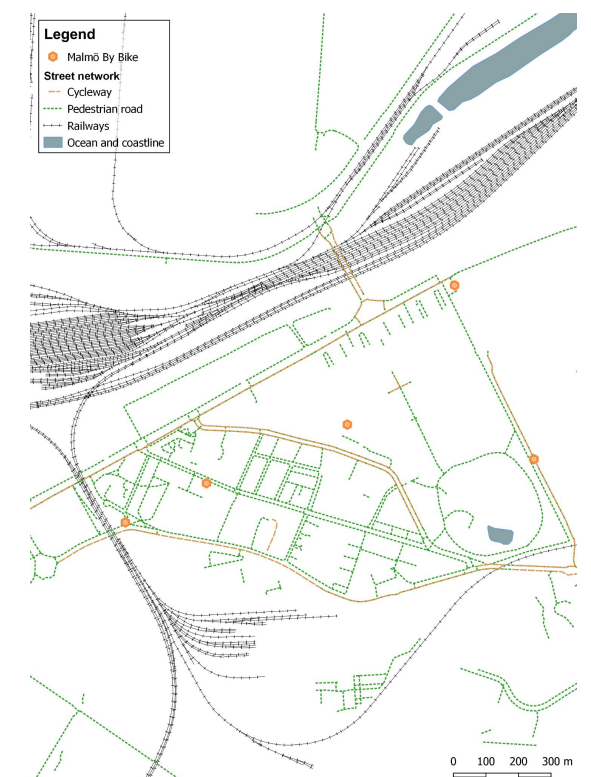


Figure 5. Road network for cycles and pedestrians in Västra Hamnen.

MAPPING

QUALITY

Västra Hamnen

We have chosen to look more closely at the quality and accessibility from the schools to the bus stops. In Västra Hamnen there are many routes to choose from between the schools and the bus stops. Almost all the roads that the children choose to walk have clear footpaths and cycle paths that are perceived as safe with a lot of movement of people and a lot of open spaces, apart from a small alley shown in figure 9. There are two different bus lines for the children to choose from depending on where they need to go, which are bus lines 5 and 8. Bus stops for these lines are no further than 350 meters from the schools. Figure 9 shows the newest school in the area which is currently surrounded by a lot of construction, which makes it more difficult for the children to get to and from school at the moment.



Figure 9. Map showing the three elementary schools in Västra Hamnen and the best way to nearest bus stop.

Kirsebergsstaden

This area has a rather great amount of bus stops. But there is hardly nowhere you can see the bus stop from the schools. It is between 250-350 meters from the different schools to the nearest bus stop and often at least two stops that is close to school. Almost ever stop has a bus shelter with roof on one side. On most of the ways from the bus stop to school there is a mixed path for both bicycles and pedestrians. A simple way to make children use the transit system is by making them travel more easily to and home from school and be safe both at the station and on the way there. Figure 10 shows the schools in Kirsebergsstaden and the best ways to the nearest bus stops.

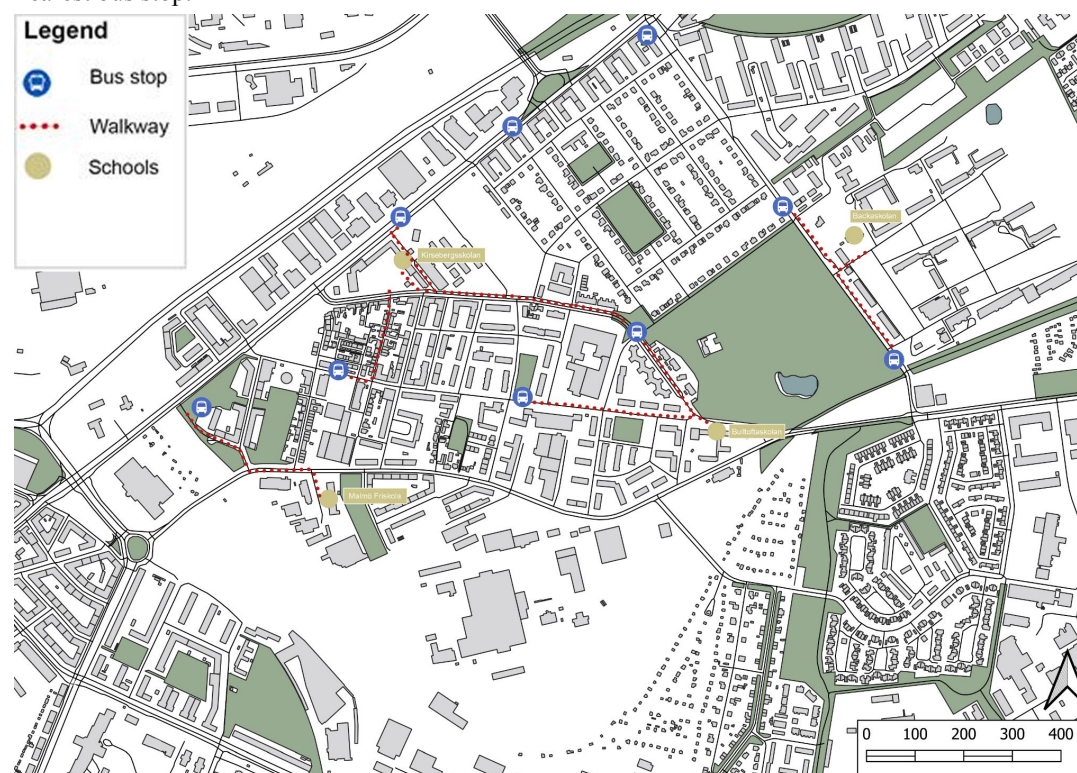


Figure 10. Map showing the four elementary schools in Kirsebergsstaden and the best way to nearest bus stop.



Photo 1. Four pictures of the streets from the schools in Västra Hamnen.



Photo 2. Four pictures of the streets from the schools in Kirsebergsstaden.

MAPPING

PARKING

Västra Hamnen

In Västra Hamnen there are several parking options when you choose to visit the district by car. Västra Hamnen is very centrally located and belongs to one of the more popular areas in Malmö, which results in parking being very expensive. There is a lot of garage parking around the area which makes it available to use a car for the residents and visitors. There is not as much street parking in Västra Hamnen as in Kirsebergsstaden. The reason for that is to not attract people to park on the street and instead attract the choice of public transport, cycling and walking. During the summer, it is more difficult to find parking because many people visit Västra Hamnen to swim or enjoy the view of the sea.



Figure 11. Map showing parking garage and street parking in Västra Hamnen.

Kirsebergsstaden

In Kirsebergsstaden, there are also several opportunities to use the car in the area. The main difference from Västra Hamnen is the majority of street parking. The street parking is mainly located in the upper half of Kirsebergsstaden, because there are mainly

residential areas there. There are only a few parking spaces in the middle of Kirsebergsstaden (Vattenverksvägen) because there are buses on the road that take up a large part of the street. Since Kirsebergsstaden is not as popular an area, parking prices are not as high and there is no free parking either. The "parking garages" in the area, which we count as both a regular parking garage and open parking areas.

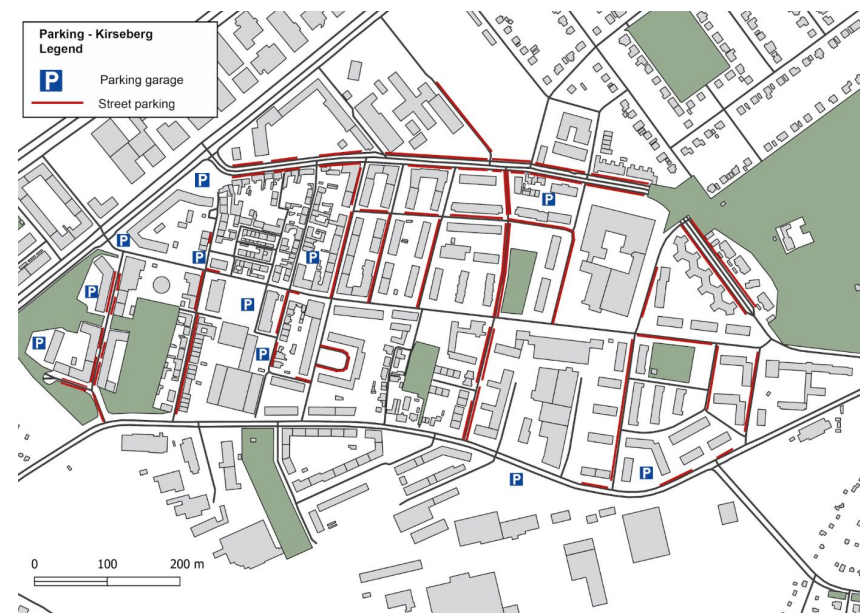


Figure 12. Map showing parking garage and street parking in Kirsebergsstaden.

PUBLIC TRANSPORT

The increase in car use has been a factor of social isolation, has made the mobility of children much harder and enforce car use in socioeconomic groups. Schiller, P & Kenworthy, J (2017) describes that a better transit system brings people together and improves the social life in the city. A good public realm integrate all people and respects the more vulnerable groups, such as children. The public realm makes a spatial, personal, changing and social city for everyone. With a better transit system the independence and freedom of children increase. It is possible to make parents less worried and stop doing everything for their kids. Make parents believe in their kids and

the kids believe in themselves. The transit system has to feel safe for children and for the parents. A system that never leaves the kids stranded and makes the kids independent, social, and brave (Schiller, P & Kenworthy, J., 2017)

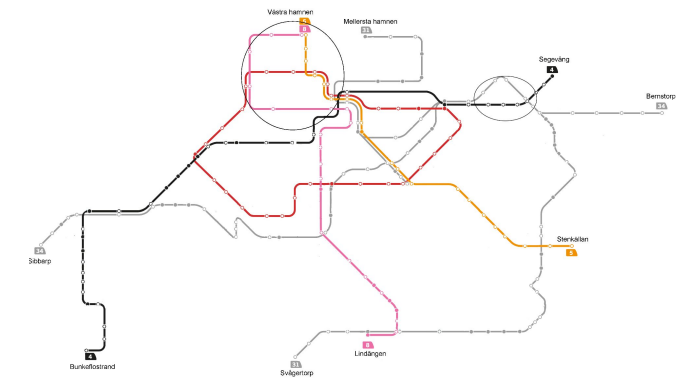


Figure 13. Shows the bus lines that goes from Västra Hamnen and Kirsebergsstaden to places in Malmö city.



Figure 14. Map of Kirsebergsstaden showing 300 meters radius around the elementary schools. Also showing if the bus stops are close to school.



Figure 15. Map showing the same info as Figure 13 but from Västra Hamnen..

UTILISATION

TRAFFIC FLOW

When we looked at the Traffic Flow for both Kirsebergsstaden and Västra Hamnen we chose to look at the Peak Hours which were 08:00 in the morning and 16:00 in the afternoon. We looked at all weekdays and weekends and made a compilation of the times for our traffic flow. We compiled the data from Google maps and cataloged the traffic flow from “High traffic”, where the traffic is difficult to access to “Low Traffic”, which is easier to get to.

In Västra Hamnen, the traffic differs greatly depending on which times we chose to watch. During peak hours, which were our focus, we saw that the roads are loaded with "High Traffic", which is due to many people going to and from work during the weekdays. There are only a few streets that are "Low traffic" on weekdays, which results in a lot of traffic and a longer time to leave the home. During the weekend we see that the traffic opens up and there are several streets that have low traffic, which is due to less people working during the weekends.

In Kirsebergsstaden, the traffic also differs depending on which times we check, but generally the traffic is not as heavily loaded as in Västra Hamnen. There are no streets that have the highest degree of "High Traffic", which is due to the fact that fewer people drive because the population is smaller or that people choose to walk, cycle or use public transport. In the same way as in Västra Hamnen, the traffic also opens up on the weekends and it is almost exclusively “Low traffic”.



Figure 16. Map of traffic flow during peak hours weekdays in Västra Hamnen.



Figure 17. Map of traffic flow during peak hours weekends in Västra Hamnen.

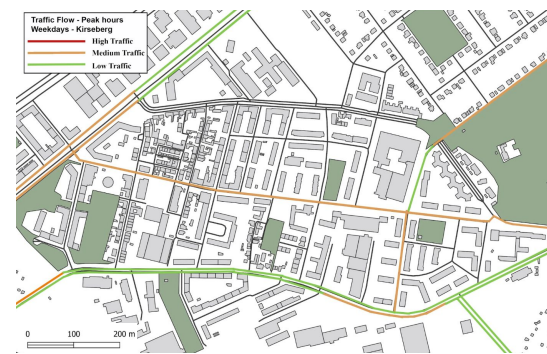


Figure 18. Map of traffic flow during peak hours weekdays in Kirsebergsstaden.



Figure 19. Map of traffic flow during peak hours weekends in Västra Hamnen.

DEMOGRAPHY

Statistical data from Malmö stad show that in the year 2021 the total population in Västra Hamnen was 12409 registered inhabitants and in Kirsebergsstaden 5309 inhabitants. Diagram 1 shows how the population of the two districts are divided according to share of population in age categories. The category constituting the share of working population between the ages 20-64 dominate both districts and the small differences makes the population in Kirsebergsstaden slightly younger in comparison to the population in Västra Hamnen. The category in the age 6-15 only differ by one percent but a general estimate is that every tenth person in both districts are primary school children.

When comparing the household sizes (diagram 2) we can see that single person households and multiple person households are more common in Kirsebergsstaden. Where as two, three and four people households are more common in Västra Hamnen. A possible conclusion is that smaller family households are more common in Västra Hamnen and larger family households are more common i Kirsebergsstaden.

An interesting statistic shows the development of private car ownership in the two districts. While the share of private cars in Kirsebergsstaden has remind quite stable around 23% of private car owners, the share of private cars in Västra Hamnen has decreased over time from 35% to 25% even though the population has increased with the expansion of the district from around 3000 to over 12 000 inhabitants between the years 2006 and 2021 (Malmö stad C, u. å.).

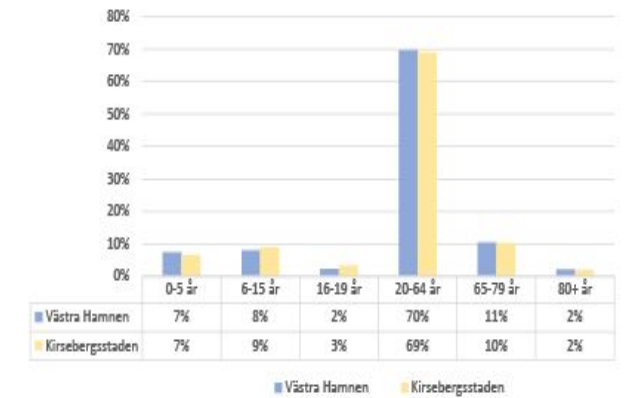


Diagram 1. Statistical comparison of population by age group in Västra Hamnen and Kirsebergsstaden in 2021.

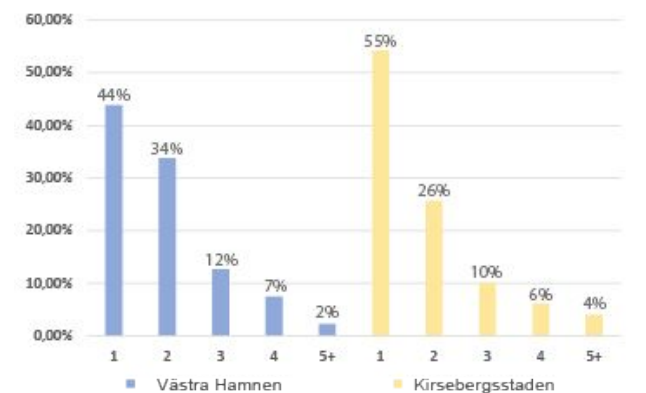


Diagram 2. Statistical comparison of household size in Västra Hamnen and Kirsebergsstaden 2021..

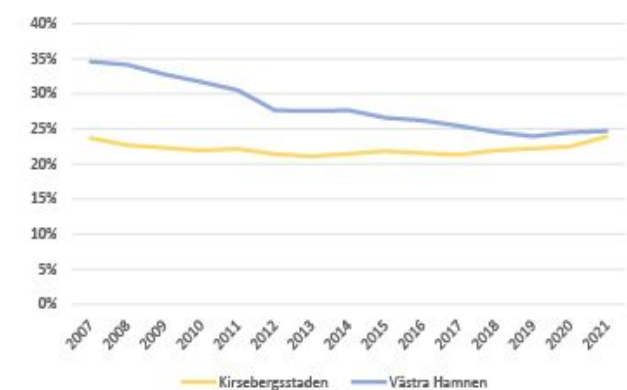


Diagram 3. Private car ownership in Västra Hamnen and Kirsebergsstaden between the years 2006 - 2021.

UTILISATION

SURVEY

This study include a survey where we asked kids in Kirsebergsstaden and Västra Hamnen about their public transit habits. The survey shows that a lot of the kids walk to school and many transport with their parents. We can also see that none of the kids usually get to school by bus.

Very few of the children have ridden the bus by themselves and many wants to ride the car instead of the bus. But at the same time there was only one child who said that one didn't like to ride by public transport. All the others said that it was fun, exciting or other great qualities. Only a few wrote that they didn't want to ride the bus because they got sick.

The result shows clearly that the use of public transit among children is low and that the car is preferable to them. But it also show that there is potential for a change owing to their good thoughts about riding the bus.

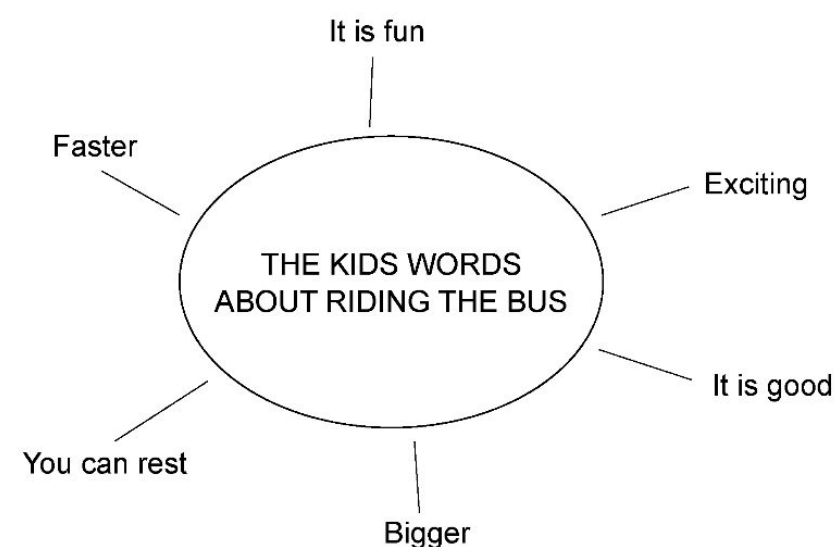


Figure 20. Answers from the kids from the question "What do you think about riding the bus?"

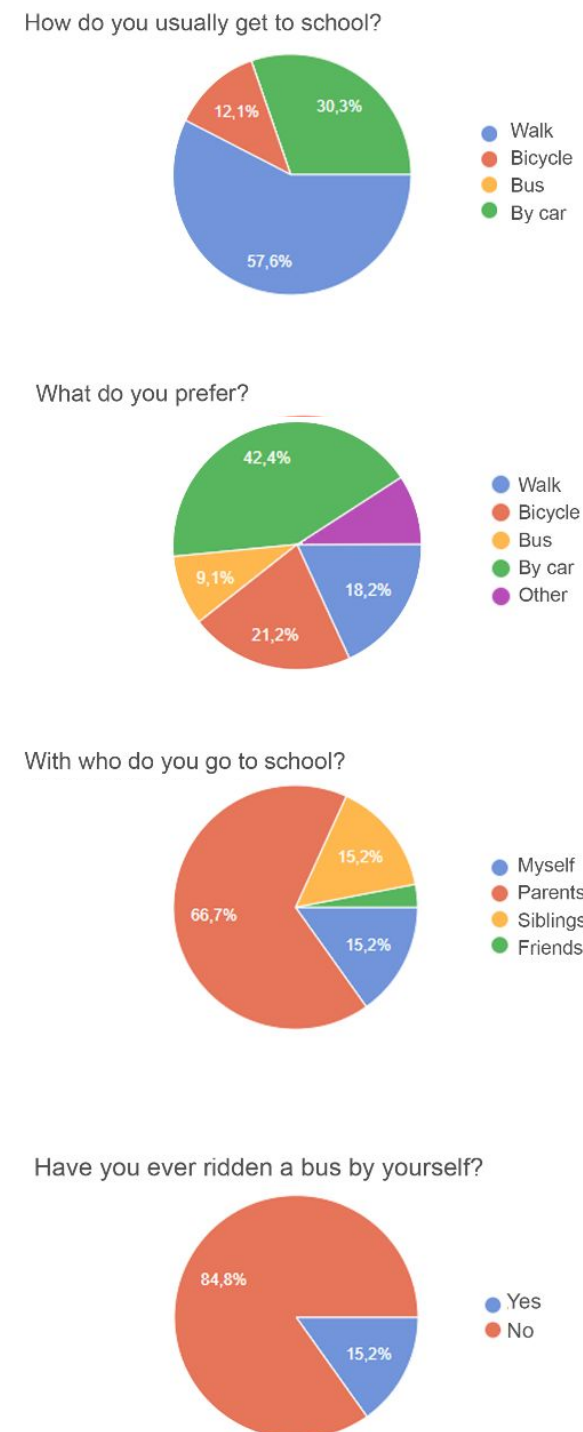


Diagram 4. Answers from the children on four questions from our survey. Shown in percent.

KIDS SAFETY IN TRAFFIC

Spacescape (2022) categorize some factors that may make the street unsafe. Fast cars and bicycles, bad sight, tight streets, bad light and lack of pavement and pedestrian crossing. It is easier to feel safe in traffic if the streets have fewer cars and lower speed. But also if people feel seen and are able to see further. Having a great amount of lightning especially in the winter increases this feeling. It is also possible to create an environment where the drivers feel calm and automatically drives slower. If having experience with traffic and the neighborhood creates traffic safety. To increase the experience children have to feel a freedom of movement. Make them feel independent and secure creates traffic safety.

Spacescape (2022) shows that 29% of the kids in eleven years of age sometimes avoids some places because of unsafe traffic and 36% doesn't go out in the dark because of traffic. 25% have parents that never or usually not let them out alone because they feel that traffic is unsafe. 57% of the kids choose routes to school with most impact of where they feel safe. For children around eight years of age the share of parent who do not let them out is generally higher. 47% of the parents never or usually not let them out alone because of unsafe traffic. And about the same percent for the rest of the results. For the kids in preschool the percent of parents who never let them out because of unsafe traffic is 64%.

ANALYSIS

Based on our analysis and inventory of the areas Kirsebergsstaden and Västra Hamnen, we can draw conclusions linked to the quality of the streets. We have seen the differences in both infrastructure, morphology and street network. Västra Hamnen is one of the newest areas in Malmö, which began to develop under 21 century and has a street network system that is well established for both walking, bicycle and public transport. The paths are divided into different types of transport for the sake of safety. Compared to Kirsebergsstaden, which was built during the 16th Century and does not have the same infrastructural standard on bicycle, walking and public transport. The biggest deficiency in the street network in Kirseberg is the few bicycle paths that are in the area, compared to Västra Hamnen which has a path almost wherever you want go.

We chose to invent public transport and map the quality of the roads from the school to the bus stop to see how the safety for the children. In both areas, there is accessibility of 350 meters walking to and from schools to a bus stop. In Västra Hamnen, the route is divided by bicycle and walking and there is a "safe zone" of vegetation from traffic, which creates an extra security for the children. In Kirseberg, there is no clear division of bicycle and walkway for the children to go from the bus stop to the school. There is also no vegetation that is separated from car traffic and instead of the vegetation, cars are parked along the streets that reduce the visibility for road users to see the children. Street parking in Kirsebergsstaden is a problem for the children's safety because there are parked cars on every road from school.

We created a survey to analyze the children's choice of transportation to school and to get input in how they feel about traveling by public transport. We contacted the schools both in Västra Hamnen and Kirsebergstaden and managed to get inputs from about 40 children. When we compiled the surveys, the childrens did not

choose the bus as a mode of transport to the school, instead they went by car with a parent. Why the children do not choose to ride a bus depends on various reasons according to Malmö Stad. (Spacescape, 2022). The main reason depends on the security perspective of the parents, regarding both visibility from cars in traffic and in concern for the children to go by themselves. In Kirsebergsstaden, we have seen that there are many street parkings that obscures the view from the children and that schools cannot be seen from the bus stops properly, which we think must be improved.

PLANS AROUND THE DISTRICTS

There is a future overview plan for both Västra Hamnen and Kirsebergsstaden, which we have read through to supplement our proposal. In the overview plan of Västra Hamnen, we see ongoing renovations and construction of student housing and condominiums. There are also planned buildings for both secondary schools and elementary schools in the area of Citadellsfogen and Masthusen. Public transport in the area will have increased mobilization with an improved connection between Styrmansgatan and Västra Hamnen. At last, there are plans to establish a first stop for a Öresundsmetro in Galeonen which has still to be decided, which would create a connection between Copenhagen and Malmö (Malmö Stad, 2022).

In overview plan of Kirsebergsstaden, there are plans for a new district for schools, housing, workplaces, parks and businesses located in the southern part, in Järnvägsverkstäderna. Complementing the new district in the Railway Workshops, a new bus route will run on Södra Bulltoftavägen for increased mobilization in the area. There are also plans for train traffic with the Simrishamnsbanan which is planned for Malmö city to create a connection with Staffanstorp, Dalby, Veberöd, Sjöbo, Tomelilla and Simrishamn, where one of the stations will be in Östervärn. (Malmö Stad, 2022)



Photo 3. Old houses in Kirsebergsstaden.



Photo 4. View over Västra Hamnen.

PROPOSAL

SUGGESTIONS FOR CHANGES

In our proposal we will present some suggestions changes i Kisebergsstaden with the main purpose of improving transport for children.

PUBLIC TRANSPORT FOR CHILDREN IN KIRSEBERGSSTADEN

The bus lines and bus stops going through Kirsebergsstaden today cut through the centre of the district. Our suggestion is to replan the bus lines to use the streets Norra- and Södra Bulltoftavägen instead of through the centre of Kirsebergsstaden. The reasons for our suggestion to change the bus lines to go around the centre are divided into three:

1. Reduce hevv motor traffic in general through the centre, making it more pedestrian and bicycle friendly and thus creating a zone that is safer for children to move around.
2. Moving the bus stops closer to schools to enable mobility for children if they have a further distance between their home and school which is the more frequent trip that children need to make almost every day.
3. We take the future expansion and development of the area, in the south of the district into a residential area, into account by enlarging the catchment area for public transport. The catchment area and bus stop will most probably have to be expanded further when the development is finalized.

Our focus has been to give children better opportunities to become more mobile and thus placing bus stops closer to schools. The possible risk with this change is that other activities might suffer from becoming less connected if nodes of public transportation are moved or taken away. But by improving sustainable transportation in the direct proximity to schools we hope for the possibility to reduce the necessity for car traffic when children are driven to school by adults every weekday.

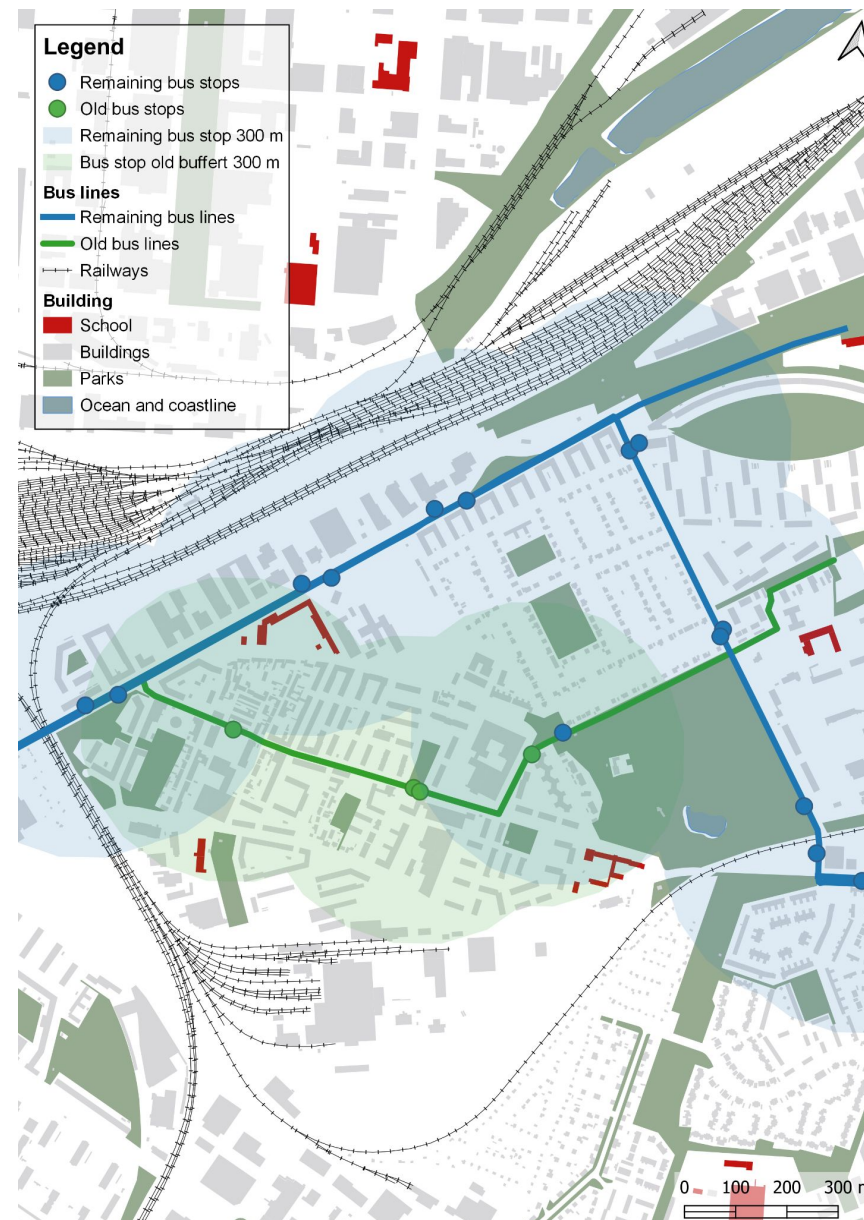


Figure 21. Bus stops, bus lines and catchment areas going through Kirsebergsstaden **before** the implementation of proposal.

The optimal solution would have been if every elementary school would be situated with a bus stop close by, in some cases the distance between bus stops and the catchment area for potential passengers in residential areas also needs to be take into account meaning that sometimes the bus stop needs to be placed further away from a school.

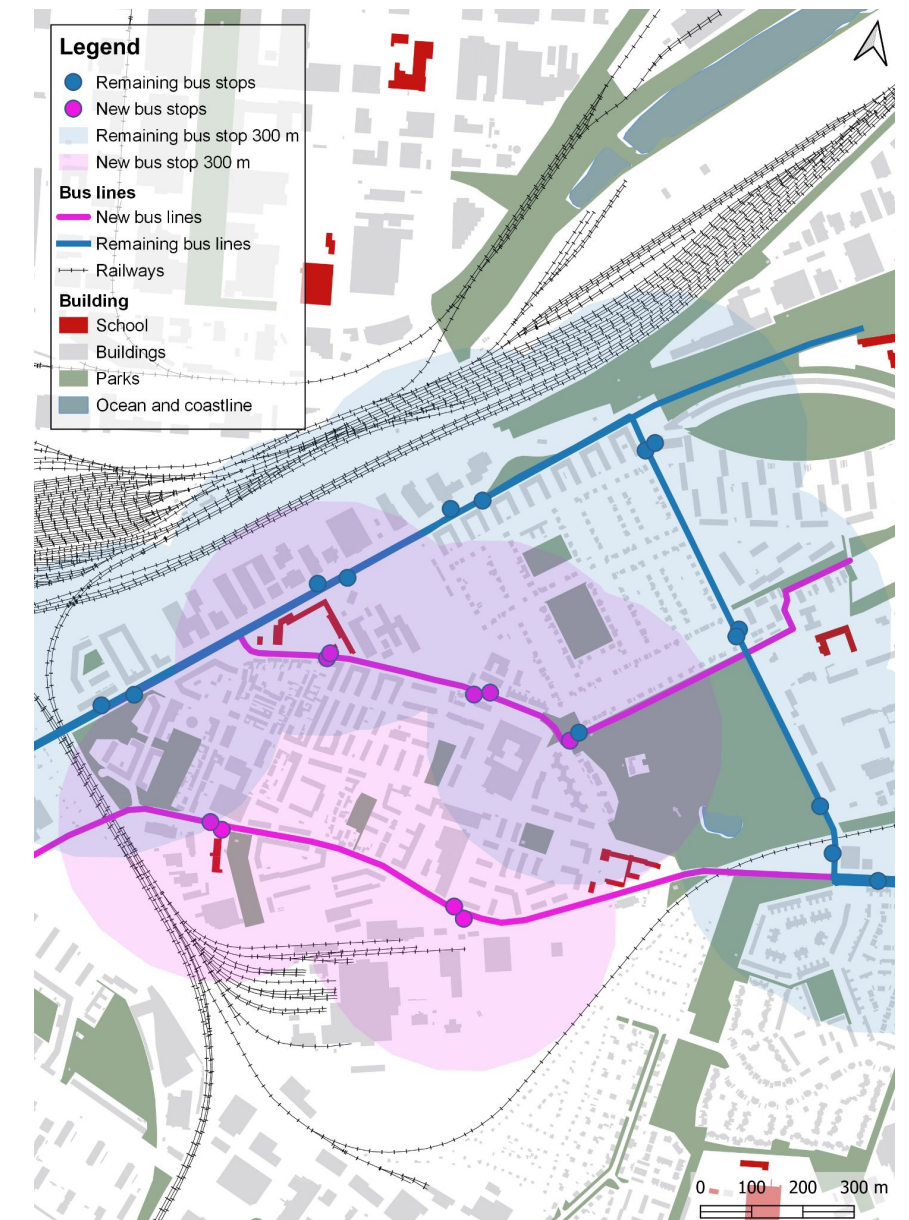


Figure 22. Bus stops, bus lines and catchment areas going through Kirsebergsstaden **after** the implementation of proposal.

In these cases there are other possible solutions to make school children better finding their way between school and bus stop that are secondary to the proximity factor but still functional. This is presented more in detail later on.

PROPOSAL

CHANGE OF STREET STRUCTURE

This proposal is based on changing the street structure in Kirsebergsstaden. Based on Norra Bulltoftavägen, we have taken inspiration from Västra Hamnen and their street structures. In Västra Hamnen, a high priority is placed on walking, cycling and public transport infrastructure. In Kirsebergsstaden, the infrastructure is dominated by cars. Norra Bulltoftavägen is today a road with parking spots along both sides and only one car lane in the middle. The parked cars contribute to obscured visibility along the road and because of that reduce the safety.

Along Norra Bulltoftavägen is Kirsebergsskolan. We have chosen to focus on children in traffic and therefore our focus became to make Norra Bulltoftavägen more traffic safe for children. In this proposal, as mentioned earlier, we have chosen to place a bus line along Norra Bulltoftavägen and Södra Bulltoftavägen. In order to create a street structure that accommodates buses in both lanes, we chose to remove street parking. This also contributes to better visibility along the road, which increases children's safety in traffic. With inspiration from Västra Hamnen, a green lane was placed between the cycle path and the car path. This creates greater distances between car traffic and pedestrians and bicycles, but greenery also contributes to influencing people's behavior in traffic, for example by signaling a lower speed (Anding, 2008).

Another important factor is children's safety in traffic. In this proposal, we have reduced the priority of cars and instead focused on cycling, walking and public transport. To increase children's road safety, local knowledge must increase (Spacescape, 2022). This happens by children creating familiar environments by practicing together with adults to assess and manage traffic and in this way create a sense of security. We hope that prioritizing cycling, walking and public transport will lead to more people choosing these ways of transporting themselves and their children. Children's safety and security increases by creating a habit of handling urban and traffic environments. Children's perceived road safety has a strong connection with their independent mobility, something we hope to contribute to by prioritizing walking, cycling and public transport.

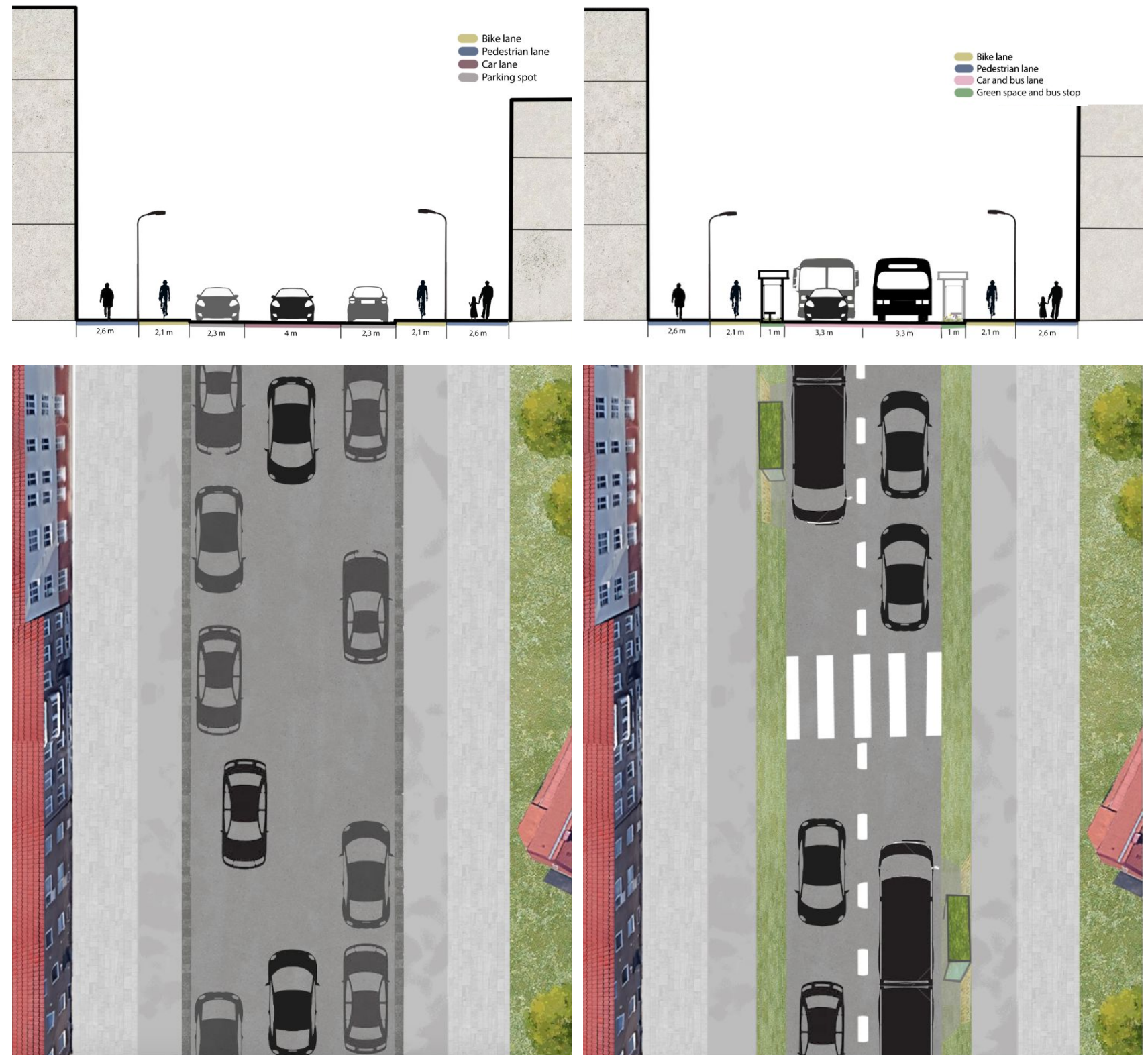


Figure 23. Section and overview of Norra Bulltoftavägen today, **before** proposal.

Figure 24. Section and overview of Norra Bulltoftavägen **after** proposal.

PROPOSAL

DESIGN OF BUS STOPS

Some slight changes near the bus stops will make it safer for kids to travel by public transit and make the parents feel calm about letting their kids out by themselves. Both the hearing and the sight is worse on children than on an adult (Trafiko, 2023). With that the child has to be able to see and know beforehand when the bus is coming. This is one of the reasons why we want to make an all clear bus shelter. Today most of them have some kind of advertising on the side. It is often placed on the farthest side which makes it possible for the driver to see inside when arriving with the bus. Although we want to remove those to make the place even safer for the kids. On the side are we going to place a fence so the kids don't walk out right behind the shelter. Children are also small which makes them harder to see (Trafiko, 2023). The bus stops are going to be provided with good lightening and no parking or high vegetation in the nearness for best possible sight (Chalmers, 2022). Witch also is due to the kids impulsiveness and lack of consequence thinking (Trafiko, 2023). We also want to change the names on the stations so the kids are able to orientate better. If possible name it after the closest school. Together with a clearer sign with a picture and distinct color. Today some of the ways from bus stop to school are the path for bicycle and pedestrians shared. To make the attention higher and street strafer we want to divide the path in two with clear markings. But also place colorful markings from bus stop to school so the kids more easily can find their way to school. The transit system will be for everyone without fear of their safety.



Photo 5. How the bus stop on Östra Fäladsgatan looks like today.



Figure 25. Shows a vision of how we want to change the environment of the bus stops for safety and potential mobility for kids.

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GIS

Information produced with GIS is made with statistical data taken from Malmö Stad or the information is produced by the authors of the report themselves.

The maps of public transport lines have taken information from the linemaps by Skånetrafiken.

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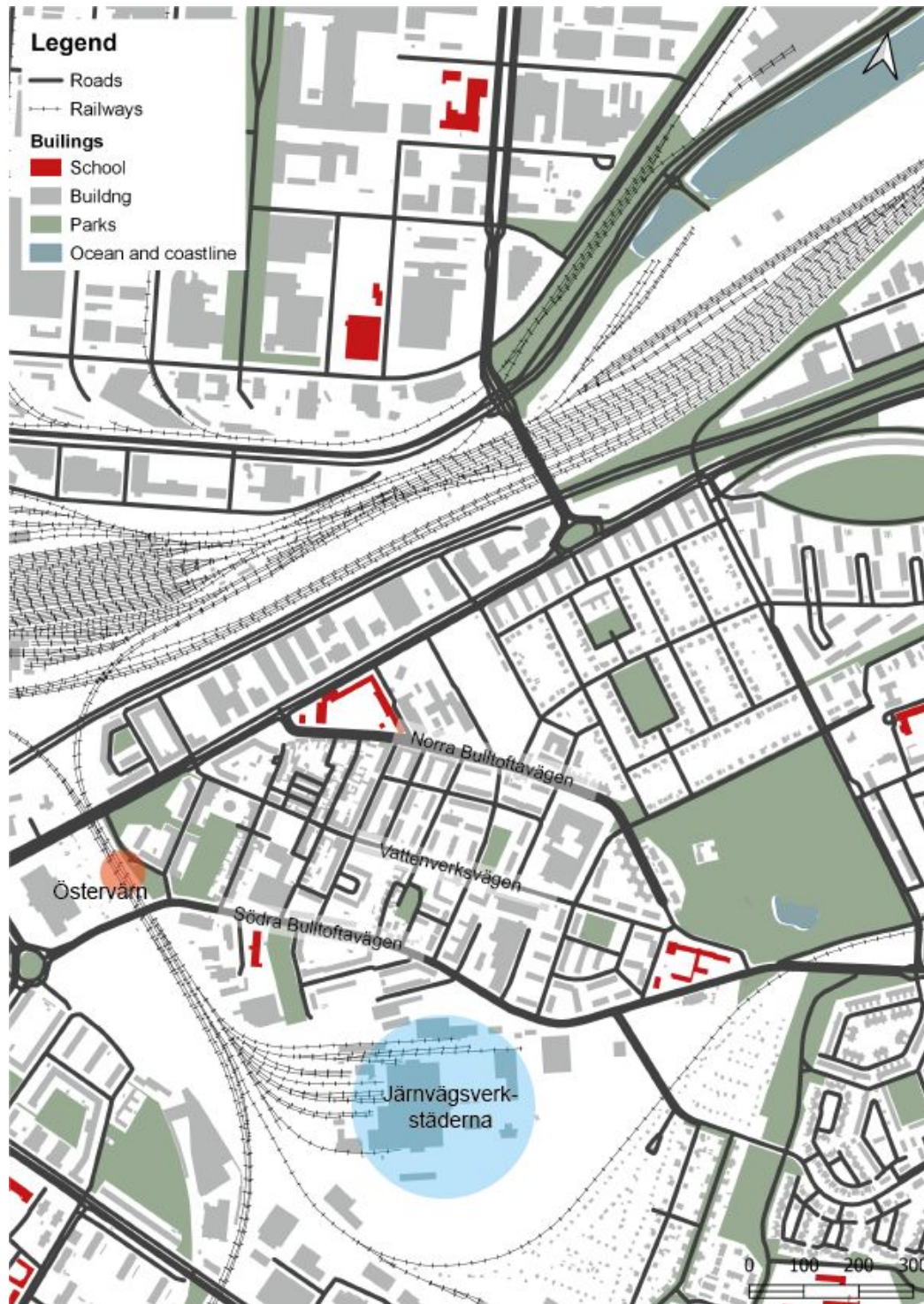
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Photo 4. Västra Hamnen. Retrieved 22-02-2022. <https://www.vhcorp.se/>

Photo 5. By Miketinac, Sandra. Bus stop today.

APPENDIX



Overview for orientation over Kirsebergsstaden and Västra Hamnen with names of areas and streets mentioned in the project.