Urban Ergonomics

A study towards a smarter use of resources, and space, in external shopping centers in Sweden using the case of Svågertorp, Malmö

Thesis project in
Sustainable Urban Design.
By: Mutaz Alabtah

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LUNDS UNIVERSITET

Title: Urban Ergonomics

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Introduction

Since the 1950s cars have played a central role in urban planning. The prioritization of cars in urban planning and design has caused cities to sprawl, which has increased the car dependency even further. Nowadays the planet is facing the consequences caused by this type of planning: climate change, carbon dioxide emissions, congestion, and health issues to mention some (Charles Montgomery, 2013). At the same time, people started moving from rural to urban areas. In 1950, only 30% of the planet's population lived in urban areas, nowadays more than half of Earth's population lives in urban areas, and the percentage is expected to rise to **68% by 2050** (UN, 2018). This means that cities still need to offer places for people to meet their everyday needs. **In Sweden, there's a need for new 60,000 homes every year until 2030 to cover the market demand, according to the Swedish National Board of Housing, Building, and Planning. This means that almost half a million new housing is needed to be built in the following eight years** (Regionala byggbehovsberäkningar 2021–2030, 2021).

Nevertheless, the awareness of the car-dependent planning problems has been raised in recent years, especially since the horizontal expansion of cities is proven not to be the best option when discussing the climate effects, Earth resources, and city livability (Charles Montgomery, 2013). Car dependency for transportation and movement is proven to cause many physical and psychological illnesses, and Earth's resources are becoming scarcer day by day. Consequently, urban designers and city planners started to focus more on sustainable development tools for city expansion, such as urban infill, urban densification, zero-carbon buildings, etc.

One of the most underutilized spaces generated due to car-centric planning are parking areas, places where people leave their vehicles for a certain amount of time. The vast majority of these places are only used to serve this purpose, which makes them act as interruptions for the cities' life and disarticulations of their walkability and permeability. Most importantly, such real estate is centrally located and very valuable. The clearest presence of such spaces is the external shopping centers or the big-box stores.

External shopping centers, literally translated from Swedish "externa köpcentra" are also called big-box stores, power centers, or superstores. They all describe the edge-of-town or out-of-town retailers that tend to be large in size and box-shaped structure (ICSC, 2017). These areas are usually attractive for consumers as they offer free parking, and generous discounts and are easy to reach by car.

In the 80s and 90s, the concept of the external store became more common in cities around the world. These areas of shopping are far away from the town congestions, usually close to the highways, which led to making them new city nodes that are easy to access by car. This, though, only exacerbates the matter. Most of the town center stores either closed or moved to those nodes that are cheaper to rent, then they can offer sales that attract more consumers (Bergström, 2000).

These places are taking up extremely wide spaces, and offer free ground parking and wide streets. Buildings are often one to two floors with no openings, the descriptive name big-box fits these buildings well. Most of the external shopping center spaces are barely used except for the weekends and the evenings of weekdays.

In my thesis, I will examine the physical characteristics of such places and discuss the future of shopping and the future of parking as a result. **External shopping centers have the potential of being a new node of livable neighborhoods, and their areas can be a great supply for city densification. I will take Svågertorp as an example (an external shopping center in Malmö, Sweden), while many places in Sweden and all of Europe are facing the same issues.**

Why Sweden?

In addition to being the country where the author studies his master's program, Sweden is the country in Europe with the most square meters of external retail space per inhabitant (Jordens Vänner Helsingborg, 2016). While a pedestrian revolution is happening nowadays in the country, areas such as external shopping centers are still appearing everywhere in the country.

Why Malmö?

Malmö is the third biggest city in Sweden and the fastest growing (City of Malmö, 2016). The city is seen as a manifestation of car-centric planning as well. The city population almost doubled in size in the last 70 years (Malmö population 2022, 2022). Even though Malmö is being promoted as a sustainable city, an external shopping center (Svågertorp) has emerged at the beginning of the 21st century.

Method and Structure

Research method

The research that has been done to accomplish this thesis is qualitative, the author has built his conclusions on literature review, and interviews with researchers and decision-makers. In addition, the author has analyzed data regarding the thesis topic using maps and aerial photos. Most of the data the author analyzed are available online or accessible by the public.

The literature used in the research is two parts, one is the written literature: books, websites, previous theses, and articles. The other part is architecture and planning work; projects that have been done to solve the same problem or were done in the region to understand the context and the trends. The author used Malmö municipality plans as a reference to understand the past, present, and future overall plans of the district, and its surroundings.

The author has conducted seven interviews. Most of them are with professionals who work in the planning sector, and public and private stakeholders. The interviews were a starting point for the argumentation part of the thesis, where most of the findings from the literature were confirmed by the interviewees. The seven of them helped with supportive materials, feedback, and insightful comments.

The maps and aerial photos were used to analyze the physical characteristics of the site and its context. Three visits to the site were conducted to understand the social context and examine the area, drone footage was taken to investigate these qualities even further.

Thesis structure

The thesis is divided into three main parts, the first is the overview, and the second is the site analysis for the selected area, followed by a design suggestion for the area.

The first part includes a historical introduction to the main thesis topics (Parking lots, and external shopping centers). This introduction answers the question of what happened so we are here. It helps to clarify the evolution of the shopping experience from the late 19th to the early 21st centuries. The historical background will be discussed in two sections, one focuses on car-centric planning and the 20th-century planning trends in Sweden and the world, and the other will discuss the social aspect of shopping in the light of the first section.

The current situation will be discussed thoroughly in the first part as well, a general expose of the scene of Sweden and Malmö. Malmö, the third biggest city in Sweden, has been chosen as an example since it is the fastest growing city in Sweden, with a 326,100 population, which is expected to be 354,100 by the year 2030 (Malmö population, 2022). The city has undergone rapid improvements throughout the last century, illustrating the ideas of the modernist movement clearly. Svågertorp, which was first established as a monotonous commercial zone in 2002, is a clear example of the late 20th and early 21st centuries' space commodification as well.

The second part focuses mainly and mostly on the chosen site, a physical and social analysis of it, and what plans the municipality of Malmö has for the neighboring areas. Noting that no plan has considered Svågertorp, while the east of the site is planned to be one of the largest botanical gardens in the county, and the west of it is planned to have mixed-use of housing, businesses, and park areas (Malmö SBK, 2019, Lindängelund, 2013).

The third part is a suggestion for future Svågertorp. Based on the vision of "urban ergonomics" the design aims to phase out from free accommodation for cars to car-free areas and introduce nature and housing as an important part of creating a livable and walkable district. The suggestion is followed by a conclusion and closing with a comparison of the situation now versus the optimum situation based on the designer's vision.

Research questions and the working hypothesis

The research is built on three arguments. First is that **the future of transportation and commuting is where people will be relying more on shared means rather than private vehicles**, so the need for parking places and wide streets will be questioned.

The second is the urgent need for housing units to respond to city growth in Sweden. **Nearly 700 thousand more housing units will be needed in the following decade in Sweden** (The local, u.d.). These housing units need not only to be built soon but also be affordable and well located.

Last but not least, the thesis will discuss **the importance of proximity in future cities to support the previous matters**. Less commuting means less need for a car, which means extra space for people to live and interact, indoors and outdoors.

Research questions

- What are the external shopping centers and what are their characteristics?

- What role do parking lots play in shopping user behavior and why so?

- How can we adapt new vivid city nodes for the needs of today and tomorrow?

- What are the functions and typologies of buildings that can be built in such areas to respond to the city's needs?

- What roles can agriculture and landscape play in these future nodes?

- How is this represented in architecture and urban design language?

"After shops have become limitless in size, after shopping has overtaken all activities, and after all aspects of our lives have been quantified and analyzed, shopping will still find another vehicle by which to survive and expand.

In the end, there will be little else for us to do but shop"

(Sze Tsung Leong, 2001 quoted by Englöv, 2018)

Limitations

Of course, not all world problems can be solved by architecture, but the buildings are the clearest evidence of civilization, while previous civilizations left valuable buildings behind, we are leaving endless asphalt carpets that, in many ways, are not humanistic. We are leaving behind tons of waste, and unprecedented forms of consumption.

The places we visit the most, after homes and workplaces, are consuming places, with an average of 1 trip every 2 days (Caroline Ljungberg, 2012). While this thesis will focus on the physical aspects of the problem, the social, economic, and political aspects are the greatest. If we reach a point where we consume wiser, where the public and private sectors are pushing towards more inclusive spaces, then this thesis, among many, can find a use, where city spaces are planned to be more vivid, more walkable, and more sustainable.

In that matter, for example, according to Fastighetsägarna Stockholm, the parking policy is making the housing shortage problem even worse in Sweden. **According to their report, parking policies such as minimum parking increase the house's construction cost by an average of 15% without creating a higher value for the real estate. This extra cost is usually paid by the tenants who own cars and those who don't. The report also claims that if these policies change to less than 1 parking per unit, the construction speed will be higher by 20%. Adding to that the spaces that can be offered to the public as green or public spaces instead of seas of asphalt contribute to 50% of construction's carbon dioxide emissions** (Högt parkeringstal skapar problem för nyproduktion, 2020).

Definitions

Economy: The careful use and management of money or of time, energy, words, etc. (Cambridge Dictionary, u.d.)

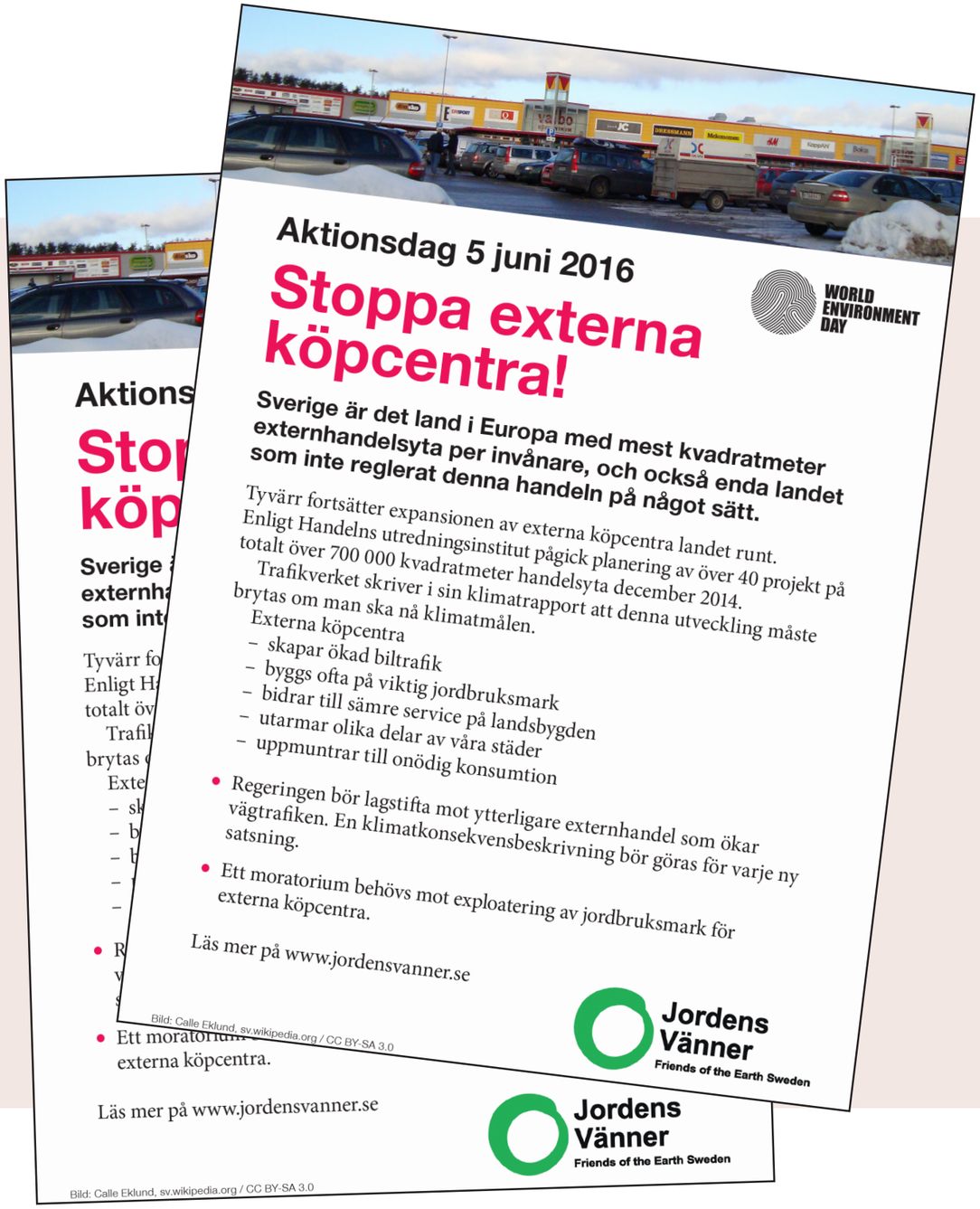
Ergonomics: The scientific study of people and their working conditions, especially done in order to improve effectiveness. My aim in naming my thesis **Urban Ergonomics** is that I want to discuss the effectiveness of urban spaces using the discussion of how the physical environment affects our lives, our consumption and production, on the urban and architectural levels.

Big-box store: A very large shop, built on one level and located outside a town, which sells goods at low prices. (Oxford learners dictionaries, u.d.)

Shopping: The activity of going to shops and buying things or ordering them online. (Oxford learners dictionaries, u.d.)

Consumerism: The belief that it is good for a society or an individual person to buy and use a large quantity of goods and services. (Oxford learners dictionaries, u.d.)

Parking: the act of leaving a car somewhere for a period of time.(Cambridge Dictionary, u.d.)



The flyer on the opposite page (in Swedish) is part of a campaign done by the Friends of the Earth Sweden organization. It says:

"Stop external shopping centers!

Sweden is the country in Europe with the most space of external retail space per inhabitant, and also the only country that has not regulated this trade in any way.

Unfortunately, the expansion of external shopping centers continues around the country. According to the Trade Research Institute, planning was underway for more than 40 projects on a total of more than 700,000 square meters of retail space in December 2014. The Swedish Transport Administration writes in its climate report that this development must be broken if the climate goals are to be achieved.

External shopping centers
- creates increased car traffic
- is often built on important agricultural land
- contributes to poorer service in rural areas
- impoverishes different parts of our cities
- encourages unnecessary consumption

• The government should legislate against further external trade that increases road traffic. A climate impact assessment should be made for each new investment.
• A moratorium is needed against the exploitation of agricultural land for external shopping centers.

Read more: www.jordensvanner.se"

Historical Background i

Car-centric planning and fragmentation

Since the 1950s cars have played a central role in urban planning. The prioritization of cars in urban planning and design has caused cities to sprawl, which has increased the car dependency even further. Nowadays the planet is facing the consequences caused by this type of planning, global warming, local emissions, congestion, and health issues to mention some (Charles Montgomery, 2013).

This problem was well addressed by the author of the following passage describing the problem of car-oriented planning in the Metropolitan City of Toronto:
"Continuation of this trend would have very grave consequences. As these low-density areas do not generate sufficient traffic to support public transportation adequate in terms of closeness to home and frequency, and as distances to shops and other community facilities become excessive for walking, the residents have to rely more and more on the use of the private automobile. This inevitably results in growing street congestion throughout the area. The cost of overextended systems of streets, sanitary services, and other utilities must ultimately be borne by the residents in increased housing costs, taxes, and local improvement charges." (Quoted by Meslin, 2022)

The expansion of Malmö, the third biggest Swedish city has followed the same pattern. With the same mindset, more sprawled areas were established, between the years 1955-2000. More separated neighborhoods, and more farmlands and the natural landscapes turned into streets and sealed surfaces. As aerial photos on the opposite page show.

This type of planning led to a massive need for parking, for every home, and in front of every store. **In Sweden, there are 2.5 parking places for every person** (Ny rapport: Färre parkeringar ger fler bostäder, 2020), making the parking area per person higher than the living area per person. **These sealed areas with only one use are the same size as Gothenburg.**

Figure 01: An aerial photo over Malmö 1955-1967.


Figure 02: An aerial photo over Malmö 2014.

In Sweden, 60% of the housing is from the 1950s to the 1990s(Nyréns, 2020). The community planning and housing construction during this time saw the car as a symbol of growing prosperity. Streets, highways and parking areas were dimensioned to cope with large and growing traffic volumes. Many areas consisted of only one type of housing and large spaces for parking (See figure below).

This way of planning was following the planning trends in the same period. It can be seen as a manifestation of the Multiple Nuclei Model 1945 by Harris and Ullman.

In short, the model suggests separating the city into zones and functions based on land use as described in figure 03.

The model is widely criticized because each zone displays a significant degree of internal heterogeneity. Abrupt divisions between zones (Multiple Nuclei Model, 2020) make areas segregated based on income, status, or ethnicity. It also promotes fragmentation and car dependency.

These separators can be clearly seen between districts in Malmö, and often they are streets with high speeds.

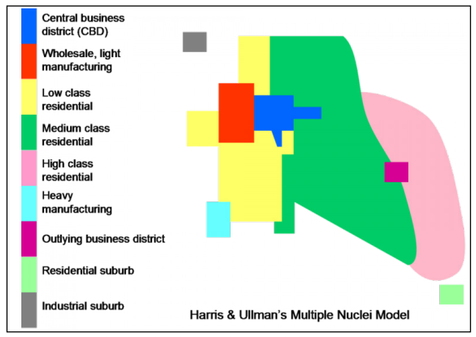


Figure 03: The Multiple Nuclei Model

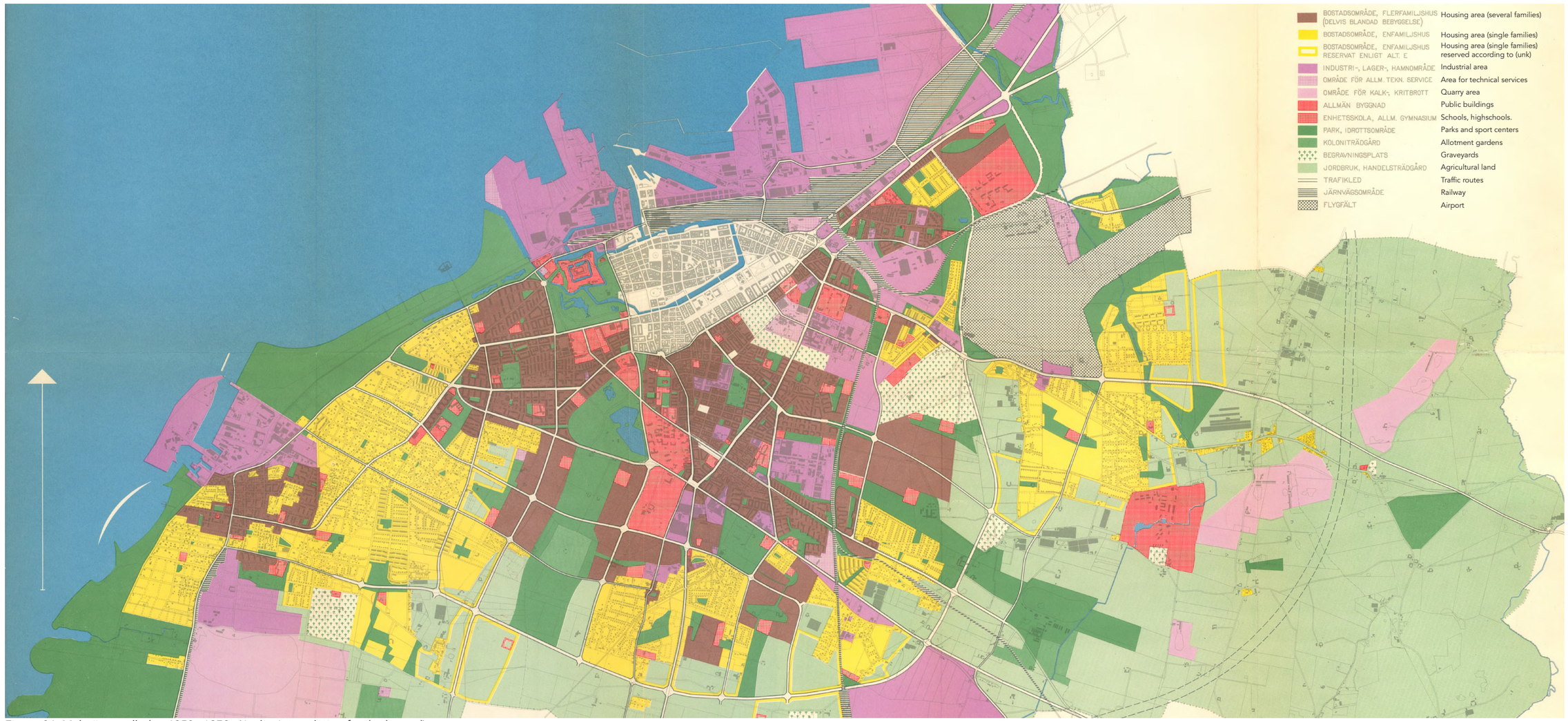


Figure 04: Malmö overall plan 1950s-1970s (Author's translation for the legend)

Within this period, the million housing program (Swedish: Miljonprogrammet) emerged; a public housing program implemented in Sweden between 1965 and 1974. The ambitious project aimed to construct a million new dwellings in ten years (Miljonprogrammet, u.d.). The program projects are criticized for having concrete as a building material with poor design and a poor outdoor environment. Residential buildings and outdoor environments are worn out and many parking facilities are in poor condition (Englöv, 2018).

Despite the improvements in the mobility sector that came later in the 80s and forward, most of these areas still have the same amount of parking lots. This makes these spaces vulnerable and unattractive to the city residents. A survey conducted by Trivector for one of the Miljonprogrammet districts shows that 80% of the residents use other means of transportation than cars (Trivector, 2022). Another study quoted by Nyréns says that up to 80% of car owners are willing to use carpooling or car sharing instead of owning their own cars (Nyréns, 2020). Such a solution is important to move forward in our planning methodologies. **A study made by Trivector says that on average, one shared car replaces 5 private ones** (Karin Neergaard, 2017).

External shopping centers, such as Svågertorp, were a natural result of such planning methodologies. While cities were sprawling, traditional ways of shopping were not convenient anymore, **it was the norm to see cars taking people from the place where they live to the place where they do their shopping**. This attitude led shopping areas to start emerging in many countries around the world, including Sweden. This topic will be discussed further in the next section.

Figure 05: Högaholms, Malmö (built in the 1972) - Google maps

Figure 06: Kastanjegården, Malmö (built in the 1975) - Google maps

Figure 07: Kastanjegården, Malmö (built in the 1975) - Google maps street view

Figure 08: Drone footage of Svågertorp, the thesis project site.

Historical Background ii

How did the Big-box stores emerge?

One of the clearest manifestations of the fragmentation and car dependency planning problem is the external shopping centers, but how did they appear, and why do they look like that?

To answer these questions one needs to understand the evolution that happened to the shopping process itself. Starting from the pre-industrial times until now.

In a pre-industrialized Sweden, there were too few transactions that are based on needs rather than desires, these transactions mainly happened in the small stores (**handelsbodar**) and the periodic markets (Bergman, 2003 by Englöv, 2018).

In the times of industrialization, a new social class has emerged, the bourgeois (**Bourgeoisie**). This new social class took the opportunity to influence the whole urban life of European cities, our present point of view on the urban realm, where everyone has the right to be in the city, to circulate freely in the urban sphere as Jürgen Habermas describes it (Habermas, 1962 by Englöv, 2018).

Figure 09: Rural trade in Värmland (1912) - wikimedia.org

People representing this social class started to establish Cafes, restaurants and hotels, visiting these places, shopping and being present in the public were seen as consolation to this movement. Furthermore, everyone's presence was considered important and people should have the ability to meet and see one another regardless of their social status. Based on those circumstances, topics that before were monopolized by the church could be discussed (Bergman, 2003 by Englöv, 2018).

The storefront and the department store

Figure 10: Södra Förstadsgatan 47, Malmö - https://bilderisyd.se/

Along with the industrial revolution, steel and glass became a common construction material, the wide glazed facades became more inviting to customers as it shows the goods from outside, and the street lights have fundamentally changed the urban fabric of the cities. In this era, the storefront typology became more common. This can be seen as a major change in people's behavior, where the interest in goods started to be dominant (Bergman, 2003 by Englöv, 2018).

Because of the population growth, the location of the store played a vital role in its importance and revenues. That's when city centers started to change, and the ground floor in many buildings there started to be used as stores with glazed facades. As a result of the increased flow of people, the socialization part of shopping became more of a bother to others who come to buy, and stopping to wave to people became an unusual act. This, many argue, was the beginning of the department store's typologies (Bergman, 2003 by Englöv, 2018).

At the beginning of the 20th century, a new series of department stores emerged, Epa's, Tempo's (Åhlens currently), and later on Domus. These department stores were large and were let with electrical lights. With their standardized products and uniform prices, these department stores have sowed the seeds of the new "shoppers" where you can buy the same product at the same price no matter who you are or where you live. One can argue that their success was referred to the modernist movement, where the future is free from the hierarchy of the past (Bergman, 2003 by Englöv, 2018).

Figure 11: Wessels, the first supermarket in Sweden (Malmö 1962) - http://gamlavykort.nu/

Figure 12: Mobilia, Malmö 1979 - https://bilderisyd.se/

In the period of the 1950s-1990s, the same period of the fragmentation and car-centric planning, new American-originated shopping centers started to appear in Sweden (Bergman, 2003 by Englöv, 2018). Where urban planning was based on mono functionality, separation, and fragmentation. The highways and ring roads became the main streets of cities at that time. These big-box stores, which are well connected to these highways, had cheap land prices, where they are built at the edge of the towns or outside the towns. This allows retailers to acquire bigger lands and offer a larger variety of goods at prices that traditional retailers cannot compete with. Car parking places were offered as an attraction to customers, as the glazed facades were once.

The zoning of functions has created areas that are only for living, areas that are only for shopping, areas that are only for work, and so on. This treatment of the city in a way that is a building or interior space, created great separations between the areas that cities are still suffering from. Malmö is a clear illustration of the problem, where the planning of the city has followed the multi nuclei model 1945.

Figure 13: Wessels, Örebro (the place provided 2500 parking place) - www.fri-kopenskap.se

Figure 14: Guldheden torg, Gothenburg1945 - digitaltmuseum.se

Figure 15: Farsta centrum, Stockholm 1967 - digitaltmuseum.se

In his book (Liquid modernity) Zygmunt Bauman paints a picture of the social dimension of these places that emerged in the 80s (Temples of consumption as he describes them):

A public yet non-civil space that transubstantiates the city resident into a consumer. Such spaces encourage action, not inter-action.

Sharing such spaces with others engaged in a similar activity adds importance to the action, stamps it with the 'approval' and justifies it without the need to argue.

Any inter-action between the actors would keep them away from the actions. It would add nothing to the pleasures of shopping while distracting mind and body from the task in hand. (Bauman, 2000)

Figure 16: photo by author shows the walkways situation at Svågertorp.

Figure 17: Drone footage of Svågertorp, the thesis project site.

Situation Today

Sustainability between theory and practice.

After the construction boom in the sixties and seventies, the Swedish market changed, giving more room for private actors to influence city development. **Therefore, from the 80s and forward, it was common to allow private investments to set the agenda for urban development, enthusiastically approved by the municipalities, and driven by the jobs and the expansion these private actors would have provided** (Englöv, 2018).

A clear example of such movement is the western harbor in Malmö (Bo01) where starchitect Santiago Calatrava's design of the turning torso tower was built. The project of Bo01 was highly criticized by many, as it promotes good living conditions and sustainability, yet only the richest can afford to live in it.

Such exclusive development continues to make its presence in Malmö. Hyllie, the most recent developing area in Malmö is following the same pattern, while it is promoted to be the future of urban development, many argue that the development of Hyllie neglected the social grain of Malmö and the city's actual needs, and focuses more on inviting Danish people who want to flee the skyrocketing prices of housing in Copenhagen (Baeten, 2012).

The privatization of Malmö lands has become more common. Svågertorp is mostly owned by private owners. The 100 hectare has only one use for retail. The place that was once farmlands of the rich Skåne sands, is now fully sealed with parking lots and one-floor box-shaped buildings. While many believe that such developments provide more job opportunities, it does merely move opportunities from one place to another. see figures 18 and 19 (Englöv, 2018).

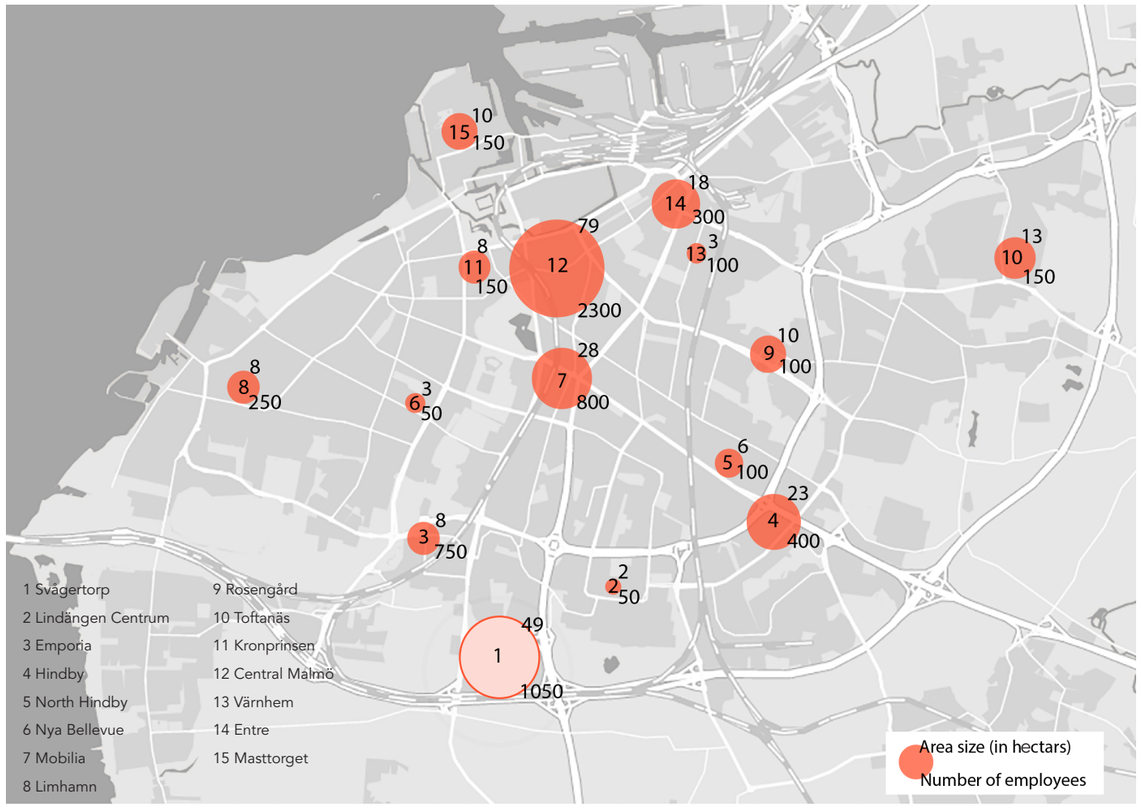


Figure 18: Large store areas in Malmö, their size and number of employees (Department of statistics, 2015, author's map visualization)

Year	Number of stores (daily good)
1951	35000
1960	23000
1970	13000
1980	9200
1990	8300
1997	6590
2007	4430
2017	3100

Year	Number of Hypermarkets (larger than 400 m²)
1951	-
1960	25
1970	800
1980	1550
1990	1860
1997	2060
2007	2005
2017	2137

Figure 19: Number of stores and big hypermarkets from 1951 to 2017 ((Elvingson, 2001), (Englöv, 2018))

Why We Buy?

To understand the motivation behind shopping centers' design, their architecture and planning, we need to understand the act of shopping as the main driver of shaping such spaces. The customers' love of shopping and their tendency to shop more is, in fact, a major factor that makes these spaces grow in size and the items vary in options.

When people shop, their bodies release dopamine, the hormone that makes us feel good. Additionally, an assistant professor of marketing at the University of Michigan Scott Rick, claims that if we are feeling sad, shopping will make us happier because it restores control over our lives. So the more we shop, the better we feel (Borzykowski, 2015).

When we purchase some items, we expect this act to make a transformative change in our lives. This is because of advertisements that we are exposed to in our daily lives. Advertisements claim that when we buy the item in the ad, our lives will change to better ones. **Studies indicate that we are exposed to five thousand advertisements a day!** Over time, we turn vulnerable to such messages that we see many times daily in many different ways. We see them on our TV, on phones, on the streets, the magazines, on the radio, etc. We end up believing it and making that purchase unconsciously (4 reasons we love shopping so much, 2021).

Ironically, surveys of many customers have clearly shown that they were happier before the purchase than after it. It is because the expectations when making the purchase produced euphoria and excitement, but the purchase failed to meet the promise (Richins, 2013).

Figures 20 and 21 on the following page show the crowd in front of stores on their grand opening day (where most of the items are on sale), one can see the pilgrimage to such places where, as Bauman indicates, all are coming for one and the only reason that requires no interaction with others but doing the same as others, consumption (Bauman, 2000). As one can notice, although the photos are 50 years apart, and no matter how sustainable we claim we are, we still follow the same patterns when it comes to consumption. Figures 22 and 23 show a classic example of the advertisement effect, cars. Figure 22 shows a car in the advertisement, where the freedom, the speed and the control are being sold in the ad. Figure 23 shows the real-life struggles of using cars for commuting, where they are expensive, slow, and causes many physical and mental diseases due to congestion and pollution (Charles Montgomery, 2013).

To sum up this chapter, future possibilities on how will we shift from the present ways of shopping and transportation will be discussed in the following section.

Figure 20: Some of the 25,000 who were attracted to Scandinavia's first supermarket (Wessels, Malmö) on the opening day (1962).

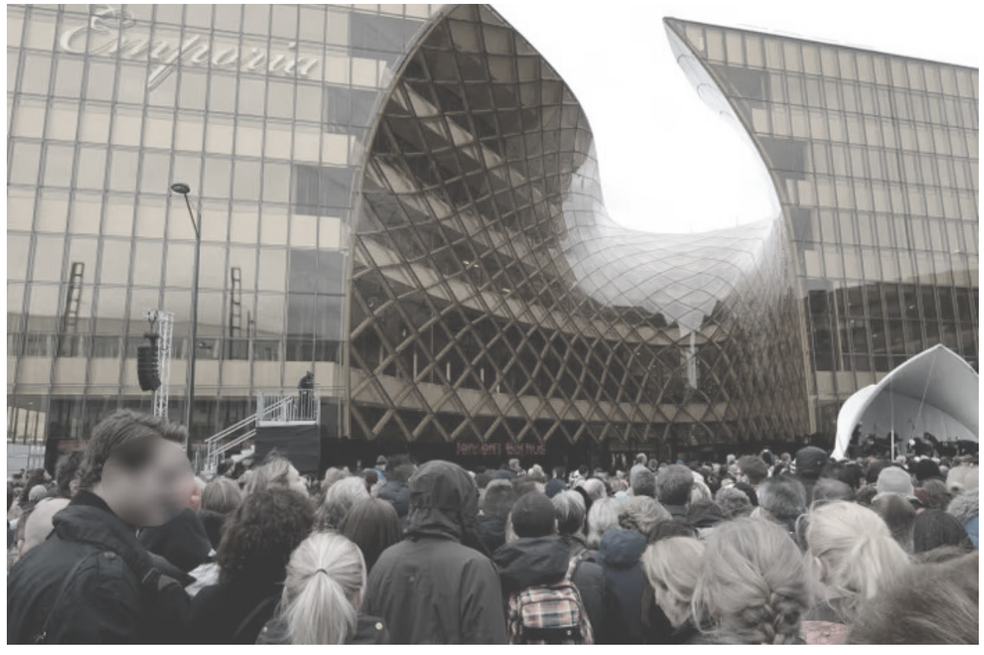


Figure 21: Emporia opening day 25 October 2012. The mall is one of the biggest in Scandanavia with 25000 visitors every day.

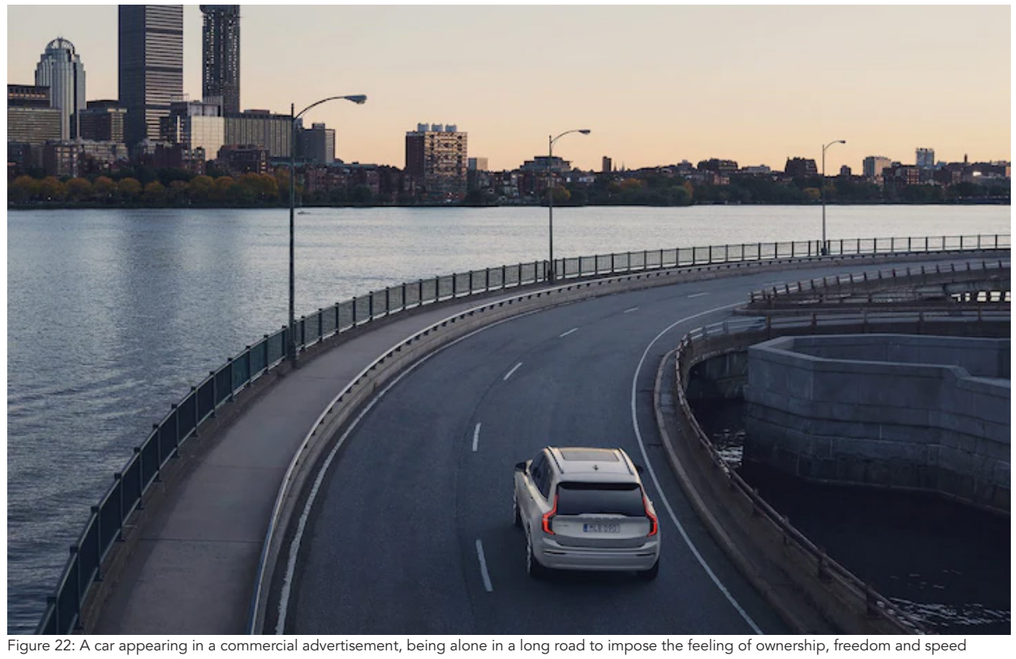


Figure 22: A car appearing in a commercial advertisement, being alone in a long road to impose the feeling of ownership, freedom and speed

Figure 23: Photo shows cars in congestion and slow movement outside Stockholm. Noting that the commuting fees for Stockholm dwellers who commute to work everyday is SEK 13,000-19,100 by car per year , charged for 230 days. (https://www.mitti.se/nyheter/nu-hojs-trangselskatten-gor-pendlingen-3-000-kronor-dyrare/lmtaa!7668769/)

Future Possibilities

As has been seen in the background, the retail industry is subjected to a rapid change, but there is only one factor that was always there and will stay, it is the increase in our level of consumption. In the following two decades, our level of consumption is expected only to grow as well, that claim is based on experts in the Swedish Property Foundation (Fastighetsägarna). Experts say that retail will witness an annual growth of 2.7% in the following 20 years (Rämme, 2017). While many climate and social activists try to guide this growth towards a human-oriented consumption where human interaction is principal while shopping, tech companies and big actors take it to the other extreme. Trying to make it more tech-centered and less interactive, where people buy easier and faster using internet connection under the name of e-commerce. E-commerce is a huge topic to discuss. For the sake of making this chapter short and moving to the design part, only its impact on daily life will be discussed.

As shown in the photos below, the main advantages of e-commerce and tech-oriented shopping are that it is fast, more convenient, and easier to do. But that only makes the problem of losing the sense of community and social realm even bigger due to the lack of people one-to-one interaction. It also can be claimed that it is unequal, due to the limited access to the technologies for many people around the planet. Transportation is another topic that follows the same pattern, it is important to mention here that technology is crucial in the future development of cities, infrastructure and everyday life, but the social, mental and resource efficiency aspects need to be addressed all the way, not to lead us to even more social segregated communities around the globe.In the following chapter, a deeper discussion about the site will be raised to understand its potential, and to get a holistic view of its history and what site-specific plans can take place in the future development of the district.

Technology-oriented

\+
- Fast
- Convenient
- Easy

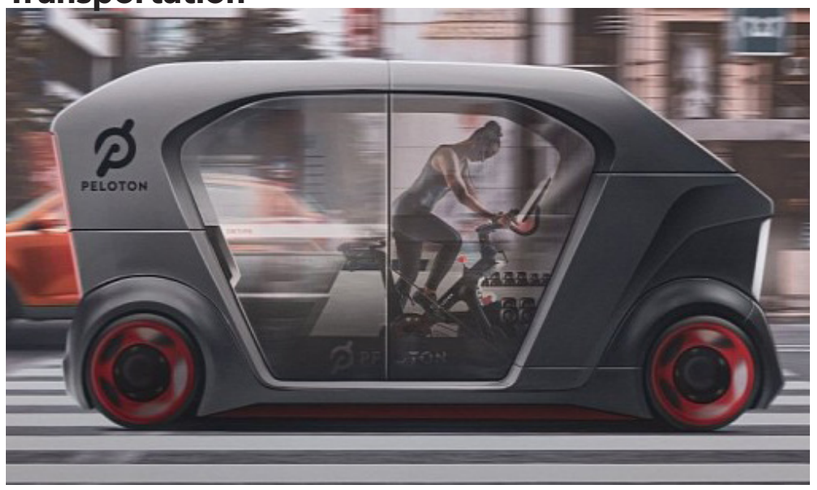
\-
- unequal
- negative on mental health
- individualistic
- resource consuming

Human-oriented

\+
- Inclusive
- Interactive
- Safe
- Excellent for mental health

\-
- Slow
- Less options

Transportation



Shopping

Figures 24-27: Descrebtive images dor the future possebilities of tranportation and shopping in terms of what it takes as a center of their design

Chapter 02

Site Analysis

- Site selection (Why Malmö, Why Svågertorp?)
- Site Location in Malmö
- Size and Dimensions
- Site Context
- Site Identity
- Site History
- Current situation
- Site Usage
- Natural Assets
- Site in Pictures
- Sections
-Color Palette
- Street Speeds and Noise Maps
- Climate Data
- Accessibility
- Malmö City Future Plans
- Conclusion

Malmö

The inner ringroad

The Öresund Bridge

The outer ringroad

The Site

Site Selection

(Why Malmö, Why Svågertorp?)

To move forward, a big-box retail area needs to be examined and analyzed. Sweden has more than 40 across the country, with common characteristics of wide open parking spaces, one or two-floor buildings, and poor design language. Some of these areas are Nova Lund, Väla Helsingborg, Avion Umeå, etc.

The big box retails in Sweden are not a problem of the past, Avion, the new external shopping center in Umeå was opened in March 2016 (Avion Shopping, u.d.). Following the historical Google Earth photos (figures 30-33), one can see the damage that happened to the area that was once a green refuge. It is left with a few poorly treated trees in the pavements' holes. The same process happened in Svågertorp, Hyllie, and many other Greenfield development projects in Sweden.

While the design guidelines suggested in the next chapter can be followed in all big box retails, urban design is a site-specific process. That is the reason why one site needs to be picked for further examination.

In Malmö, the third biggest city in Sweden and the fastest growing (City of Malmö, 2016), an external shopping center (Svågertorp) emerged at the beginning of the 21st century. Svågertorp has been selected for this study for two main reasons. Firstly: Its geographical closeness to the author, so the site can be visited at different times, so the physical and social context can be observed better. Secondly: Svågertorp is one of the biggest big box retail areas in Sweden, and the areas surrounding it are subjected to urban development in the following decade. According to the city of Malmö, the west and east of Svågertorp are included in the development plans (översiktplans). This will be discussed further in this chapter. While nothing is planned for Svågertorp from the municipality of the city, this can be seen as an opportunity to rethink the area, in a way that it will be connected to its context in the future.

Figure 29: Väla, Helsingborg (Solkompaniet.se, 2016)

Figure 30: Avion, Umeå 2010 (google earth)

Figure 31: Avion, Umeå 2014 (google earth)

Figure 32: Avion, Umeå 2017 (google earth)

Figure 33: Avion, Umeå 2020 (google street view)

Site Location

The site is located in the south of Malmö, very close to Hyllie station (15 min walk, theoretically), site neighboring areas are:

- **Lindängelund:** to the west of Svågertorp. It is planned to be one of the biggest botanical gardens in Skåne County.

- **Almvik and Lindeborg:** both are housing areas from the 60s-80s (Some of the neighborhood are part of the miljonprogrammet)

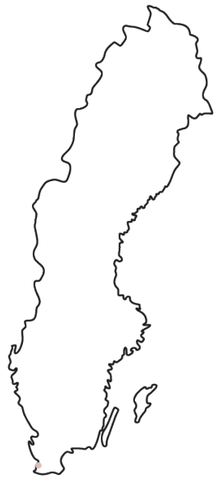
- **Vintrie:** The area is housing from the 80s and some historical buildings, it is planned to have housing, business and parks.

- **Bunkeflo:** part of Skåne farmlands that are reserved by the state.

-**Southern Hyllie:** which is planned to be a central park for the area as will be shown later.

Figure 34: Svågertorp and the surrounding areas
Google Earth

Sweden



Population
10,207,336

Size
450,295 km²

Cars in use per capita
0,48

Parking space per car
6

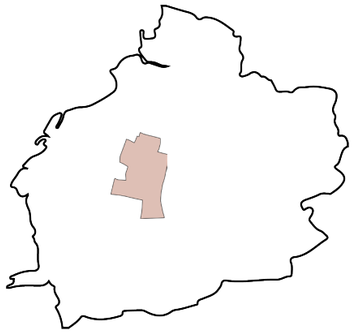
Parking area per capita
73.47 m²

Living area per capita
42 m²

Number of businesses(Retail/2015)
16709

Number of employees(Retail/2015)
152,500

Malmö



Population
351,749

Size
76.81 km²

Cars in use per capita
0,35

Parking space per car
?

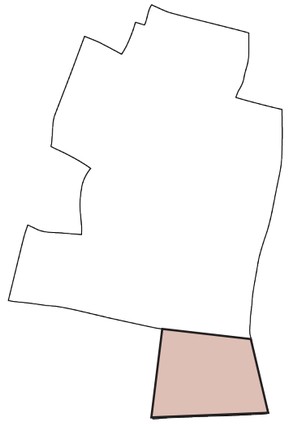
Parking area per capita
?

Living area per capita
36 m²

Number of businesses(Retail/2015)
794

Number of employees(Retail/2015)
6700

Hyllie



Population
35 857 (2017)

Size
9 km²

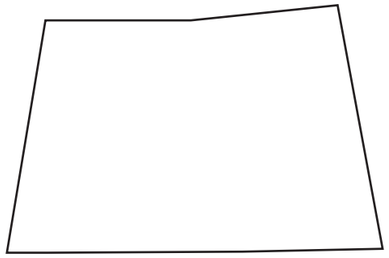
Cars in use per capita
?

Parking space per car
?

Parking area per capita
?

Living area per capita
?

Svågertorp



Population
0

Size
1 km²

Cars in use per capita
N/A

Parking space per car
N/A

Parking area per capita
N/A

Living area per capita
N/A

Number of businesses
26

Number of employees
1050

Size and Dimensions

Svågertorp is a site of 100 hectares, the train station Svågertorp Syd is located in the central south of the area, the walking distance from the station to the further shopping center in the area is 1 km (13 min walking distance) and to IKEA, the further to the northwest is 900 m (11 min walking distance).

Potentially, if one wants to walk from point A (JYSK) to D (IKEA) passing by B (Plantagen) and C (Media Markt) the path is 2.1 km (21 min). Studies say, however, that people are willing to walk before opting for an automobile if the walking distance is 400 meters or less (5 min).

While the size and the use of the retail do not allow for smaller distances - especially from the train station. Because shopping behavior is not going from one point to another (and mostly the process include carrying purchased items) then other means of transportation should be provided for the convenience of the site visitors.

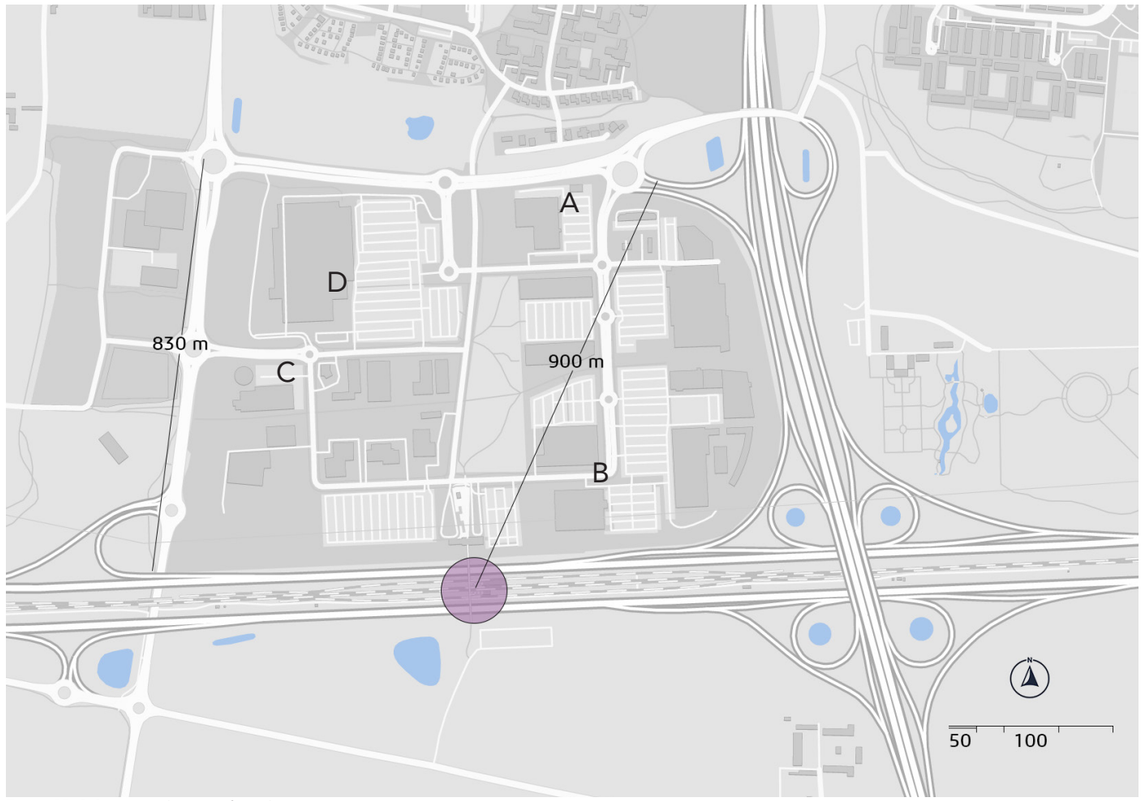
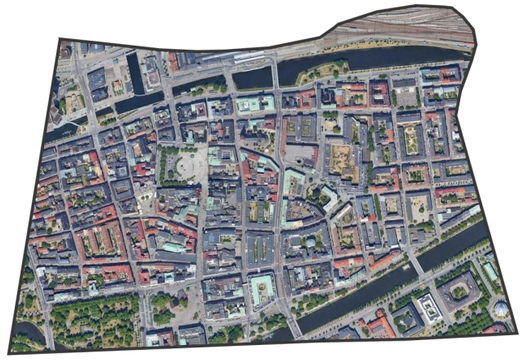


Figure 35: Svågertorp, distances from the train station.

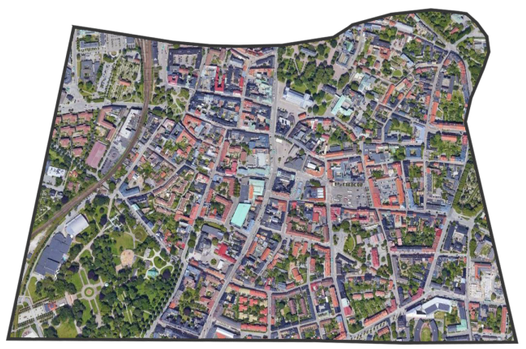
Svågertorp

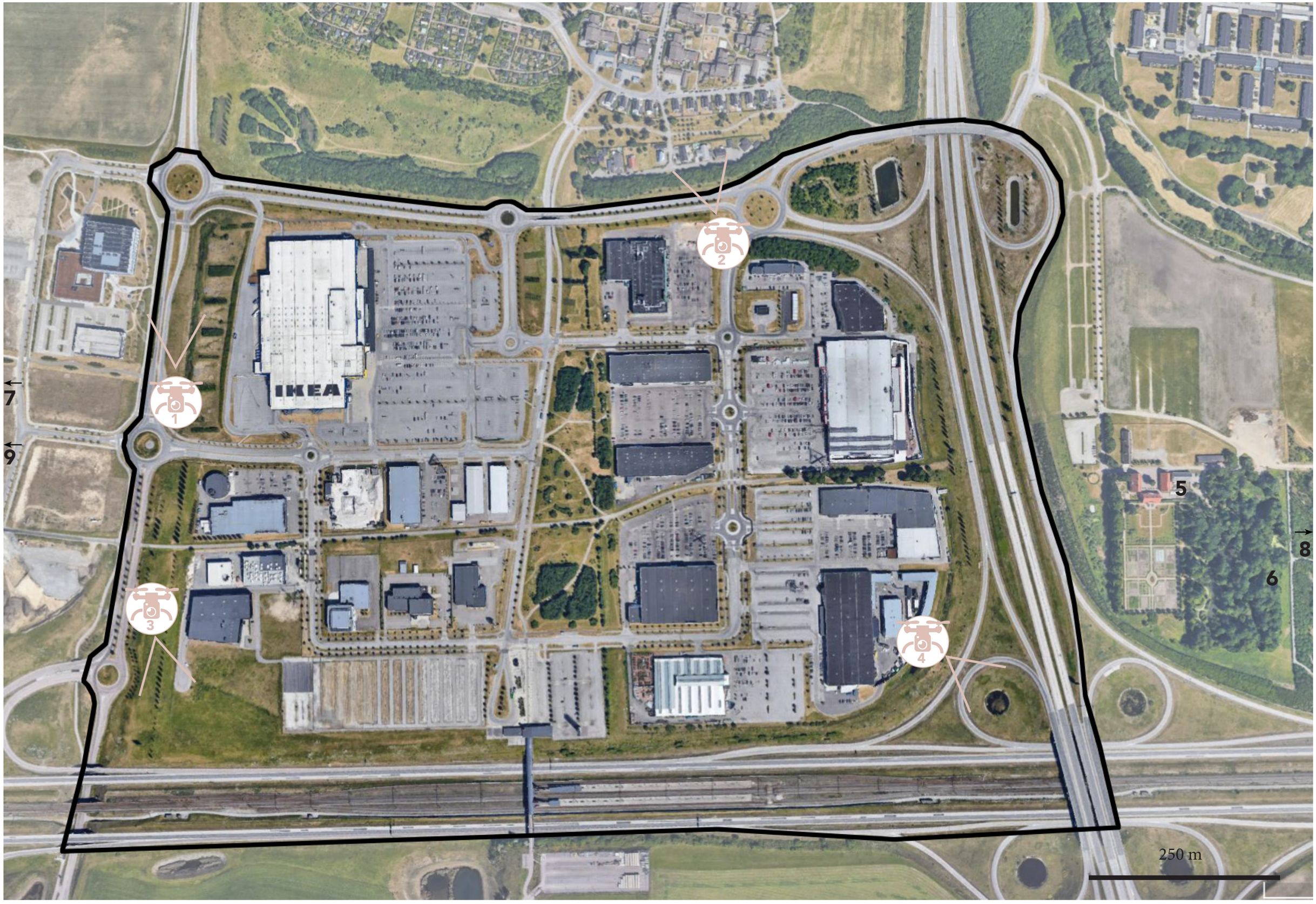
Size: 100 hectare
Parking: 4970
daily visitors: 9800
Population: 0

Central Malmö



Central Lund + Stadsparken




IKEA
1
2
3
4
5
6
7
8
9
250 m

Site Context - The separators

The drone footage for the site and its context has been taken (special thanks to Ása Katrín Bjarnadóttir for her help!). The black border in the previous pages highlights the separators as seen in the drone footage.

The streets surrounding the area are not slow streets, their speeds are 70, 70, 90, and 110 km/h from the western border to the southern border. The latest has the railway between its lanes as can be seen clearly in the aerial photos.

Site Context - Beyond the separators

Just on the other side of the streets, nature is still preserved in many different ways. To the east side of the site, Katrinetorp and Lindängelund are located. With wide water bodies and a variety of green and biological life, the area is breathtaking. Yet it is not accessible for most Malmö residents without a car.

Svågertorp can play a vital role in connecting the people of Malmö with nature by walking directly from the train station or the bus stations to Lindängelund. Vintrie on the other side, is an excellent manifestation of urban farming, despite the minimum governmental support, there are at least 5 businesses selling local crops exist in the area.

Figure 44: Katrinetorp, Lindängelund - Google street view

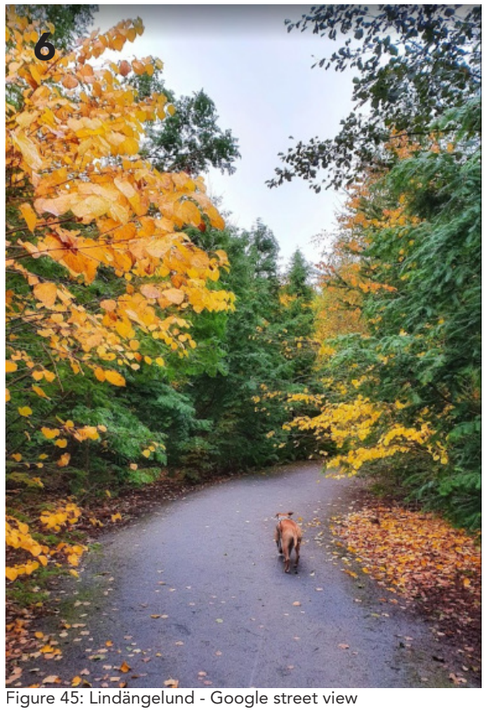


Figure 45: Lindängelund - Google street view

Figure 46: Vintrie Urban farmers - Google street view

Figure 47: Lindängelund - Google street view

Figure 48: Vintrie farmlands - Google street view (notice IKEA in the background)

Site Identity

The site has one and only use; shopping areas. These big-box buildings are different in their size and merchandise, but similar in their characters. Some of these shops are IKEA, the popular Swedish furniture store, Bauhaus, Rusta, Jula (Hardware and housing materials stores), Elgiganten (electronics store), some fashion stores, and Plantagen (plants and farming store).

The majority of these stores open from 10 to 20, leaving the site deserted for the rest of the day. The area has no housing, and no other functions except for less than 10 office spaces and some restaurants.

The area surfaces are mostly sealed, providing around 6000 parking lots in total. Where most of these parking users are customers, only 12% of them actually need a car to carry what they buy, based on a Trivector survey. Despite the fact that the site is well connected with public transportation, most of the site visitors come by car, according to the same study (Caroline Ljungberg, 2012).

This behavior can be referred back to the idea of the easiness and effectiveness of car accessibility to the area, and the free parking the stores provide. This, as has been discussed earlier, is a behavior inherited from the 1960s way of design and planning.

The pie chart to the right shows Svågertorp visitors classified by the mean of transportation they use to reach the site. (Örneberg & Carlsson, 2010) of (Johansson, 2013)

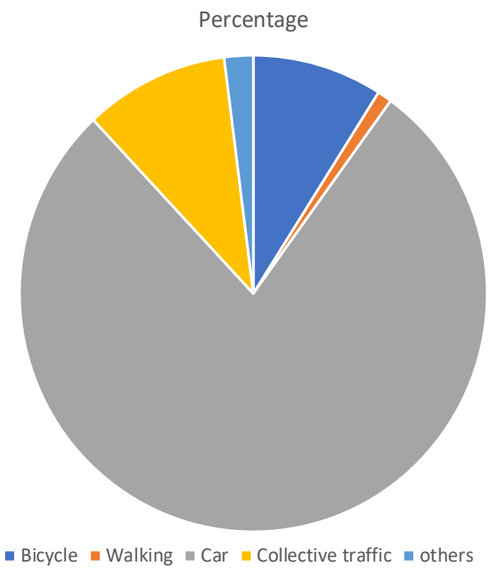


Figure 49: Bauhaus, the first place that was established in Svågertorp.

Figure 50: Some of Svågertorp big-box buildings.

Figure 51: The path to IKEA through the parking lot

Site History

Before turning into a massive big-box retail area, Svågertorp was a typical Skåne farmland. Surrounded by some significant buildings, farmhouses for rich people were built in the 19th century.

Skåne, the southernmost county in Sweden, is popular for its agricultural soil. Historically Skåne, and Malmö as part of it, provided most of the region with many crops, such as sugar beet and raps flowers. A lot of vegetables are also grown, more than half of all Swedish cauliflower is grown in Malmö (åkermark i malmö kommun, u.d.). There is also the cultivation of ornamental plants and the greenhouse cultivation of tomatoes and cucumbers.

At the beginning of the 21st century, Svågertorp attracted business owners who want to build their retail on cheap land that has easy access by car. That happened due to the inauguration of the E6 highway in the year 2000. The first retail which acquired part of the farmlands was Bauhaus, followed by IKEA and the Danish furnishing store ILVA. Not a while after, most of the typical brands that open in the urban backside had their stores open in Svågertorp.

Every store that opens needs to provide parking spaces. The obligation is most welcomed by the business owners, as providing free parking is seen as an attraction to their far-from-the-center stores. By the end of 2019, the area was packed with an abundance of car parking and asphalt cover.

Figure 52: Farm in Malmö

Figure 53: Rapseeds flower fields which is one of the most important crops in Malmö

Svågertorp 1985

Svågertorp 2019

Current Situation

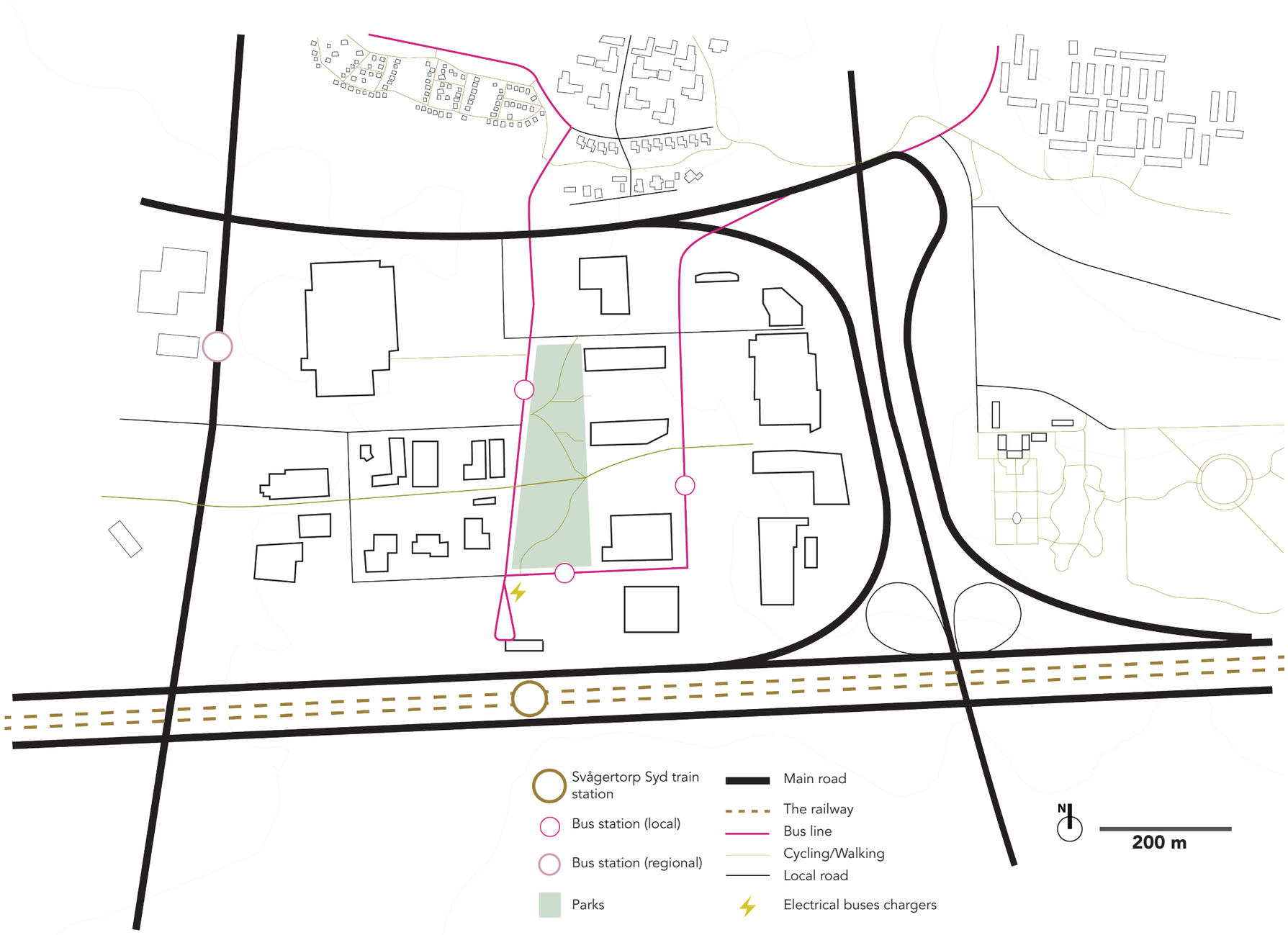
As the following map shows clearly, the site is strongly separated from the surrounding areas, and the car dominancy makes it less appealing for people to walk due to the lack of options and the length of the path.

While the site is easy to access by car, walking or cycling from neighboring areas is inconvenient due to the disarticulations in their path.

For example, the only entrance to the site for walkers and bikers from the north is through a tunnel that is narrow and shared with automobiles as well.

The central area of Svågertorp is an isolated park that has no actual use, during the three conducted site visits, no one was seen walking through the park. This, among other reasons, can be justified by the lack of maintenance and the scale of the park. As it is open with a very limited amount of trees, seating areas, or maintained pathways.

In addition to this, most of the pathways through the site are either having a dead end (notice the path to the east) or lead to an open ocean of parking lots.



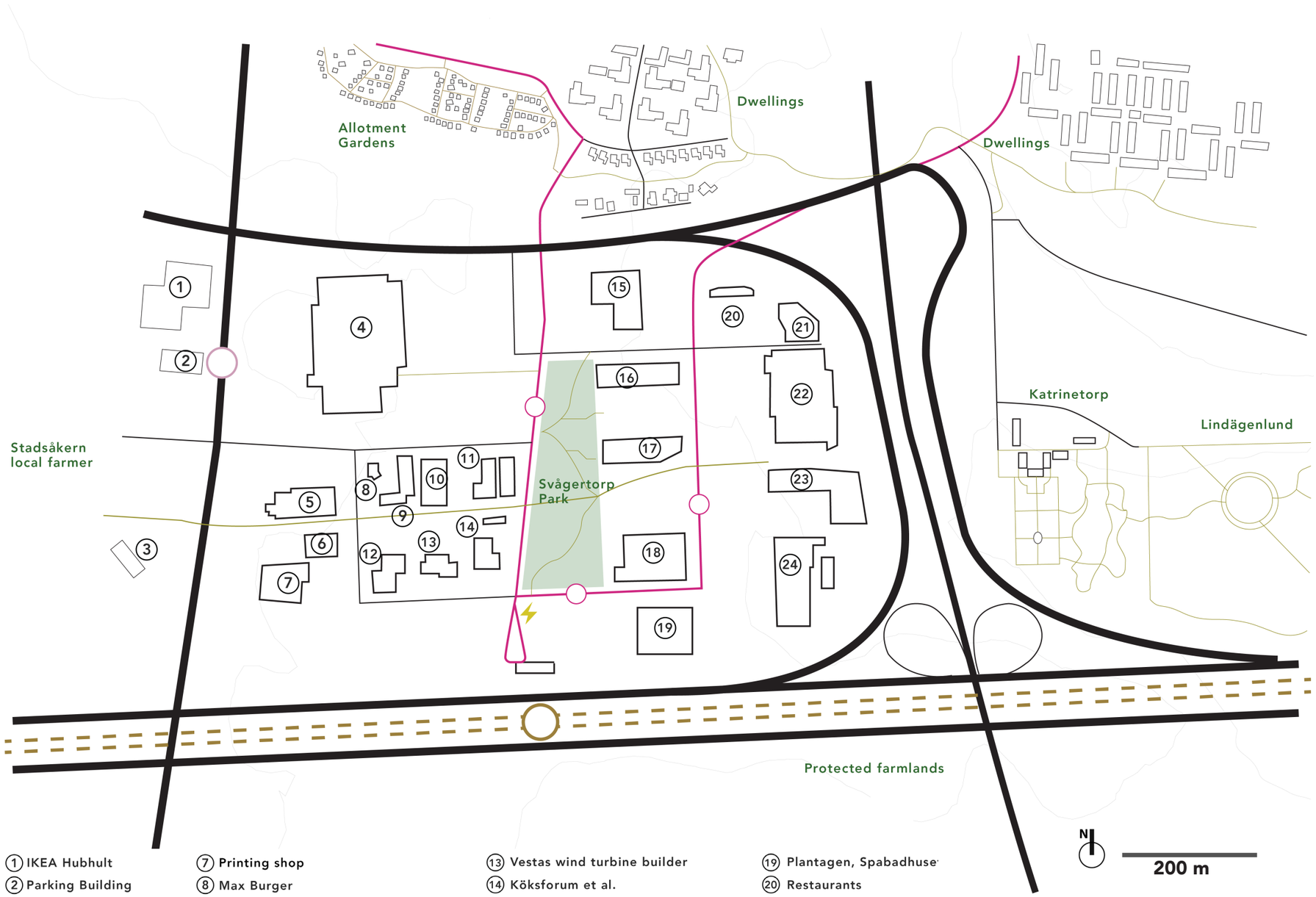
Site usage

As shown on the map, most of the site has only one use (retail stores), the heights of the buildings are around 6 - 21 meters, but the number of floors is either one, two, or three floors.

The outdoor areas in the site are used for parking lots, a central park, and storage of construction materials to the southwest of the site.

The site has around 6000 parking spots, while the daily visitors of the site are 9800 people. People's main means of transportation to come to the site are cars. According to studies done by Trivector, only 12% of shoppers actually need a car to help them carry what has been bought through their journey, the study was conducted in 4 different sites and covered 5925 shoppers (Caroline Ljungberg, 2012).

In addition to the fact that the area is only used for retail, most of these places close at 20:00. This leaves the area deserted for 14 hours a day.



10 hours
The daily active use of the whole area.

1. IKEA Hubhult
2. Parking Building
3. PEAB offices building
4. IKEA furniture store
5. Media Markt
6. Stryker Corporation
7. Printing shop
8. Max Burger
9. Elon, Nordic wellness
10. Stadium
11. Kvik, KungSängen et al.
12. The police authority
13. Vestas wind turbine builder
14. Köksforum et al.
15. ILVA, JYSK et al.
16. Fabric and shoes stores
17. Pet store, electronic store et al.
18. Biltema
19. Plantagen, Spabadhuse
20. Restaurants
21. SOVA, Dormy
22. Bauhaus
23. Jula, Rusta et al.
24. Elgeganten, Lekia et al.

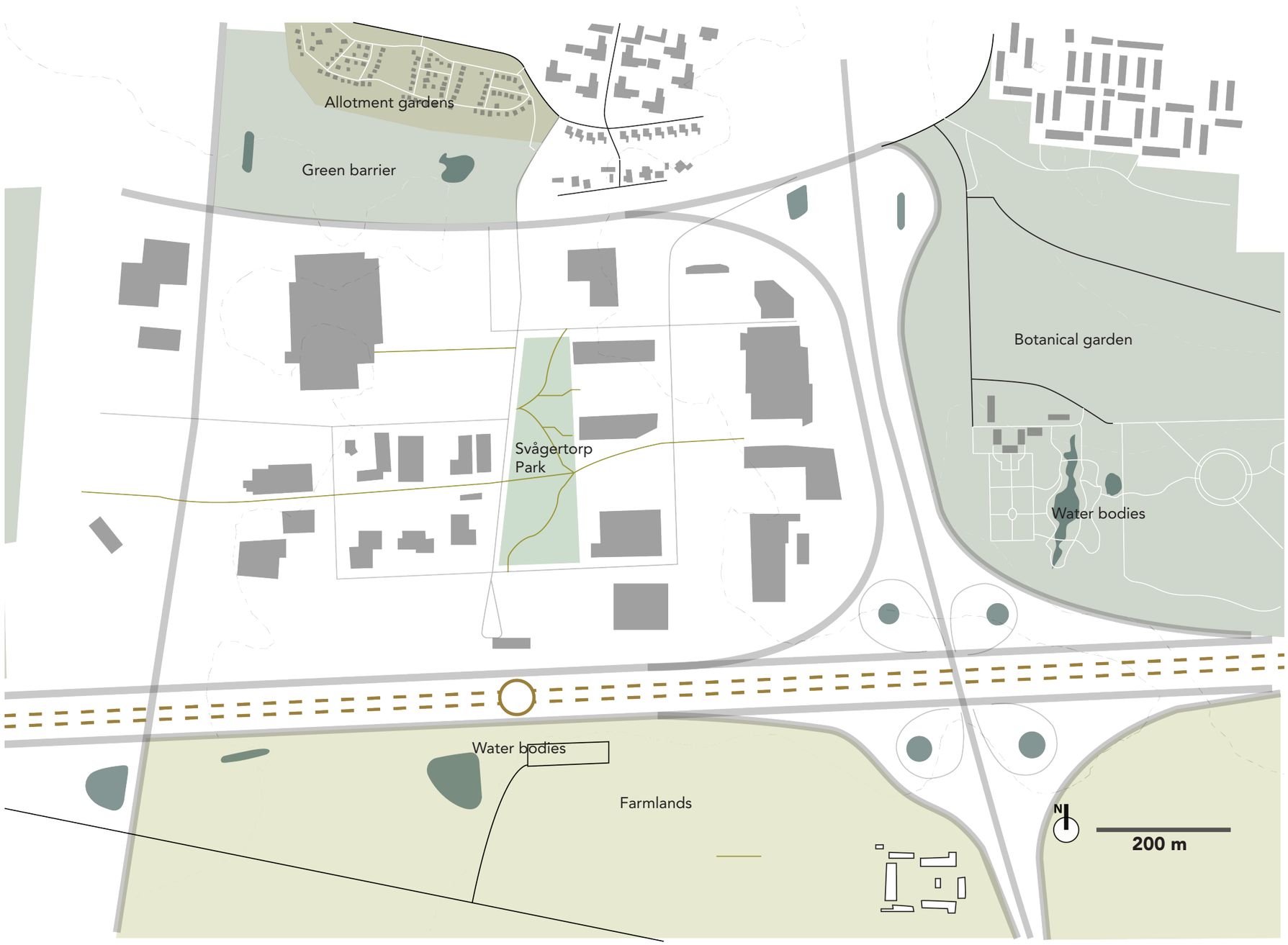
Natural Assets

The map here shows the green and blue structures in Svågertorp and the neighboring areas. To the south of Svågertorp are Bunkeflo farmlands that are protected by law. That means it will not be built on.

To the east is one of the largest botanical gardens in Skåne (Lindägenlund), it was inaugurated in 2000 and is still under development.

To the north of the site is a green area that is not occupied or used. The north of it has one of the allotment gardens (Koloniområden) that Skåne is popular with. These gardens are privately owned and people who own them do not necessarily live close by.

To the west of Svågertorp there is some active farms that sell vegetables and fruits around the year (Gröna Bruk, Ur Vår Jord, VEGOSTAN, Los Perros and Jord och Folk)



Site in Pictures

In the following pages, camera photos were taken to demonstrate the site characteristics from a human eye level as well as drone footage for showing how some of the site spaces look from the above (see map for reference)

Photo 1: shows the parking scale and materials between Elgiganten to the east and Plantagen to the west.

Photo 2: shows the buffer zone between the highway and the parking in photo 01 (notice the litter)

Photo 3: shows streets conditions (especially not the main ones)

Photo 4: Shows the scale of the billboard and the high lighting fixtures.

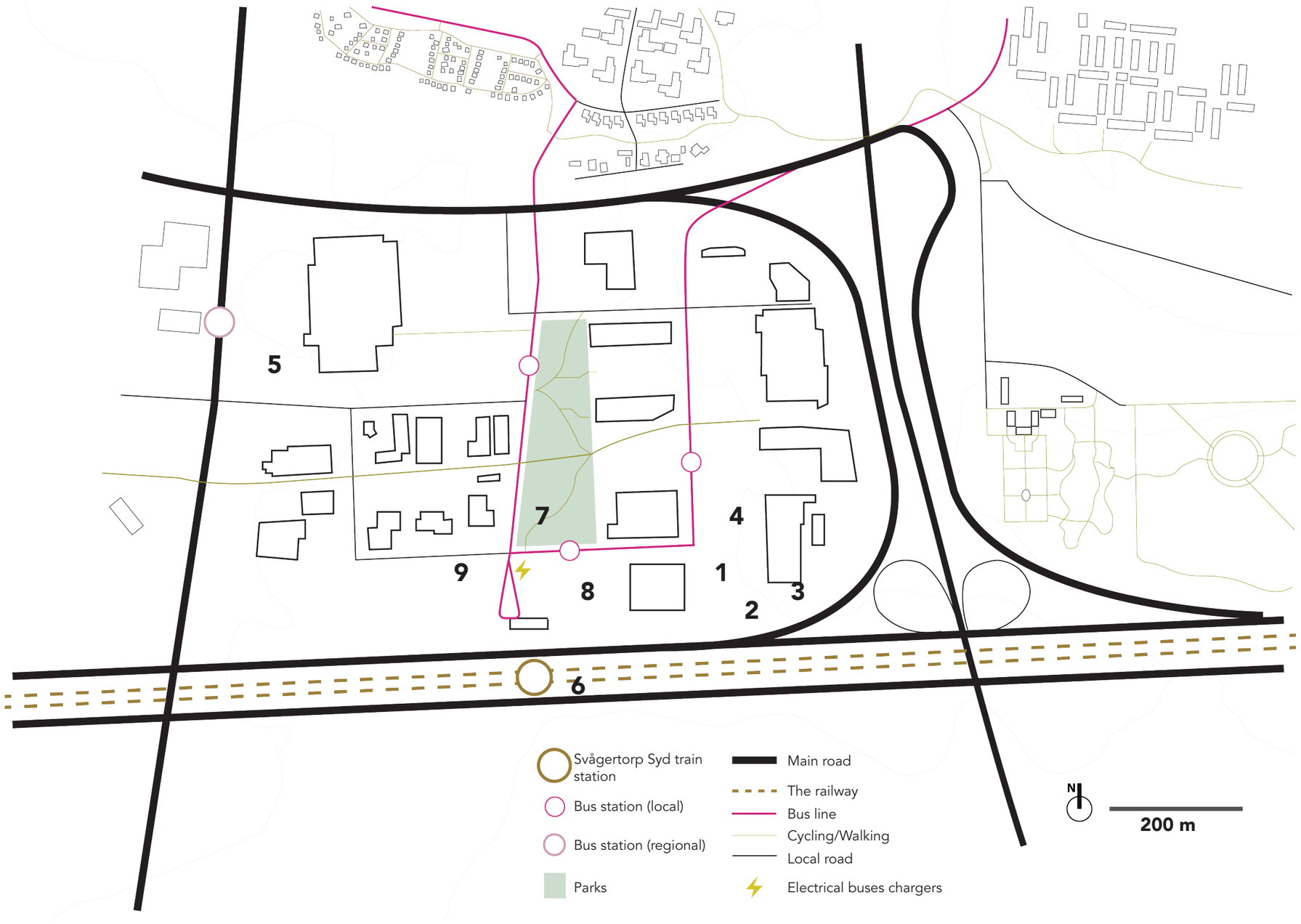
Photo 5: shows the site's largest building, IKEA, from the back.

Photo 6: shows the access from the train station to the bridge that connects to the site.

Drone photo 7: shows the park, notice how underutilized the park is (with 0 users most of the time).

Drone photo 8: The city-owned parking lots. They have 1-5 users daily, according to the municipality.

Drone photo 9: The area by the train station is used as storage (author's guess).



1

2

3

4

5

6

7

8

9

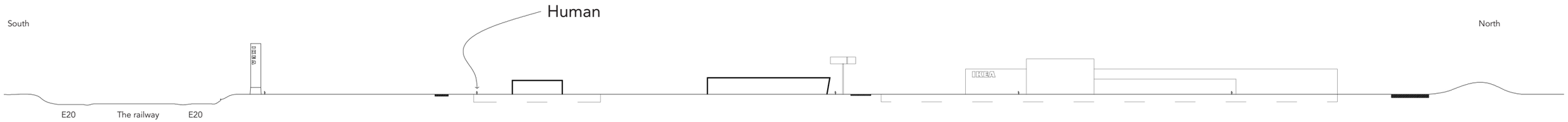
Site Sections

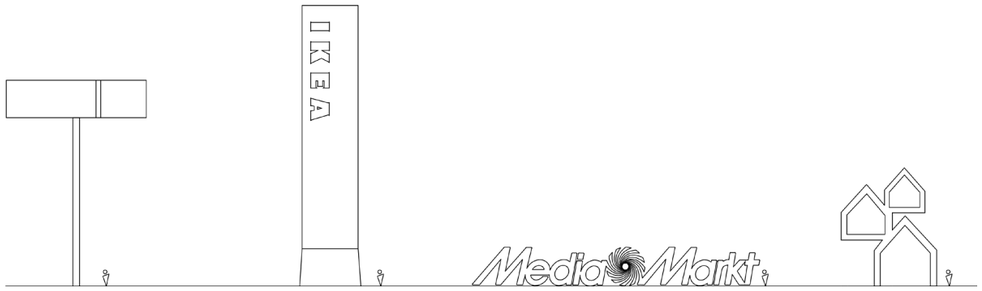
Apart from the highway, the railway, and the park, the site is almost flat. The elevation of the whole area is between 23 and 28 meters above sea level (Google earth). The sections below demonstrate many issues that the site has. First, it is clear that the spaces are very wide, and the site has poor greenery. The scale and proportions of the signage used are beyond huge. As shown in section 1, the IKEA signage by the railway is 30 meters high! The trihedral unipolar billboards are 21 meters high and 15 meters wide! The site has 8 of these billboards invading the skyline of the area.

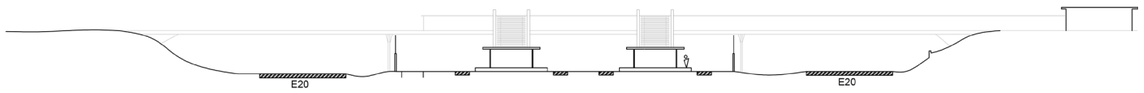
Section 02 shows the billboards and signage used for the site compared to a human figure, apart from being huge, these signage colors are bright and eye-catching, which can be traced back to the classic marketing ideas, where size and color matter.

Section 03 shows highway E20 and its relation to the railway, the train station and Svågertorp to the left side, where it is sunken below the ground level of 5 meters.

Section 04 demonstrates the relationship between the site and Katrinetorp, with Trelleborg Street between the two districts.







Color Palette

Taken from their business logos and marketing visual identity, most of the retailers in Svågertorp have chosen to build the buildings with the same colors. Aluminum sheets, steel sheets and glass are the main facade materials, the following photos (figures 69 - 80) have been taken from Google maps street view© and show the colors and materials used.

The color palette is bright, mainly using red, blue, and yellow. These colors are eye-catching and memorable for consumers according to marketing studies. However, a question is raised here: **Is using the same techniques of forced attention with huge gestures of flags, billboards and signs amusing? Or it is merely an old-school methodology of caring the most about being seen, and not being recognized?** Where the walkers' and bikers' level of comfort while wandering in the district is not by any means considered in the architectural design.

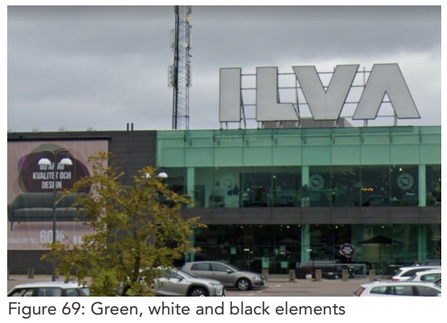


Figure 69: Green, white and black elements

Figure 70: Red and white elements


Figure 71: Red and white elements

Figure 72: Orange, grey and black elements

Figure 73: Blue, white and red elements

Figure 74: Red, white and grey elements

Figure 75: Yellow, black and blue elements

Figure 76: Yellow, blue and white elements

Figure 77: Blue, white and green elements

Figure 78: Dark grey, red and white elements

Figure 79: Blue and white elements

Figure 80: Blue and yellow elements

Streets Speeds

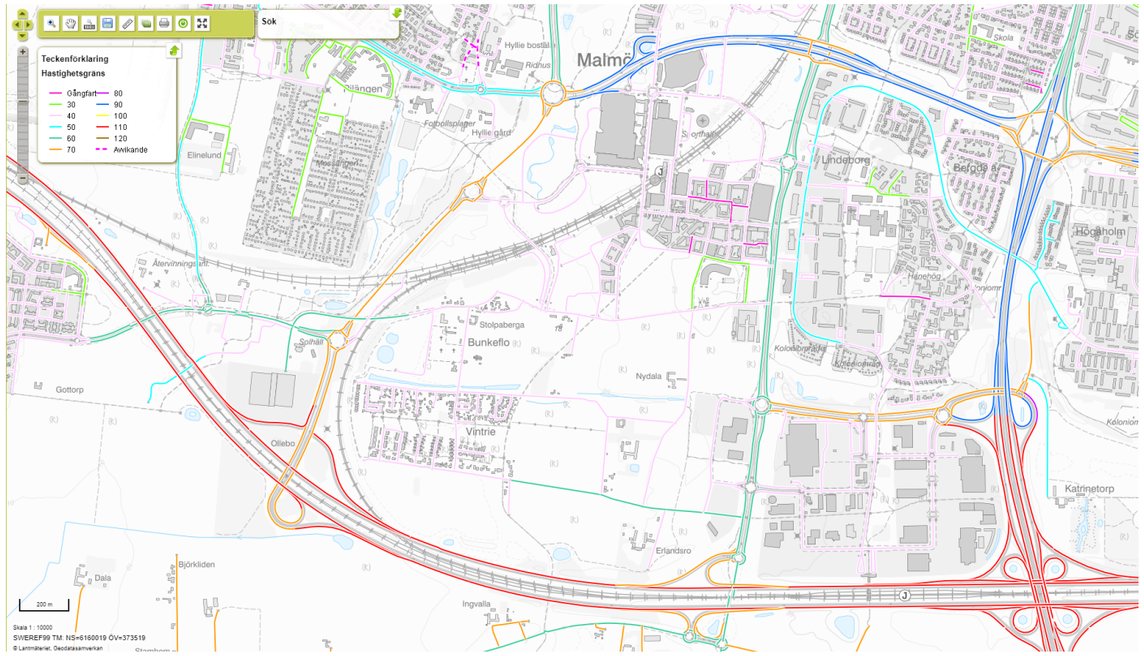


Figure 81a: Roads by speed (Trafikverket - https://nvdb2012.trafikverket.se/SeTransportnatverket)

The streets' speeds around the site are relatively high. The southern street is a European highway (E20) and its speed is 110 km/h. The street to the north has a 70 km/h maximum speed and the street to the west has a 60km/h.

The street to the east (Trelleborg) is 110km/h. While this street connects the outer ring road and the inner ring road, it has an unjustifiably fast speed. Other streets that connect with the highway can be as slow as 60km/h. see the street to the west of Svågertorp. Slowing down this street will play a vital role in connecting the areas of Svågertorp and Lindängelund Park.

Another thing that is worth mentioning here is that the northern street cannot play the role of a green avenue that Malmö municipality plans it to be if it stays at a speed of 70km/h.

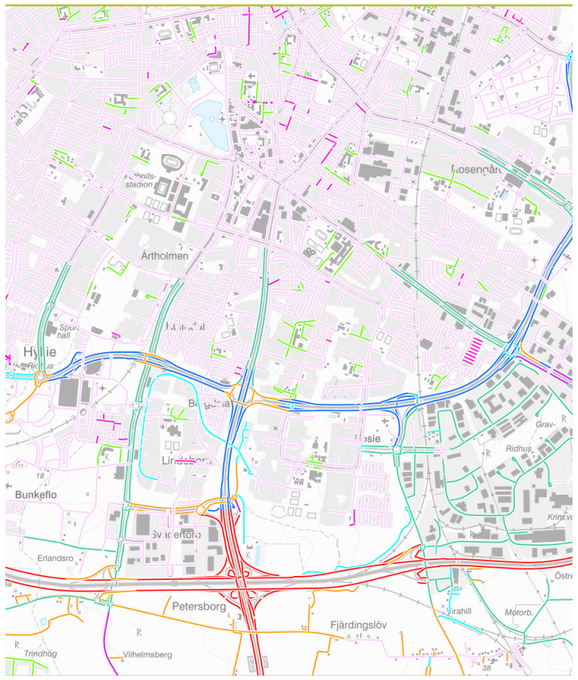


Figure 81b: Zoom in to the previous map

Noise Maps

The noise is the main factor that needs to be addressed in further design steps for the site. As seen below, the site is subjected to street noise and railway noise. Slowing down some streets will be a good start towards reducing the noise in the site in general.

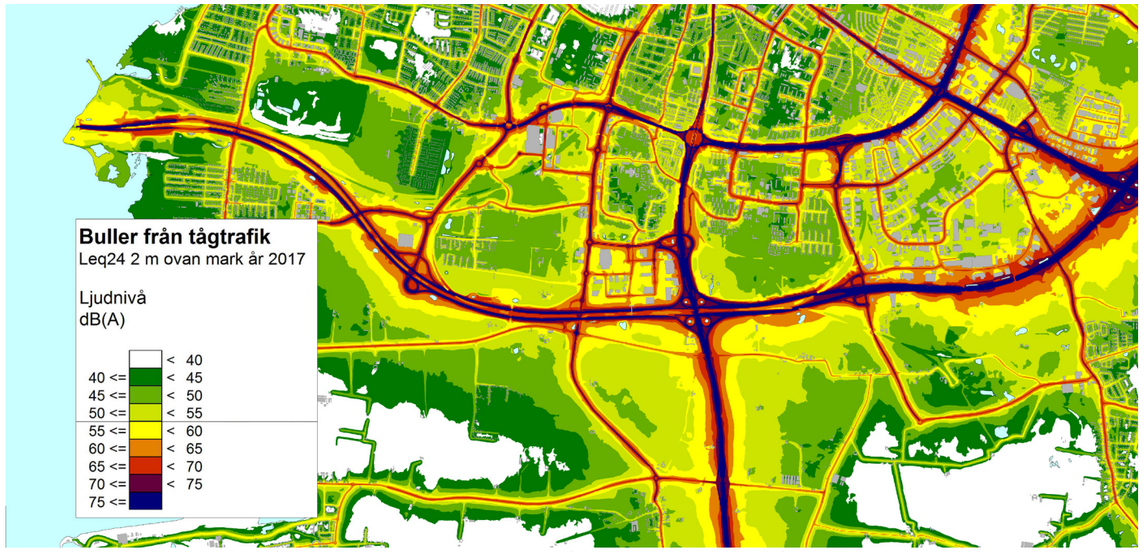


Figure 82: Noise made by road traffic (the swedish legend on the photo from the resource says it is from railway but the map is showing the noise from the roads)

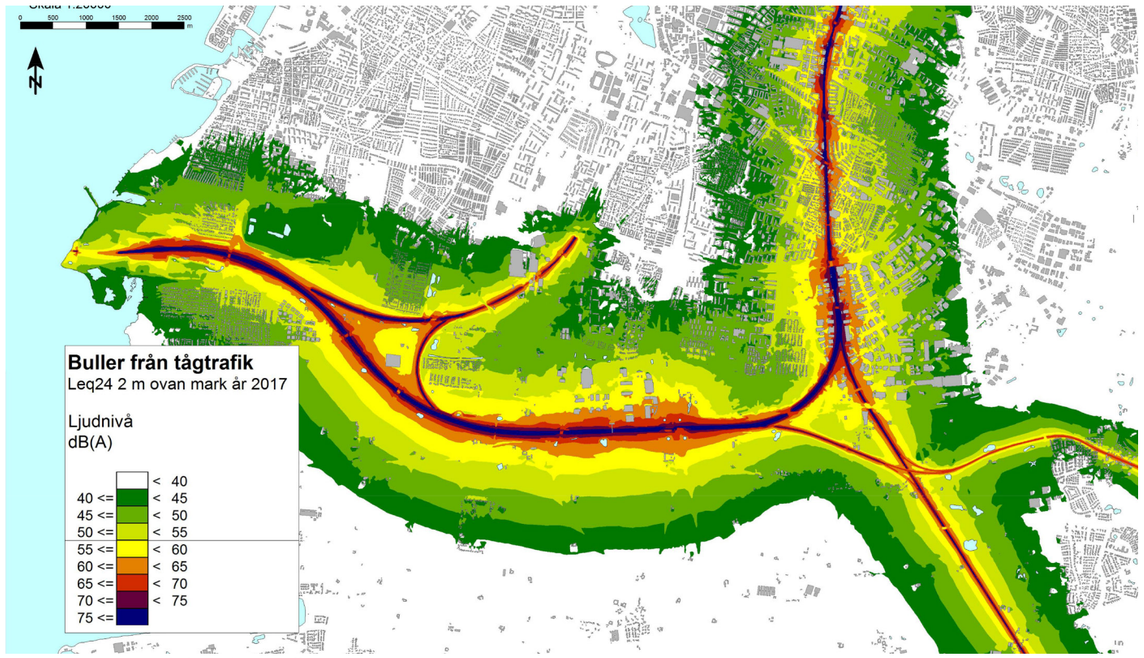
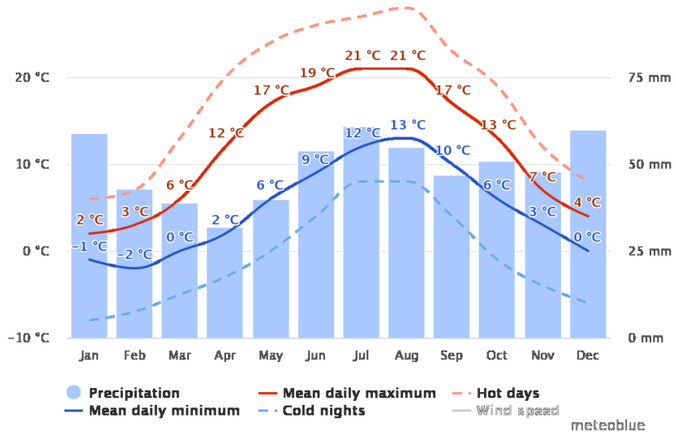
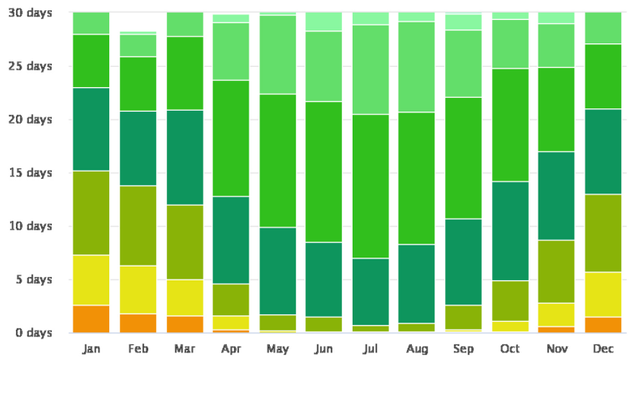


Figure 83: Noise made by railway traffic.

Climate Data

Malmö is located in the southern part of Sweden on the eastern side of the Öresund. The city is subjected to dominant wind coming from the west most of the year. Svågertorp has southern winds from the farmlands area as well. This is because the area is exposed due to the lack of built-up structures and trees that can play a vital role in wind blockage.





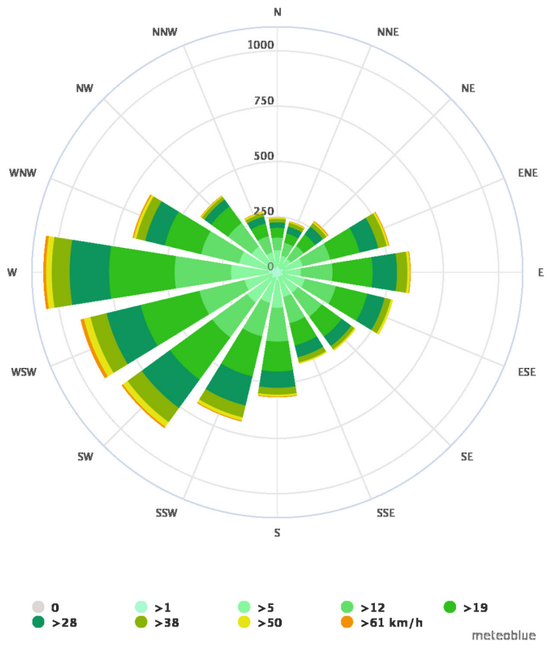


Figure 84-86: Climate Data for Malmö, figure 86 shows the air tempreature and precipitation throughout the year, figures 87 and 88 shows the wind speed, its direction and the how often these speeds happen every month.

Accessibility- By collective traffic

As shown on both maps, the site is well connected to the city of Malmö with a railway station, two local buses and one regional bus passing through the site. However, walking from the collective traffic stops within the site to reach different destinations is a bit challenging due to the far distances and the maintenance of walking and cycling paths.

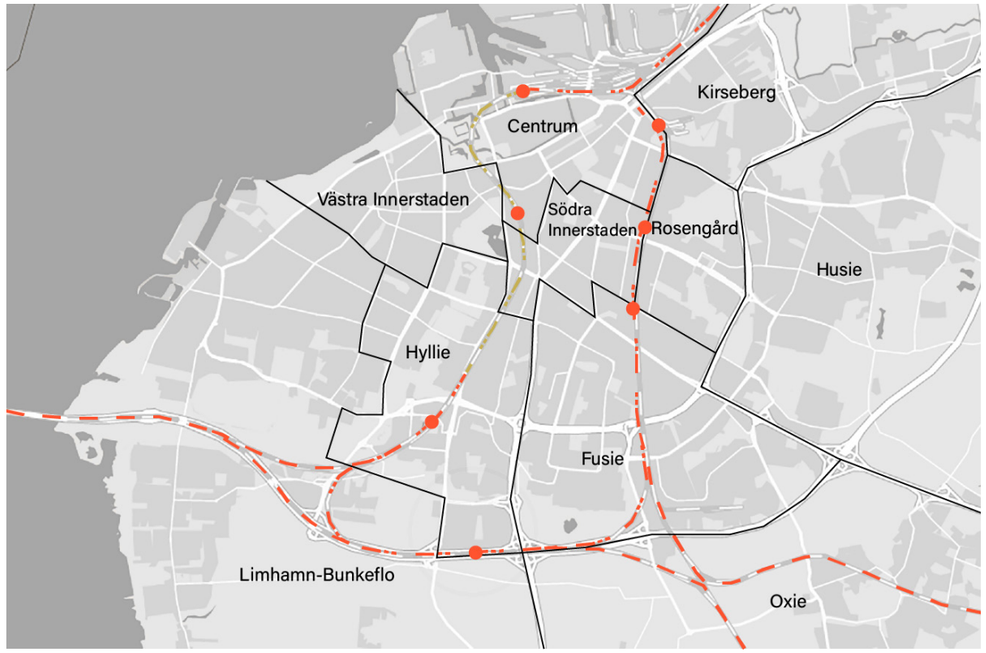


Figure 87: Map showing the railway lines in Malmö. The yellow line is underground and the dots are main stops

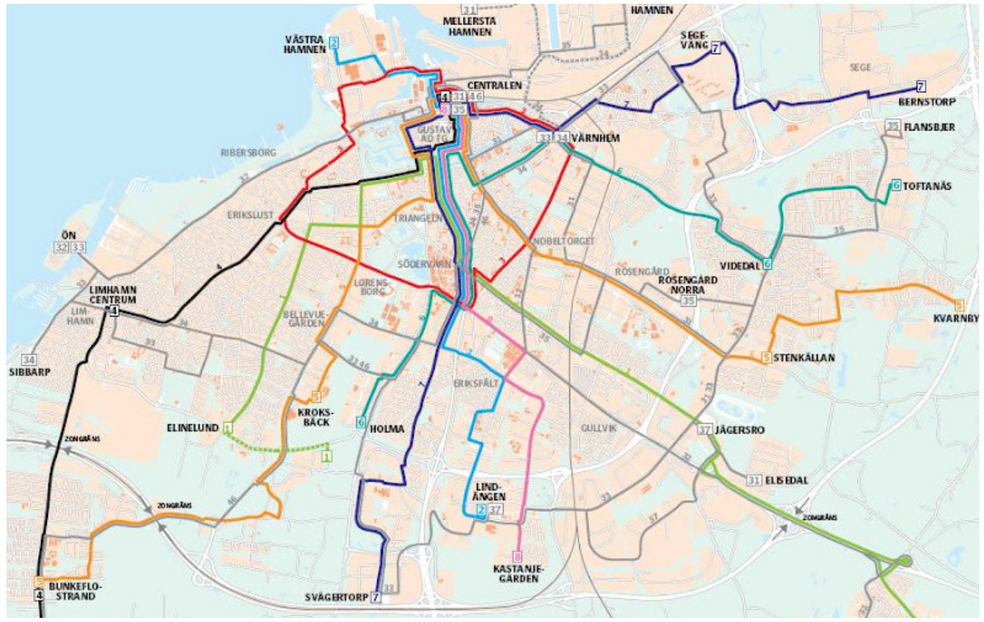


Figure 88: Bus lines for Malmö city, Buses 33 and 7 passes through Svågertorp.

Accessibility-By car, bicycle and walking

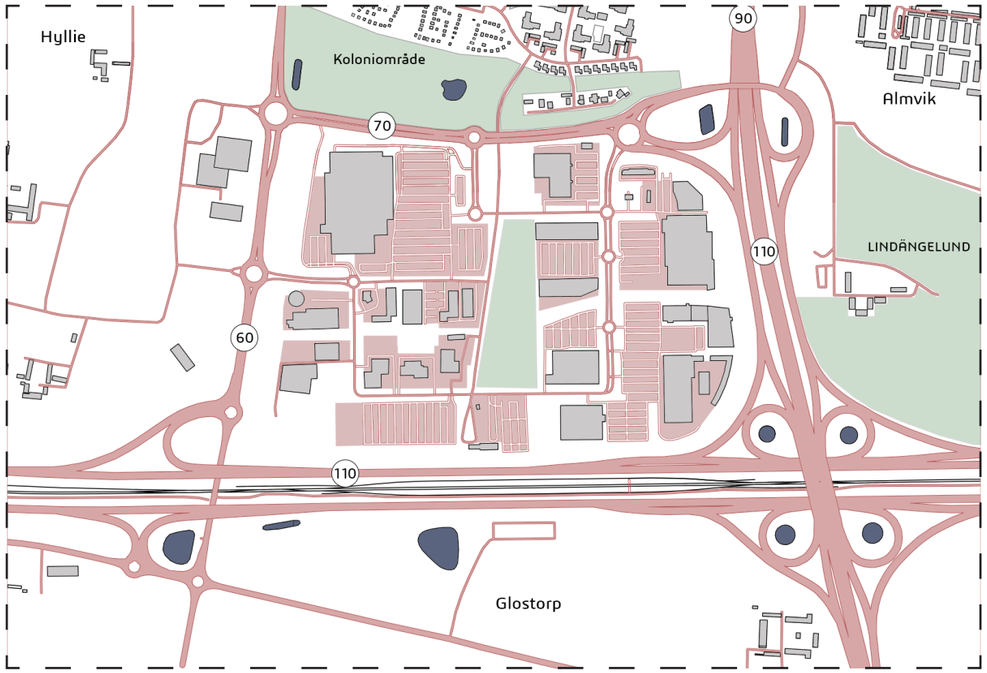


Figure 89: Streets with maximum speeds indicated, the streets with their current speed creates a strong barrier between the area and the surronding areas.

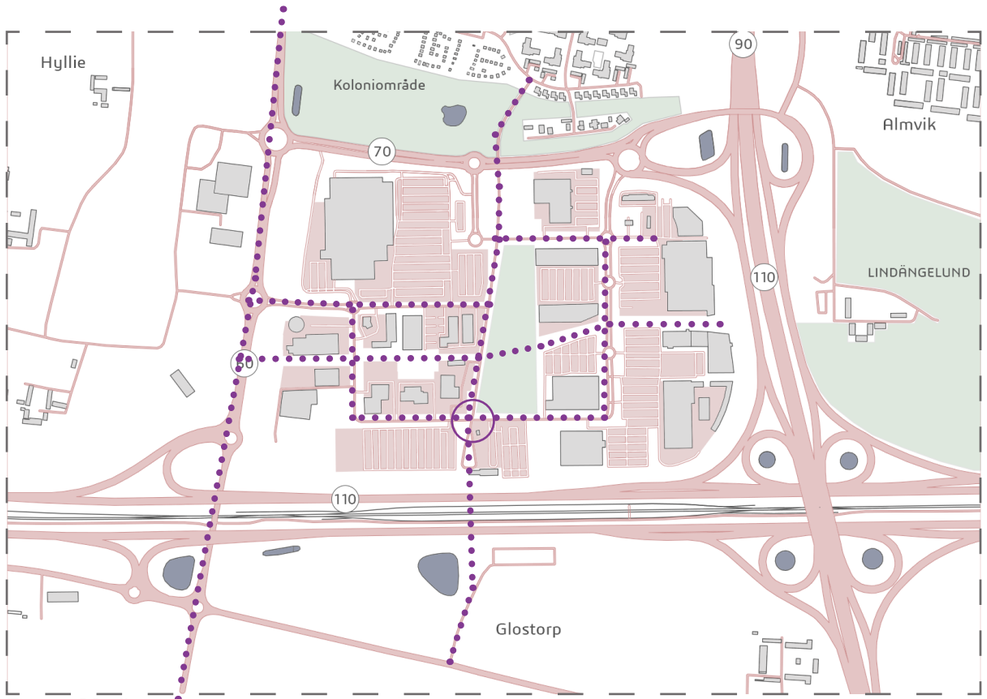


Figure 90: Cycling lanes through the whole area, notice the dead ends and disarticulations in the east part. In the circle, there is a bike sharing station

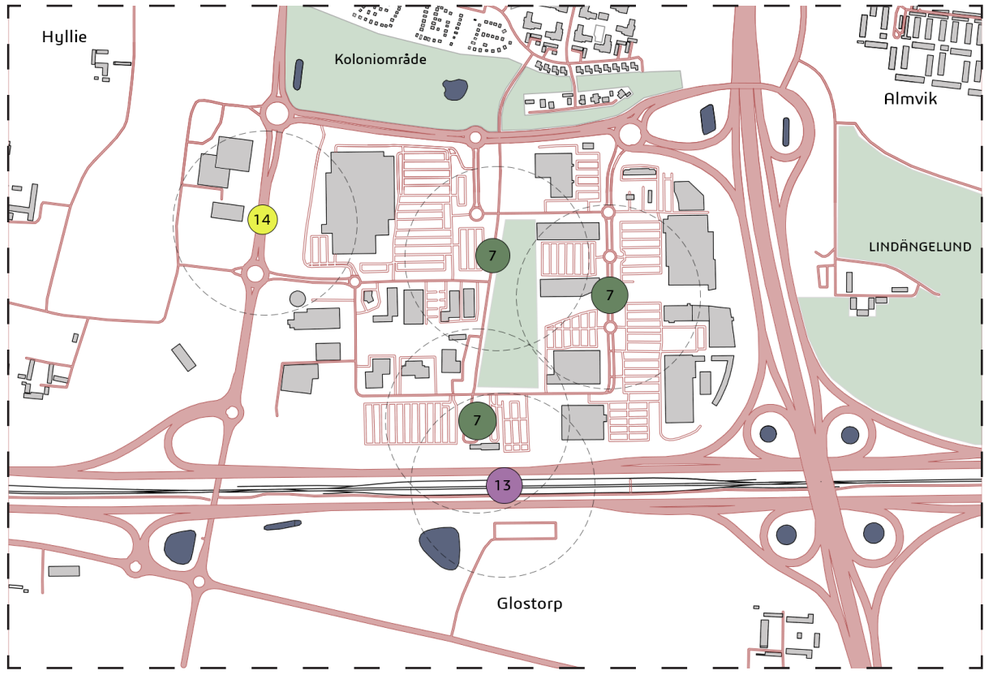


Figure 91: Train station(violet), local bus stations (green) and regional bus station (yellow). Number inside the circle shows the frequency in minutes (weekdays). Dashed circle is 200 meters radius.

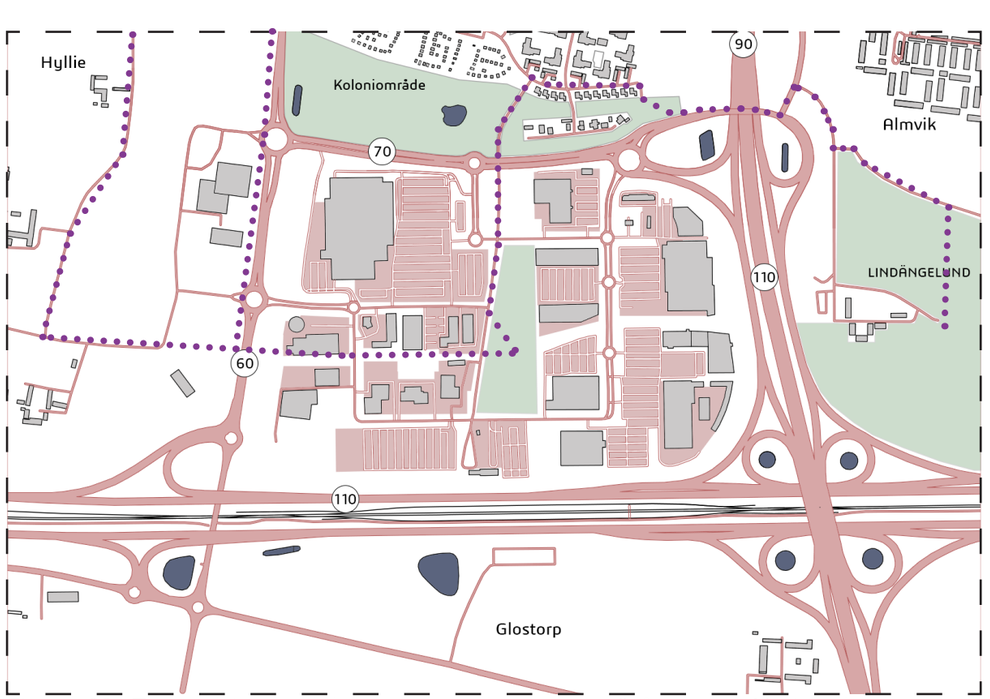
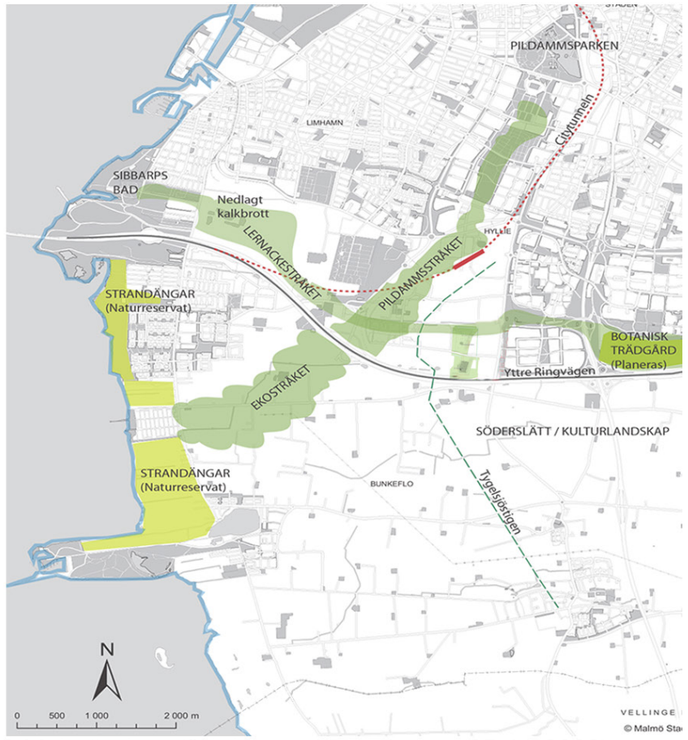


Figure 92: The walking trail from and to the park in Svågertorp. Notice the long and inconvenient way to Lindängelund.

Malmö City Future Plans



1.Malmö plans (Stadsbyggnadskontoret 05-11-2009)

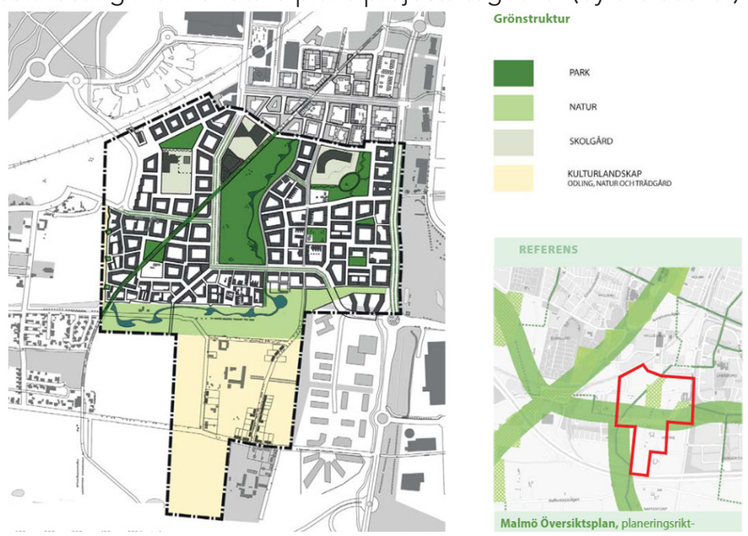
2. Hyllie park (Malmö stad 13-9-2021)

Maps Below show the plans for Malmö city. As can be seen, Malmö has plans for the site adjacent to Svågertorp to be one of the largest botanical gardens in Skåne.

While the area to the west of Svågertorp is planned to be reserved as a cultural area. One can notice from map 01 that Malmö is planning to connect Lindägenlund botanical garden with the sea through a 6 km hiking trail, this green line on the map is overlapping with the northern street of Svågertorp. **Noticing that Svågertorp is not acknowledged in any of Malmö stads plans.**

Figure 97: A map that connecting Malmö future plans projects togother (by the author)

3. Lindängelund Botanical garden

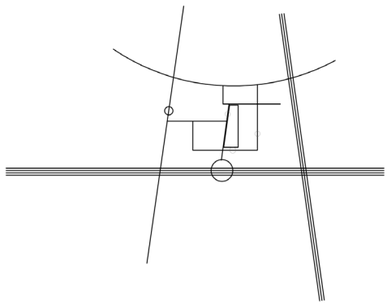
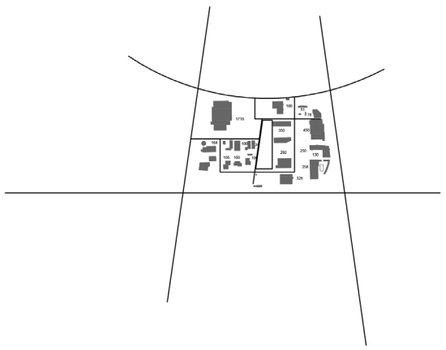
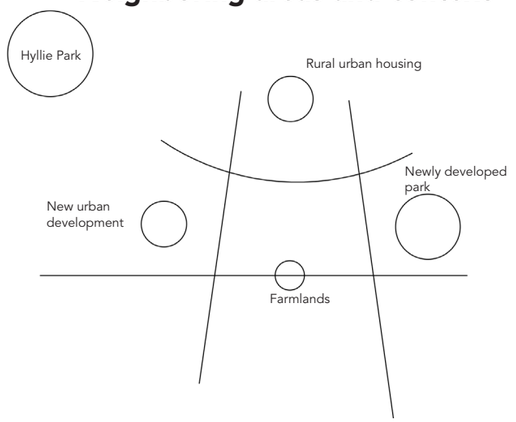
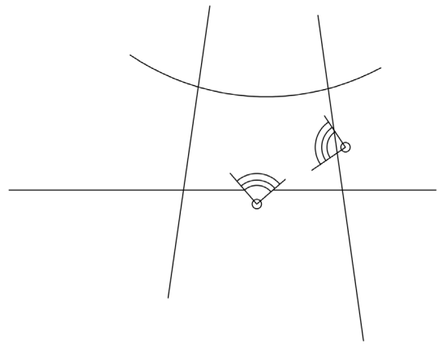


4. Vintrie cultural area (Torsten Persson,Malmö stad 2015)

Conclusion
Site-Specific Development

To sum up this chapter, the schedule below discusses the main findings, the author's comments and some suggestions that will be taken into consideration while designing the site for future development.

In the following chapter, some physical solutions will be suggested for a community that is ready to take the circular economy as part of its growth, in areas that were meant for only consumption, the external shopping centers.

	Streets and Accessibility	Land use and functions	Neighboring areas and context	Noise, and other notes
Maps and icons				
Notes	- Three local bus stations. - One train station. - One regional bus station.	Site area = 1,000,000 sqm buildings area = 122,591 sqm (12%) Sealed surfaces area = 558,010 sqm (55.8%) Parking area = 236,314 sqm (23.6%) Park area = 35,299 sqm (3.5%)	The area is in-between newly developed areas. It can play a significant role in connecting areas together.	The highway and railway are noisy
Comments and suggestions	- Highway and ring roads act as separators. - Limited entrances and exits. - Low permeability (almost 0) ..... The design should aim for breaking the separators through: 1- Turning the northern street into a walkable human-centric street. 2 - Connect Svågertorp to the south by making the train station a center that connects both areas. 3- Slowing down some streets is mandatory to make the site livable and walkable.	- Mono functional use - Unused park - Car oriented area ..... Turning the area into multifunctional through: 1 - Densification. 2 - Adding different typologies of housing. 3 - New parking typologies (that can be changed to something else gradually) 4 - Adding nighttime functions (hotels, cafes, restaurants, cinema, etc.)	- The connection is an important issue that needs to be addressed through the design. - The land prices will increase rapidly. ..... Connect the area with the surroundings through: 1 - Allowing for more connections with the surrounding areas through human-centric crossing areas (bio ducts, crossing areas, highway interchanges that prioritize walkers and bikers)	1 - Create sound-barrier buildings that has Parking lots and shopping centers on the ground levels. 2 - To the south of svågertorp, adding trees to the mono farmlands can create a wind barrier as well.

Chapter 03

Vision and Design

- Site vision (Linear economy vs Circular Economy)
- Urban Ergonomics model
- Urban Ergonomics components
- Intervention guidelines
- Design Process
- Future Svågertorp
- Malmö Future Plans + Svågertorp 2040
- Design Details
- Shadow studies
- 3D overview
- District Section
-Mobility, Flow and Parking
- Svågertorp Live-Work Module
- Svågertorp Work-Live Module
- Svågertorp Semi Rural Units
- Progressive Typologies

SITE VISION

Realizing circular economy opportunities at multiple scales with nature as part of the process

The vision for the site is to build upon its current use, shopping. The shopping district is part of the economic cycle of Malmö, yet to enhance its use in a sustainable matter, the approach is to approximate all activities related to the economic cycle of everyday life.

T**hrough a holistic approach, the design seeks to generate a fully functional loop of production, distribution, and consumption.** Combining these pure economic concepts with living places, social spaces and working areas where people lives are part of their economic activities.

The production opportunities in the site would consist of but are not limited to food production, energy, services, and small industrial procedures. These production activities will be on large and small scales (commercial and residential production).

The project will aim for minimizing the distribution due to proximity between producer and consumer, on a larger scale, the streets and means of transportation within and to the site will enhance sustainable modes, walking and cycling majorly.

For the consumption part, it is seen as a direct supplier for production, the project seeks to start the waste management cycle from the very beginning, the households.

Furthermore, the project will examine the possibilities of future development in transportation and technology and aim to make adaptable spaces for further development in the future.

The concept of circular economy is relatively new. While its basic idea is very old, it was first introduced as a package by Janez Potocnikthe from the European Commission in 2015, which is when it started to be part of the business mainstream (Ekins, 2019). That explains why it is usually discussed from the business and economic point of view. **The project seeks to integrate this concept with site residents' everyday life, taking into consideration their mental health, their social life and the liveliness of circular communities.**

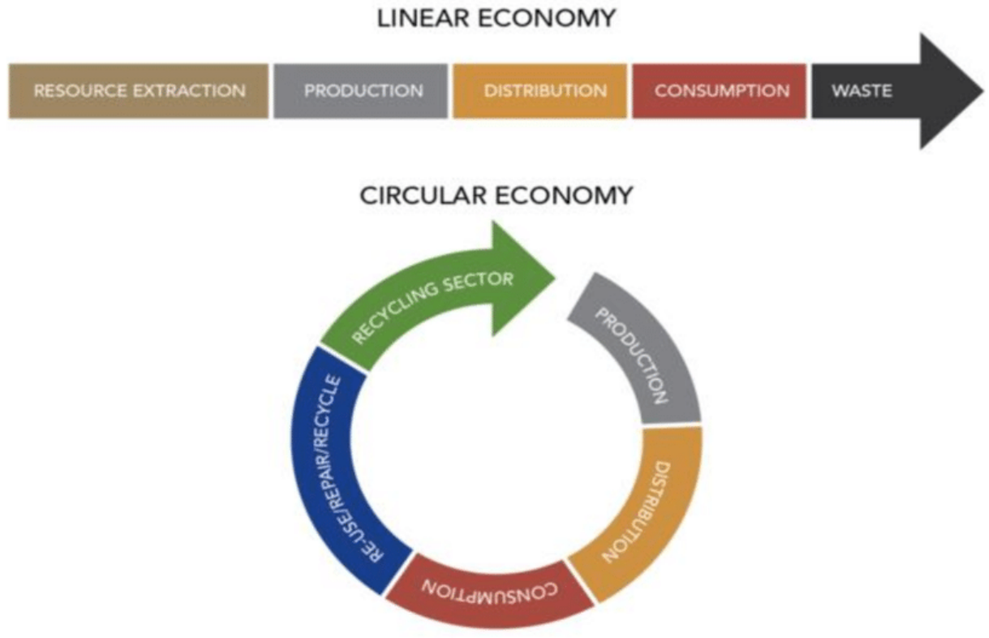


Figure 98: A demonstration on the difference between linear and circular economy. Big-box retail areas exist only on the consumption part of the process.

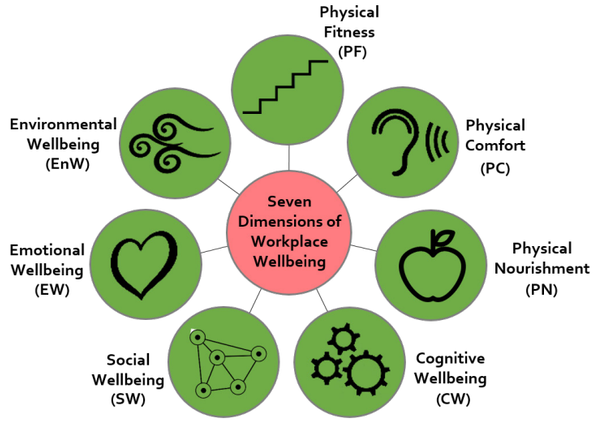


Figure 99: Mental health assessment factors by Innovative Workplace Institute called Prowell.

Urban Ergonomics Model

Ergonomics is the scientific study of people and their working conditions, especially done in order to improve effectiveness. It is the process of designing or arranging workplaces, products and systems so that they fit the people who use them.

On an urban scale, Svågertorp will be developed in a way that follows the circular economy principles, to reduce waste, and generate more sustainable energy and production.

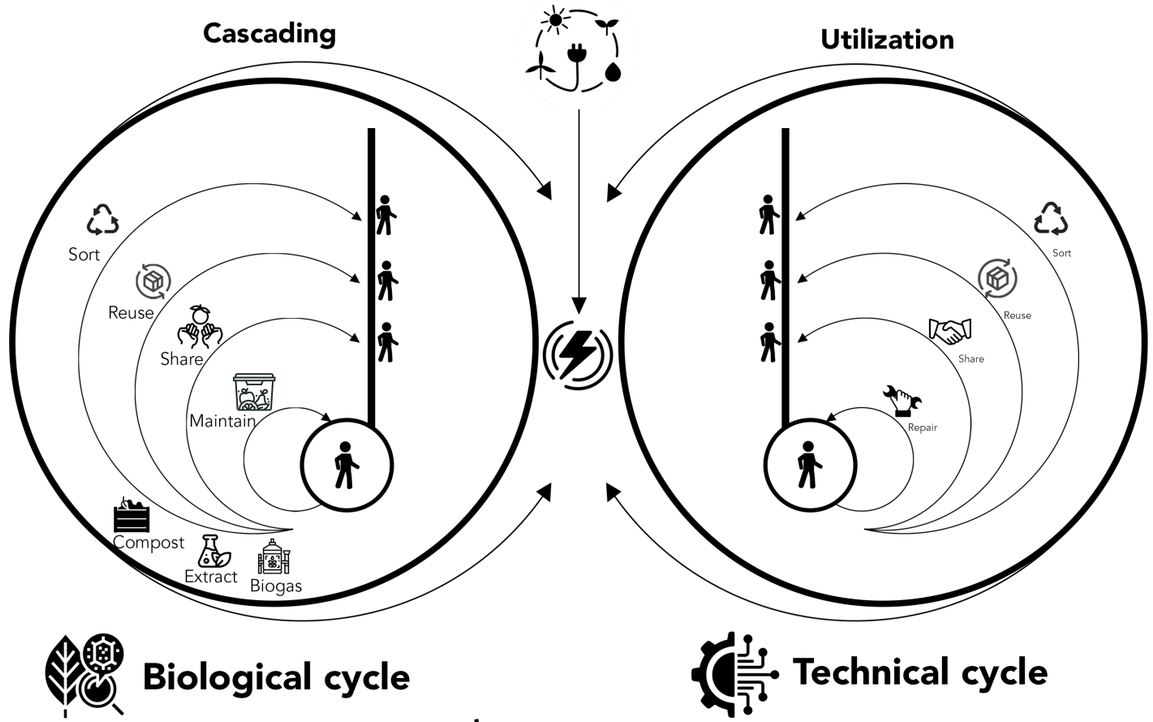
Yet, the site when further developed will be full of life, with many people involved in the process of production, distribution, waste management and consumption.

Circular Economy as clarified in the graph is two main circles, one is the biological (which includes items that are made of biological resources, such as wood). The other is the technical circle, which contains everything that is made of non-biological resources (such as steel). While both circles implement different treatments for the products, they are the same in their concept. Reducing virgin resources consumption, and relying more on making the most of what we have. The Urban Ergonomics project will be built based on the same concept. No more lands in Svågertorp or the surrounding areas will be subjected to further excavation or sealing. And materials used for the buildings will be local materials as much as possible.

The design of urban ergonomics, the scale, the proportion and the positioning of the functions, will be built on the Prowell model. Focusing on Social, Cognitive, Emotional and Physical well-being.

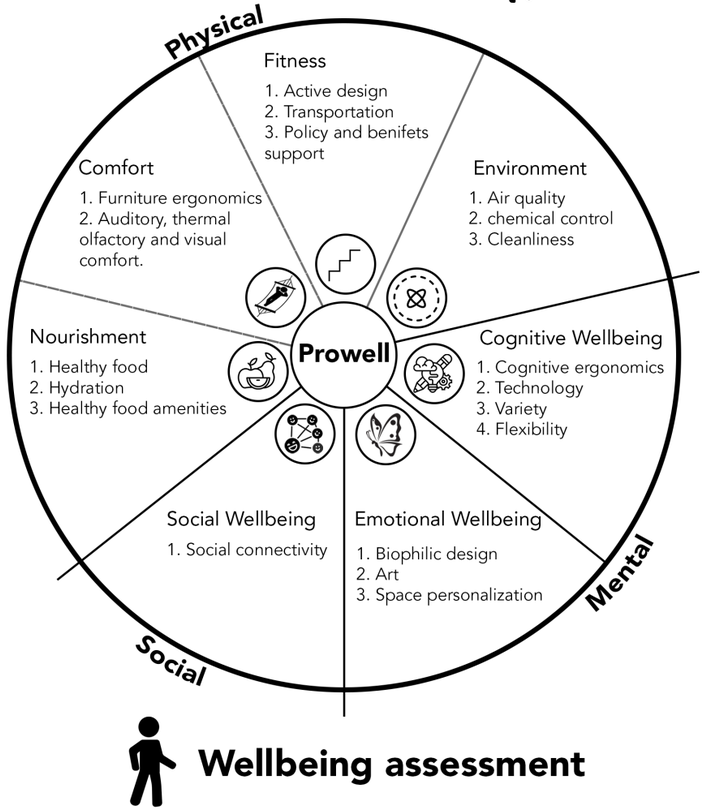
Circular Economy Model

**Ellen Macarthur Foundation - author's edit*

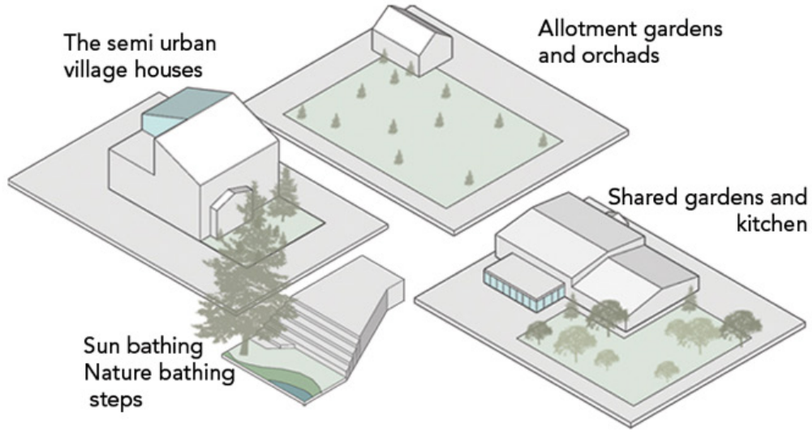


Health and Wellbeing Model

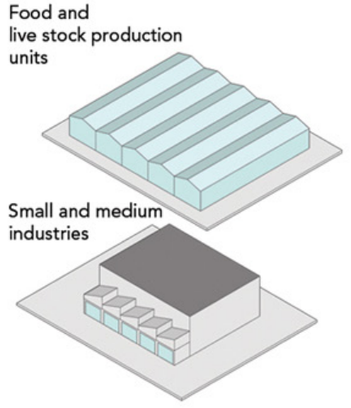
**Innovative Workplace Institute - author's edit*



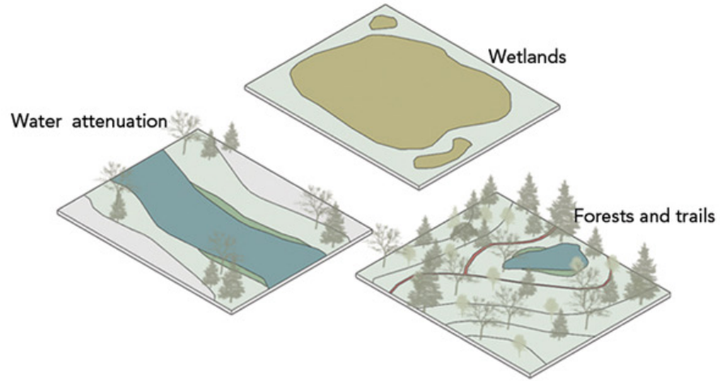
Urban Ergonomics Components



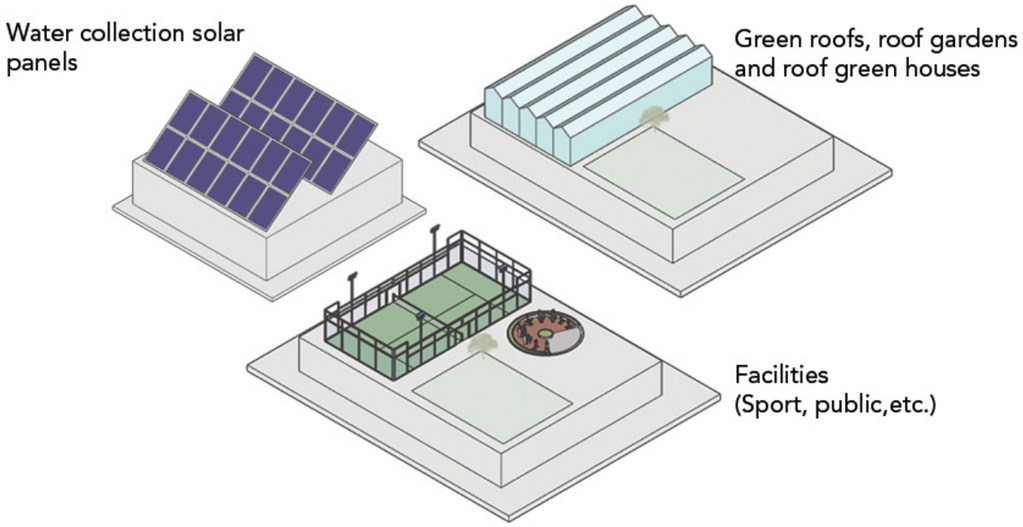
Urban-Nature Meetup Group

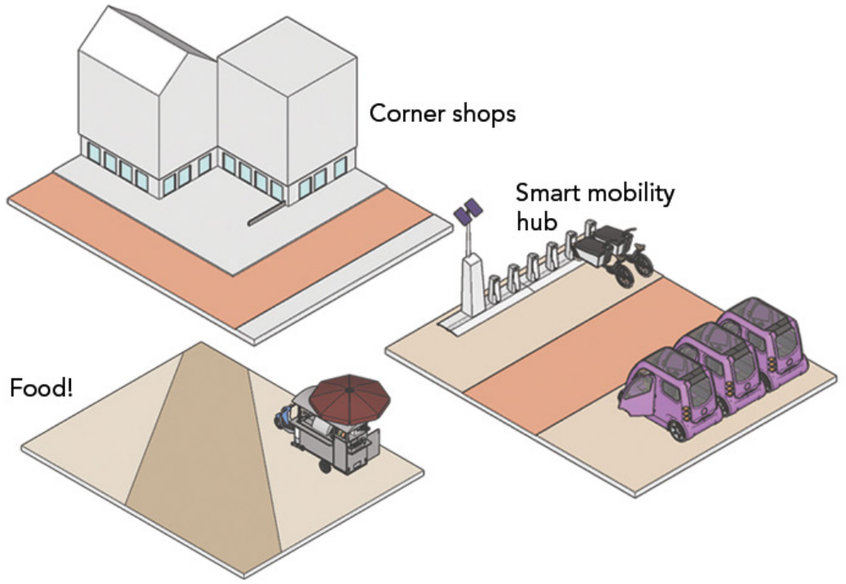


Production Group

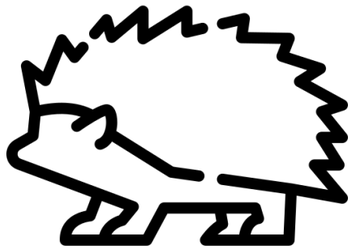


Nature Preservation Group



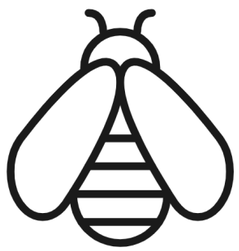


Intervention Guidelines



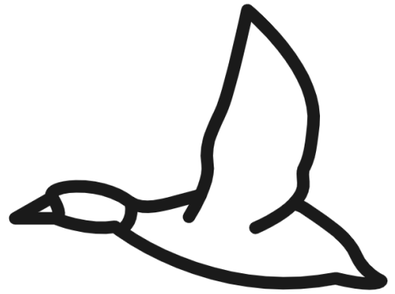
Decelerate automobile movement

- Reduce the speed limit
- Redesign the highway connection
- Materiality of streets that promotes slow driving
- Limited access for private cars.



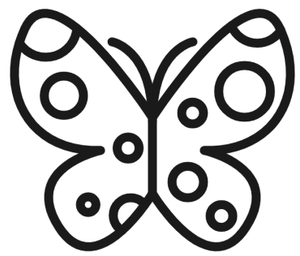
Support economy circles

- Promote local businesses
- Introduce “upgraded big-box retail”
- Urban farming, repair shops, start-ups incubators.



Connect with the context

- Continuation of the natural landscape
- Introducing the bio duct in the northeast connection
- Using smart technologies and mobility solutions

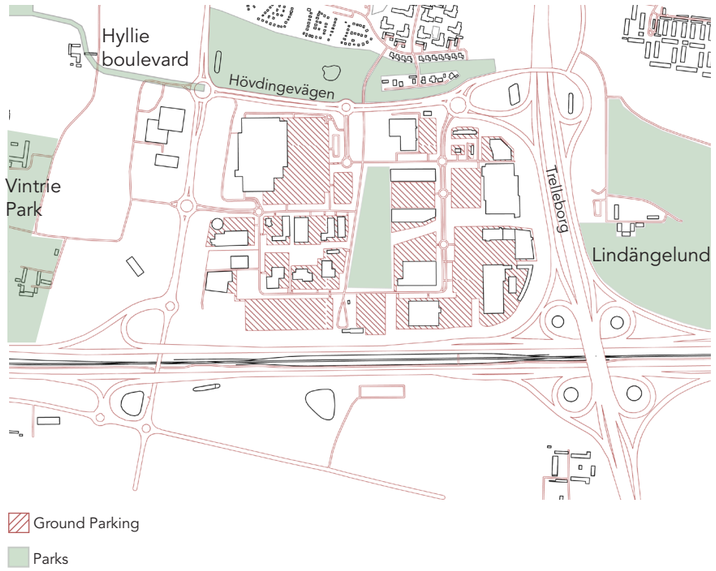


Enhance people well-being

- Direct connection with nature
- Walkability
- Diversification of users and spaces
- Markets, theatre, performance, university, safe playing areas.

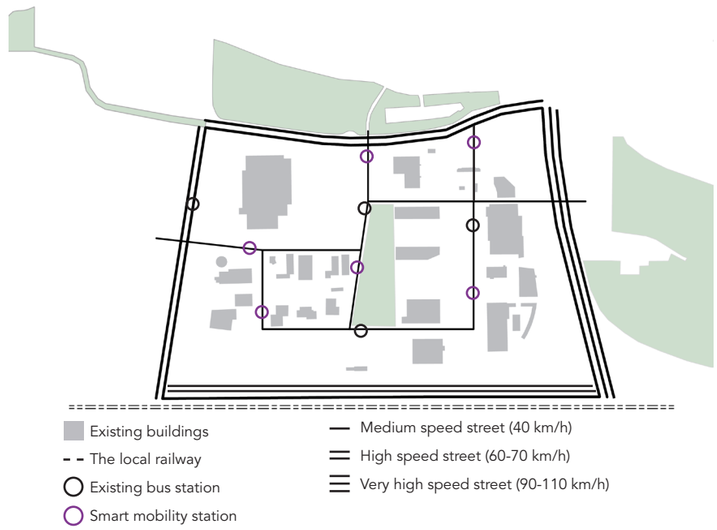
0. Svågertorp now

Nowadays, 35% of Svågertorp area is parking lots. Almost 76% of Svågertorp surfaces are sealed with asphalt. The area has 12 roundabouts and 70 hectares of car-dedicated areas.



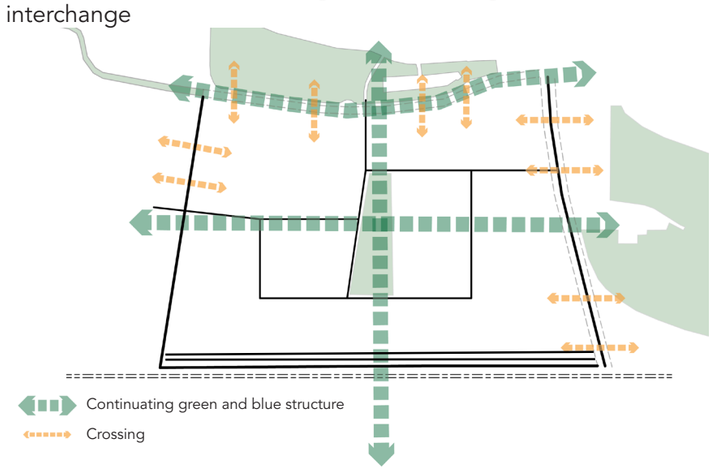
1. Zero ground parking lots.

To reduce the amount of ground parking to zero, buildings can be used for parking. **Smart mobility stations** will be distributed every 200 meters to establish a more convenient movement within the site without using private automobiles.



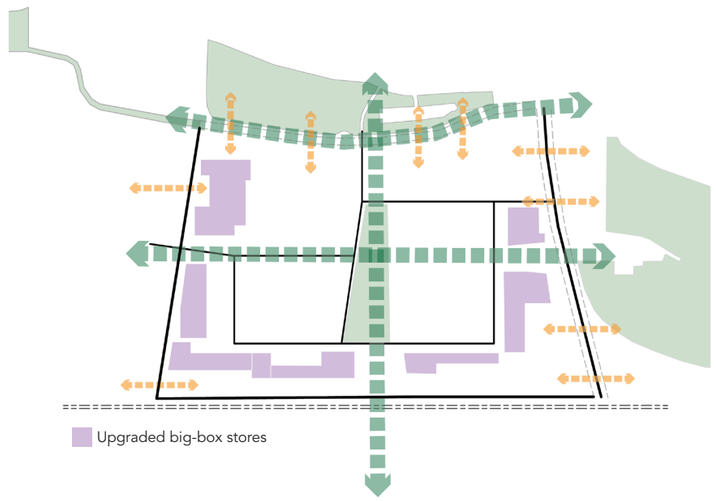
2. Breaking the separators

To break the separators, Trelleborg Street will be slowed down from 90 to 60 km/h, and the service roads will be demolished and used as a green buffer instead. Hövdingevägen will be slowed to 40. The connection between them will be turned into a bio duct and the Cloverleaf interchange will be changed into a diamond interchange



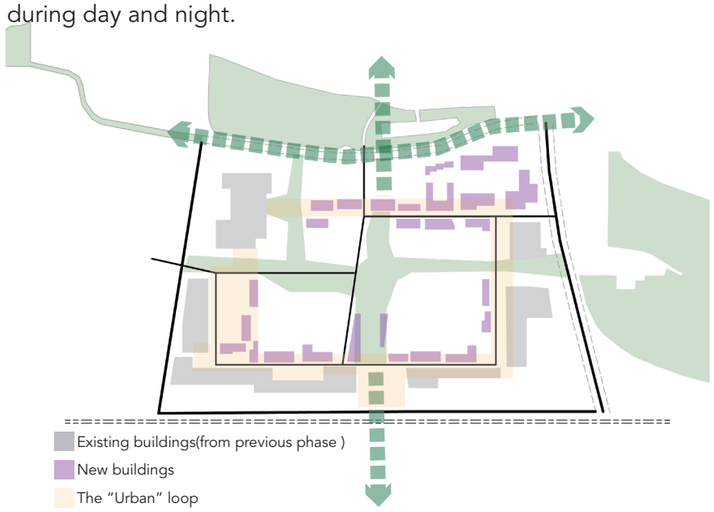
3. Protect the inner parts of Svågertorp

To do so, the perimeter blocks will be bigger in size and higher. It will be big box stores and warehouses as this typology needs loading-unloading areas that are closer to the streets.



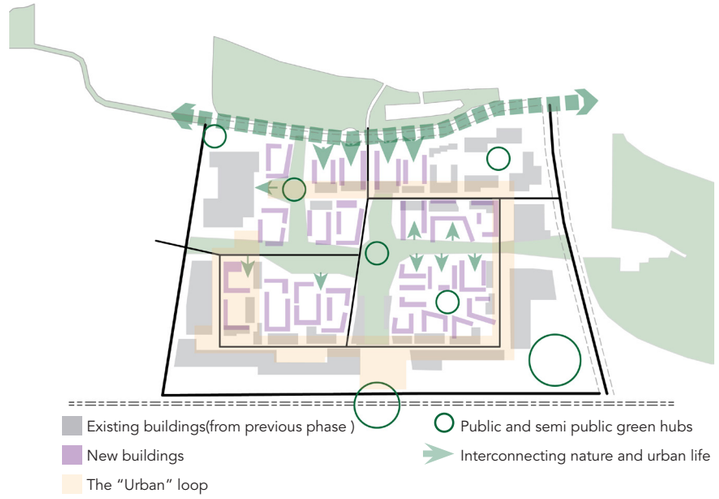
4. Local commercial (work-live) blocks

On the sides of Svågertorp inner streets, local commercial businesses will be established. These areas are occupied by craft shops, repair shops, markets, smaller stores, and startup businesses. The outdoor created between these areas are busy and livable during day and night.



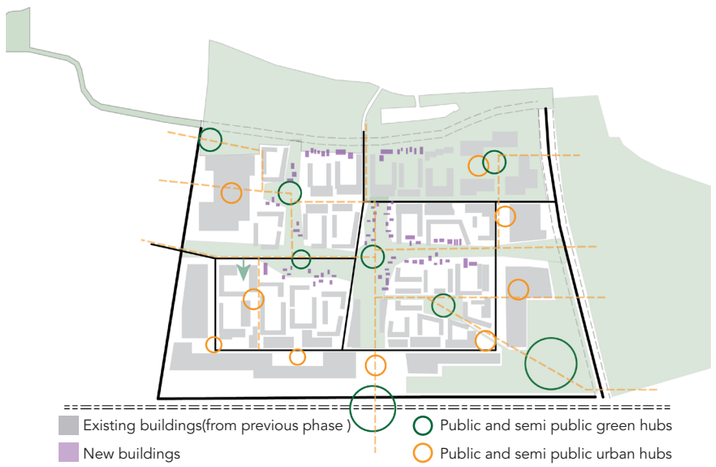
5. Mixed-income housing (live-work) blocks

Housing typologies support the idea of the circular economy, from the smallest scale. Every block has commercial mini markets, shared and private gardens, repair shops and communal spaces for eating, washing machines, game rooms, etc.



6. The semi-rural units

Closer to nature, smaller-scale shared houses will be built. These houses will be provided with gardens and a waste management system. The houses vary in size, number of dwellers and typologies as well.

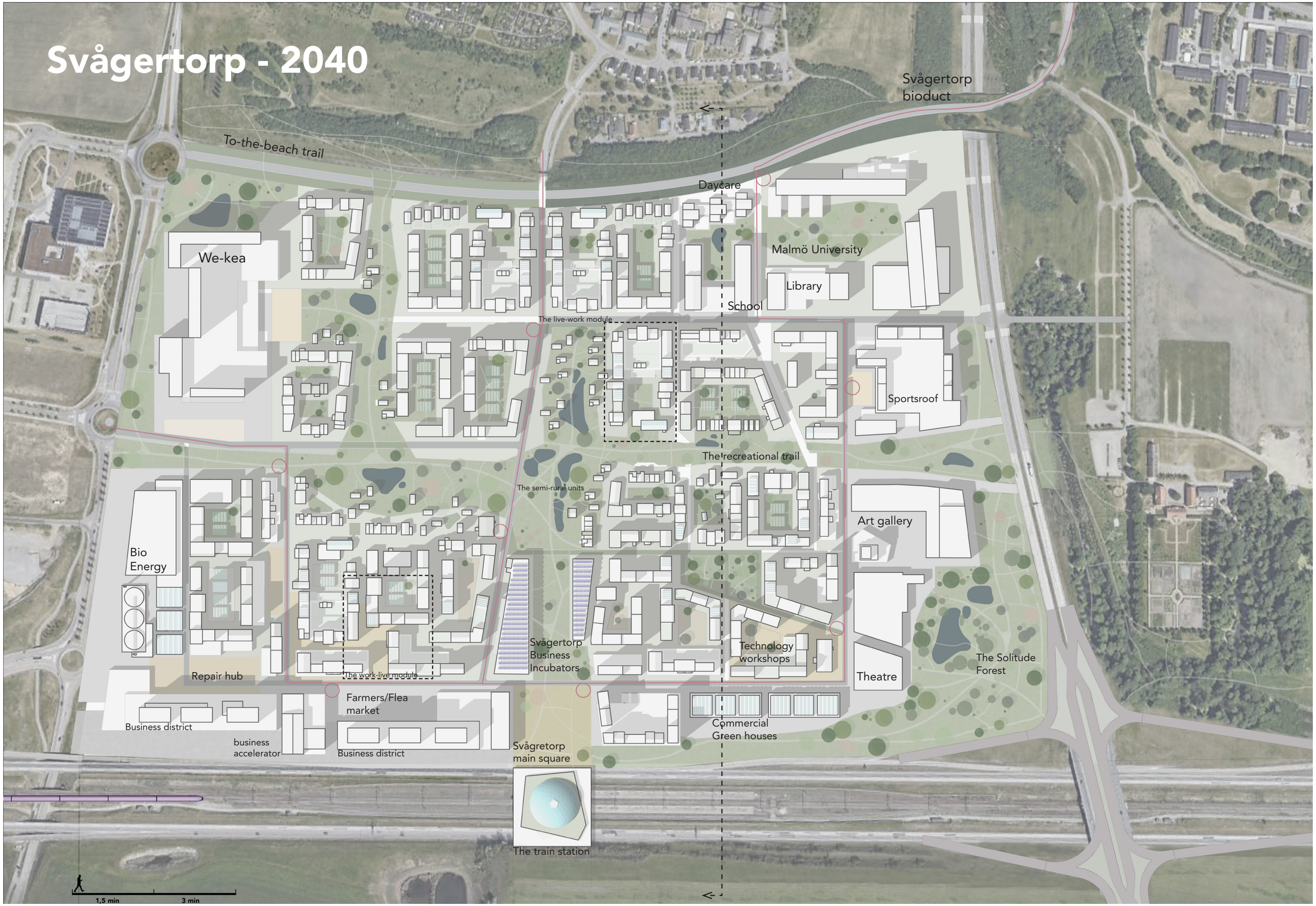


7. Hierarchical outdoors

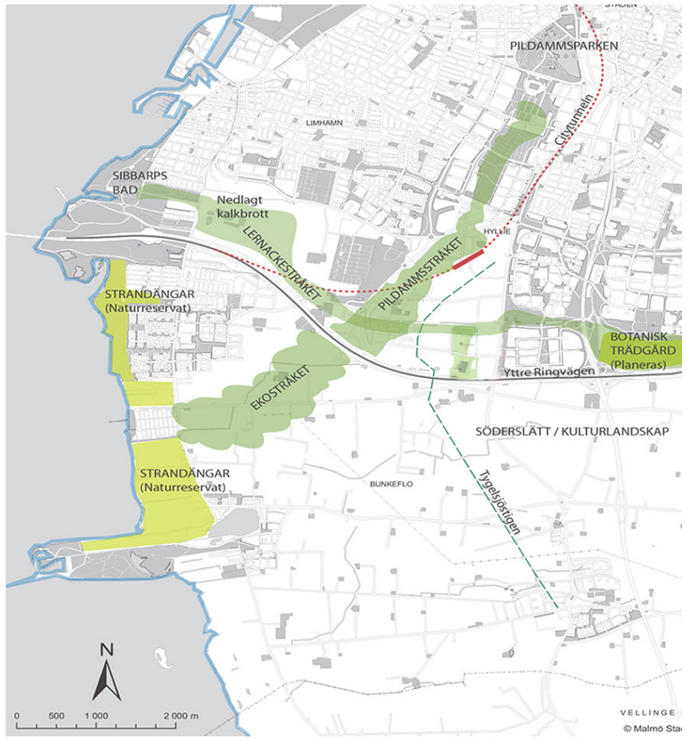
The importance of hierarchical outdoors is that it offers a sense of community, a sense of creating transitional spaces between being alone, being with neighbors, and being with strangers or visitors.

Svågertorp - 2020

Svågertorp - 2040



Malmö City Future Plans +Svågertorp 2040



1.Malmö plans (Stadsbyggnadskontoret 05-11-2009)

2. Hyllie park (2.Malmö stad 13-9-2021)

Map connecting projects togother (by the author)

3. Lindängelund Botanical garden

4. Svågertorp 2040, urban ergonomics project

Existing-New functions

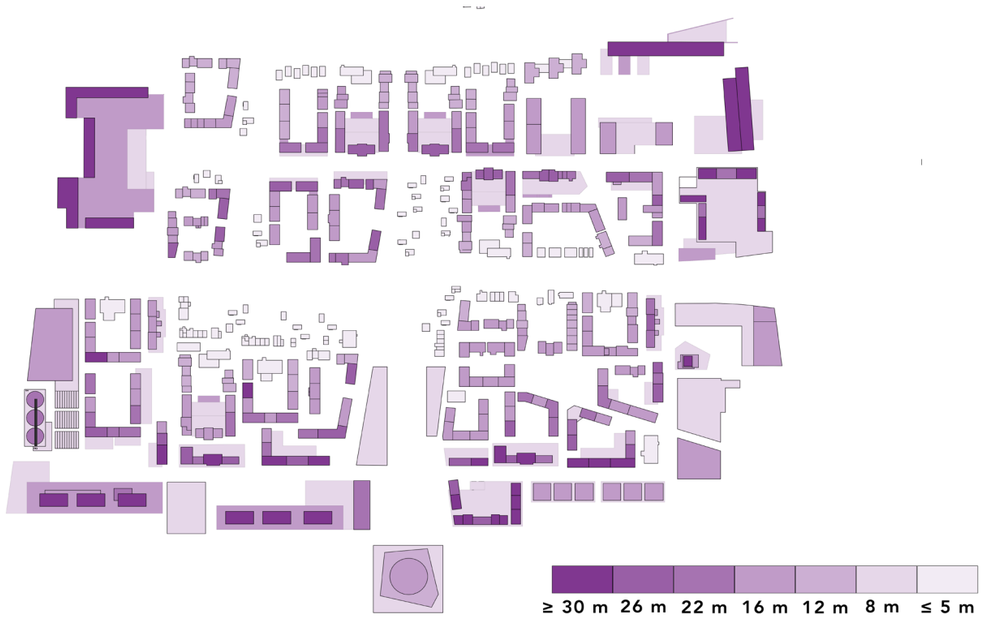
Most of the site spaces nowadays are parking lots (35%). This allows for a huge development in the site. Most of the additional buildings on the site are higher than the existing ones as well. Leading to proper density and variety of uses. While it is convenient for customers to find commodities they need in one area, the original use of the site is preserved, with more focus on using sustainable mobility solutions to reach and move through the area.

Buildings' main use

A variety of functions will be established on the site. In addition to the shopping areas, workshops and innovation incubators will be an added value. Different housing typologies are also introduced to create inclusive communities. Students, workers, business owners, freelancers, visitors, and creative individuals are all welcome to the site. Most of the facilities provided support not only the act of living but working and leisure activities as well. Energy production facilities will be established on different scales.

Buildings' heights

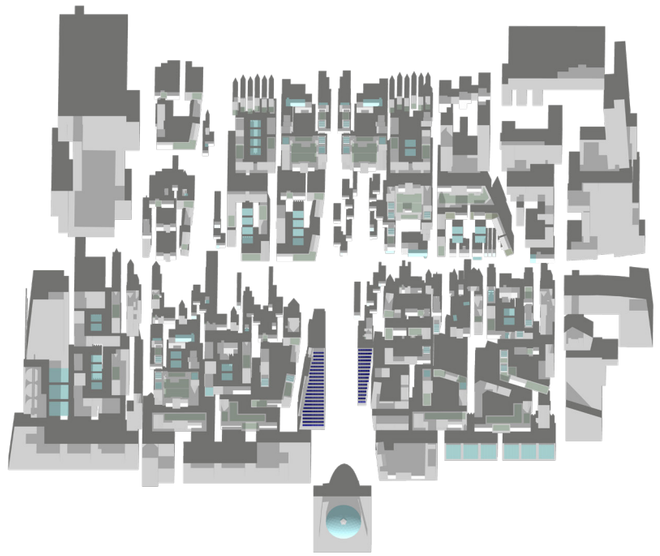
Suggested heights are 3-40 meters (1 to 13 floors). This allows for variety and density in the district. Higher buildings are to the south and closer to the highway. This is to protect the inner parts of the site from noise pollution and wind. Closer to nature, the buildings are smaller in scale and lower in height. **The closer you are to nature, the smaller the scale, the slower the life and the less the crowd.**



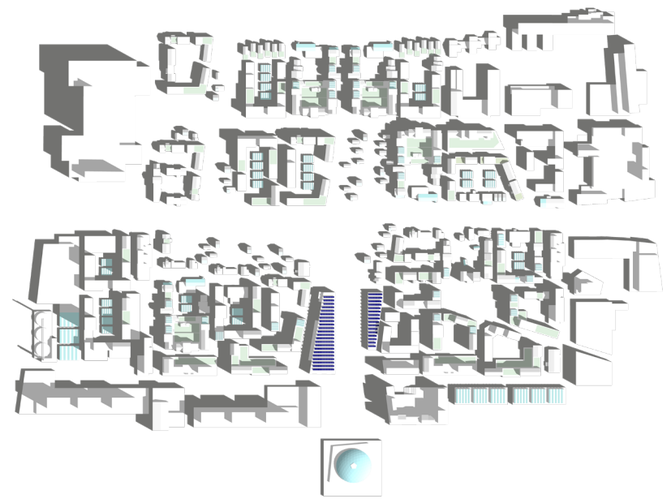
Green assets

There are endless studies that demonstrate the importance of green for our mental health and of course for the environment. The site will promote different types of green. For the sake of production, recreation, biodiversity preservation, and water attenuation. Green also plays a vital role in the circular economy, especially in using grey water and livestock waste.

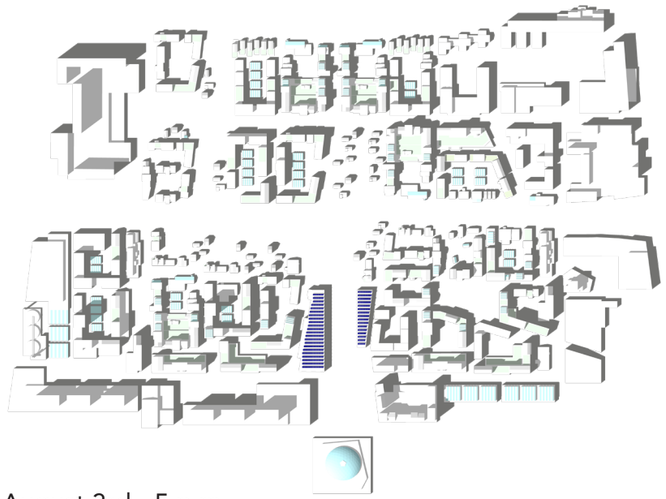
Shadow Studies



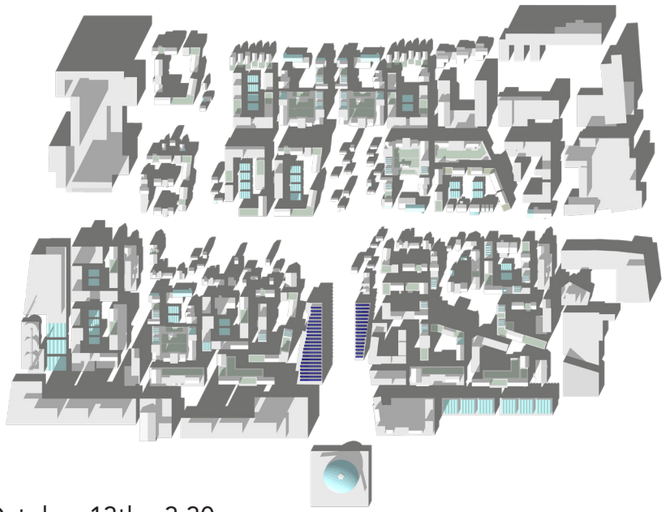
January 15th - Noon time



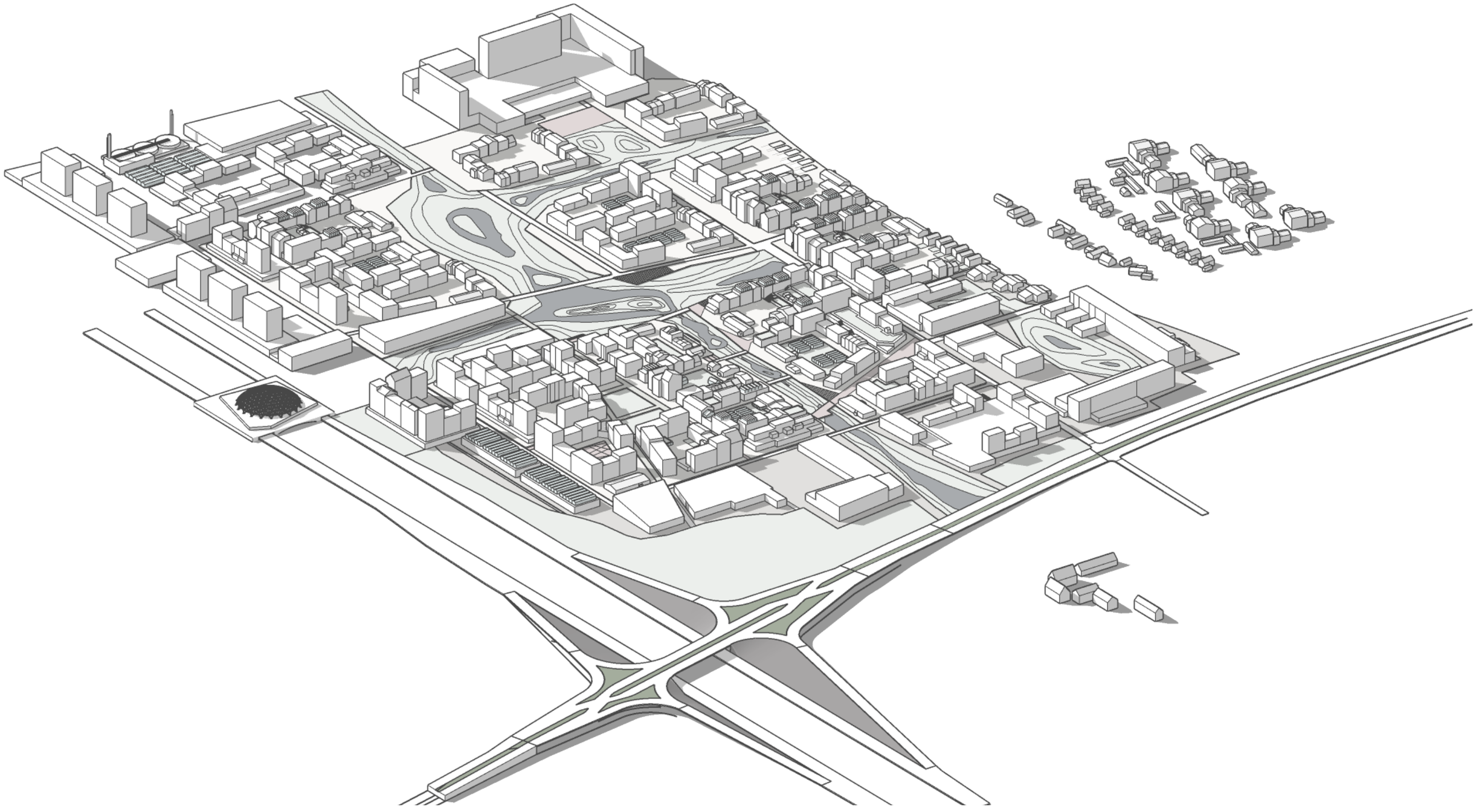
April 15th - 10 a.m.

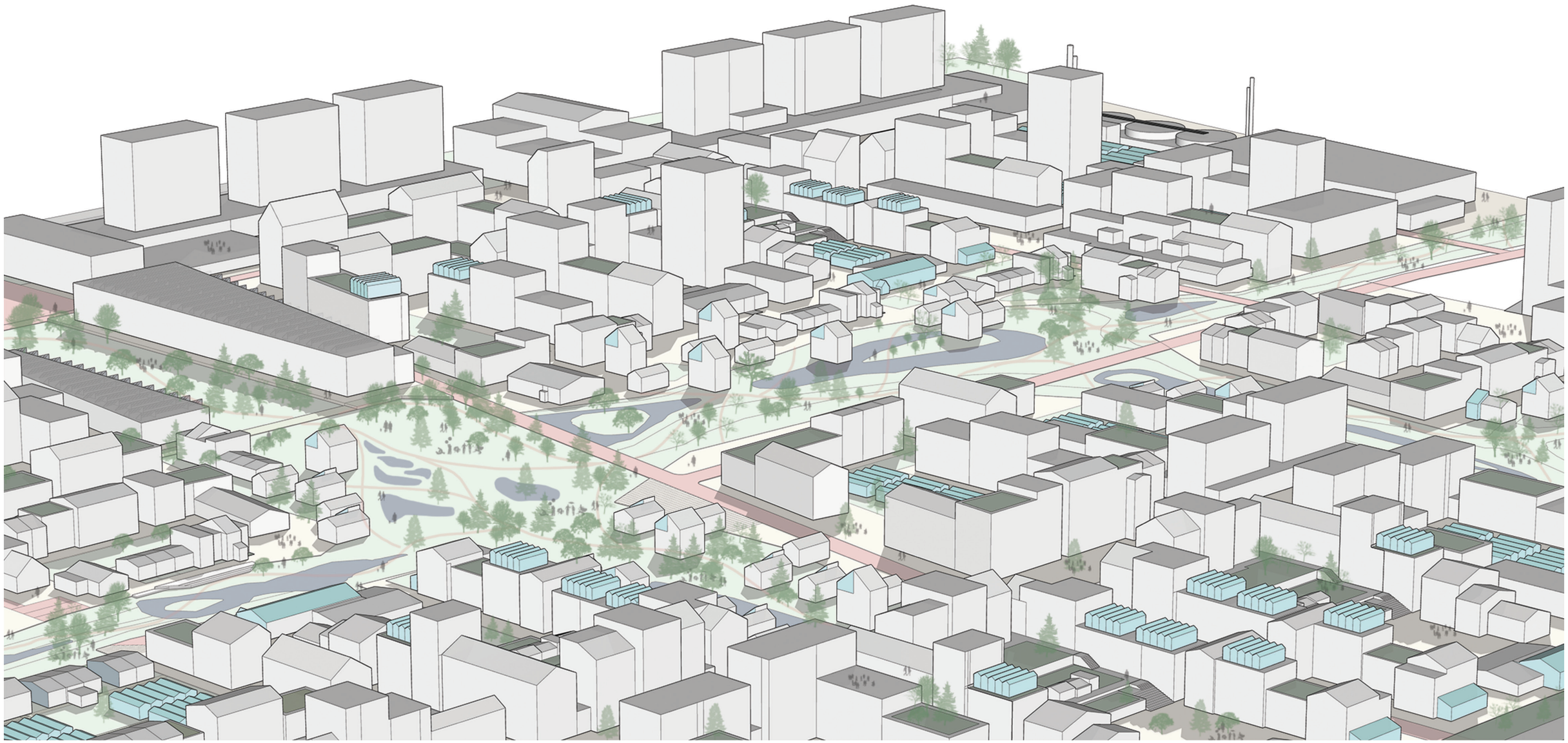


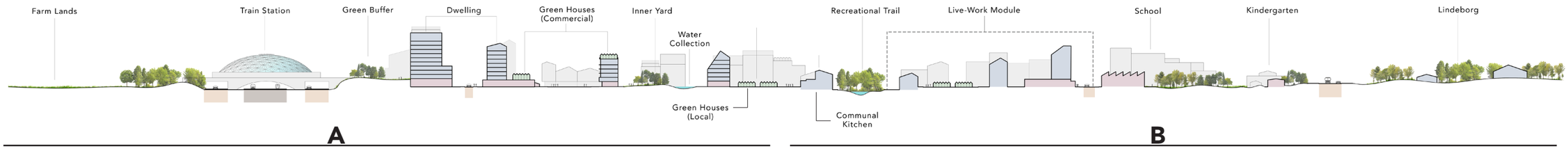
August 3rd - 5 p.m.



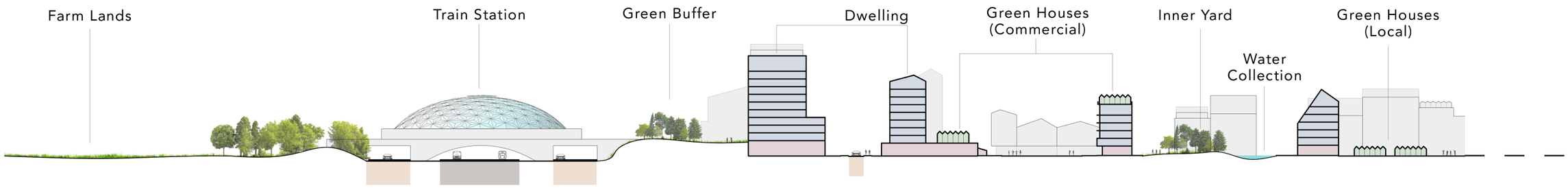
October 13th - 3:30 p.m.



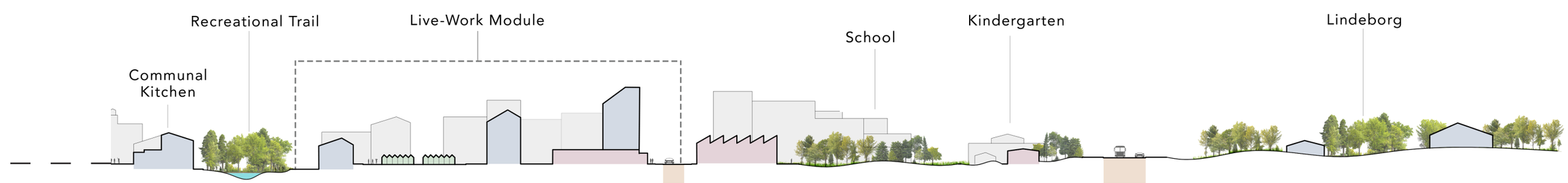




Section 1



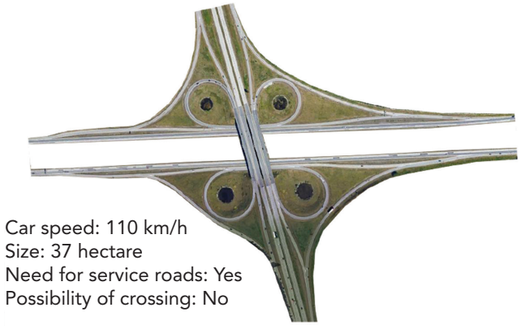
Section 1 - A



Section 1 - B

Mobility, Flow and Parking

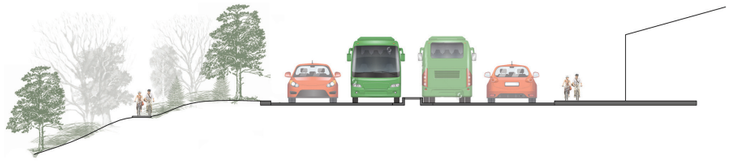
The Highway interchange - Cloverleaf vs Diamond shaped



Car speed: 110 km/h
Size: 37 hectare
Need for service roads: Yes
Possibility of crossing: No

Car speed: 110 to 0
Size: 9.7 hectare
Need for service roads: No
Possibility of crossing: Yes

Tillstranden trail (the northern street)

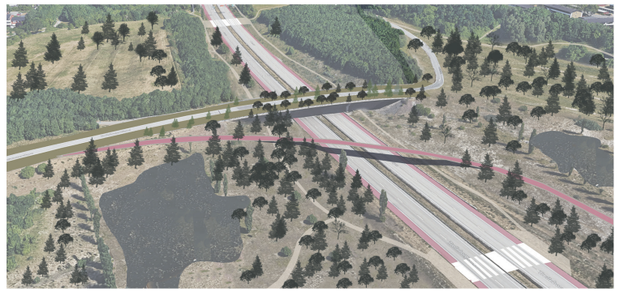


Section for the bus and cars (Hyllie Boulevard)

Section for the guided bus trail (inspired by Cambridge guided bus)

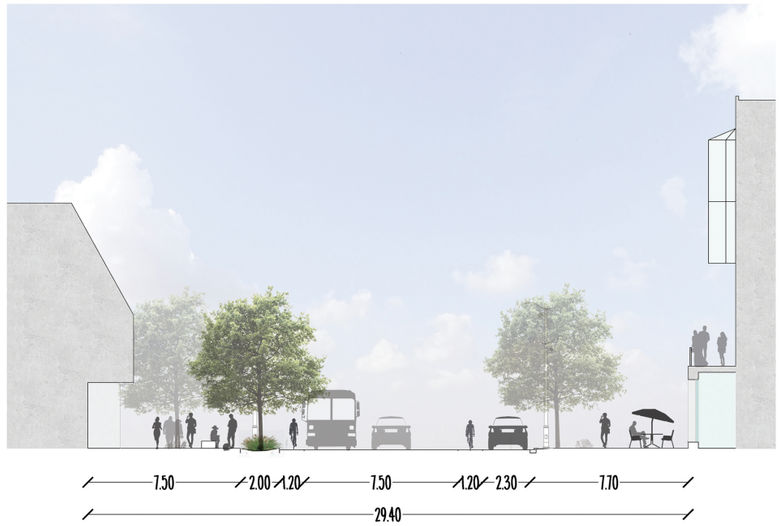
Street connections
- the northeast bridge

Car speed: 110 & 70
Size: 8.5 hectare
Need for service roads: Yes
Possibility of crossing: Limited



Car speed: 60 & 40 km/h
Size: 0.5 hectare
Need for service roads: No
Possibility of crossing: Yes, on
both levels and both sides

Urban Loop Details



Section and plan for the main streets of Svågertorp (The urban loop)

Figure 134: Diamond shaped interchange.

Figure 135: An example
of prioritizing people
over cars.

Figure 136: Autonomous car in action in Linköping, Sweden.

Svågertorp Live-Work module

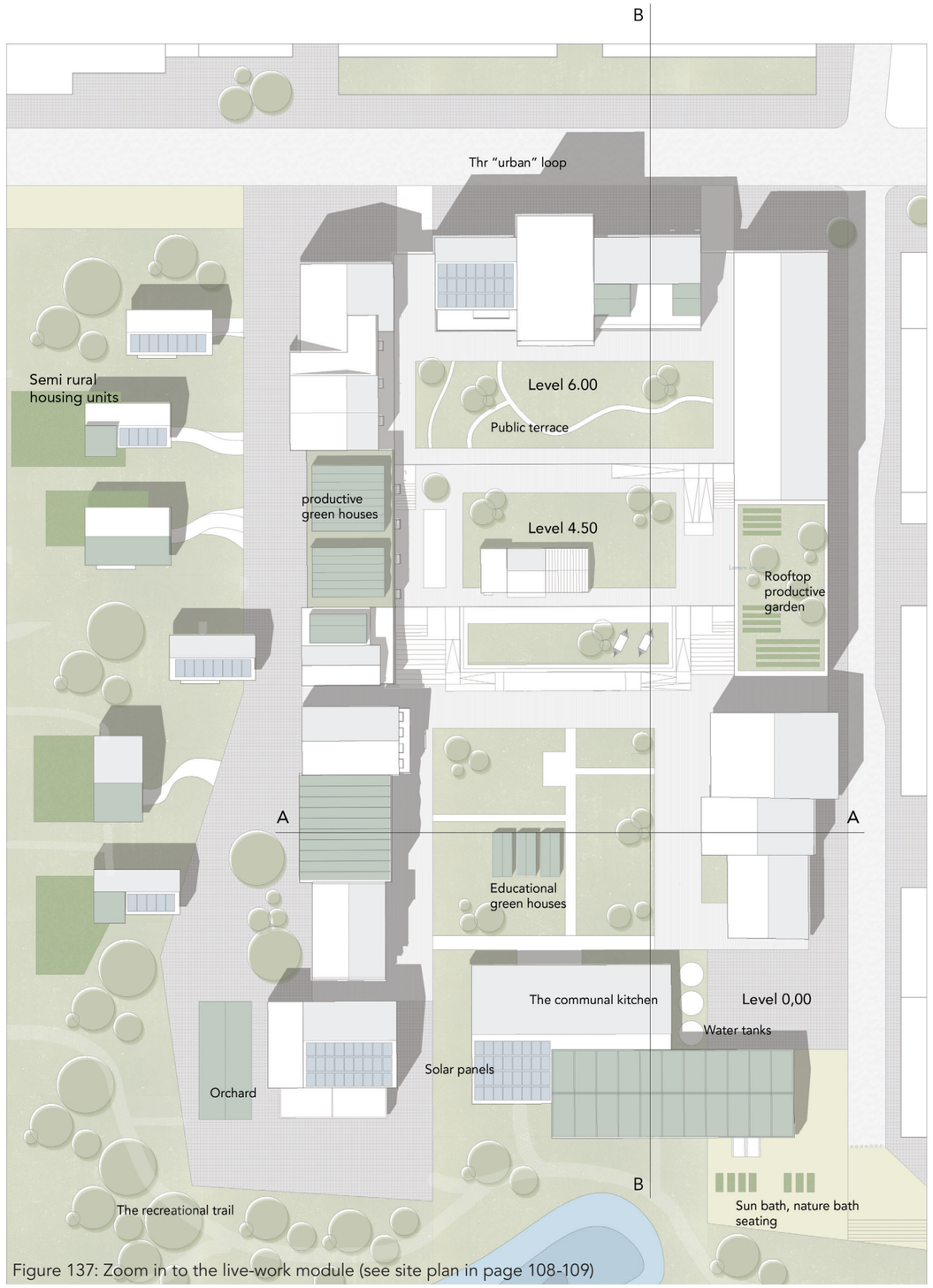
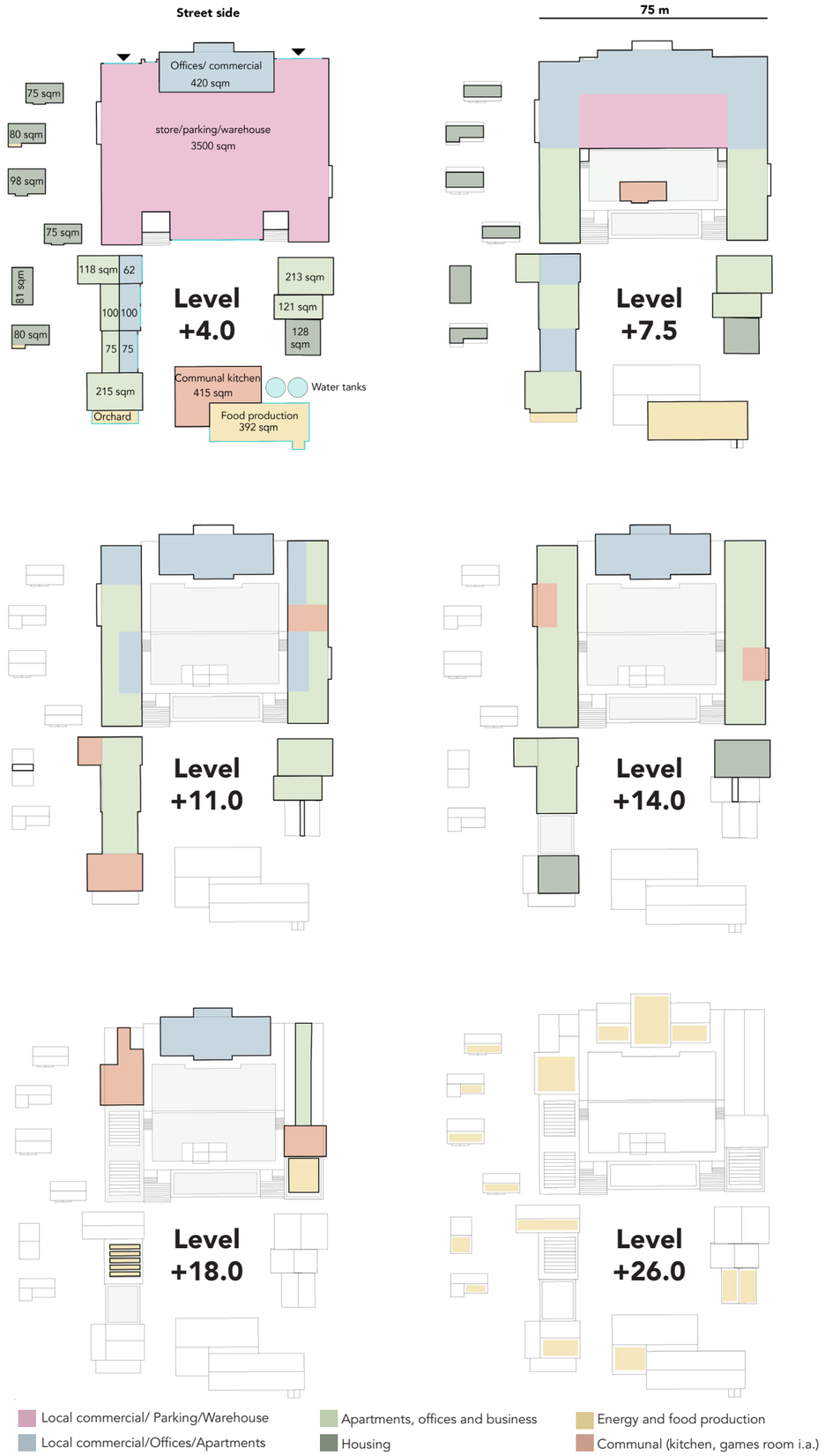


Figure 137: Zoom in to the live-work module (see site plan in page 108-109)



Svågertorp live-work module

As shown, Svågertorp live-work module is a whole neighborhood that has two sides, one is the urban side, where the entrances to the big stores and the offices are, and one to the nature side, where people can enjoy gatherings and social activities close to nature.

The design suggests a big area for stores, this area, however, has small-scale entrances that make it more welcoming and less stimulating. The neighborhood has many local commercial businesses as well. Such as barber shops, pharmacies, pizzerias, and repair shops.

The live-work module does not have one size or one design, buildings vary in size, height, and use.

Figure 139: Section A-A in the live-work module (see site plan in page 126)

Figure 140: Section B-B in the live-work module (see site plan in page 126)

Figure 141: A view over the neighborhood showing the activities taking place on many levels

Figure 142: A human eye perspective for the atmosphere of the neighborhood

Svågertorp Work-Live Module

Svågertorp work live module is closer to the urban loop street. The area has more offices and production areas. Buildings have active ground floors that have spaces for small businesses to take place. The inner yards and pocket parks of the work-live districts are accessible to the public and have direct contact with the streets outside.

Work-live neighborhoods have harder ground surfaces that allow for commercial activities to be part of the public life, such as food carts and small temporary shops, as shown in the visualizations in the following pages.

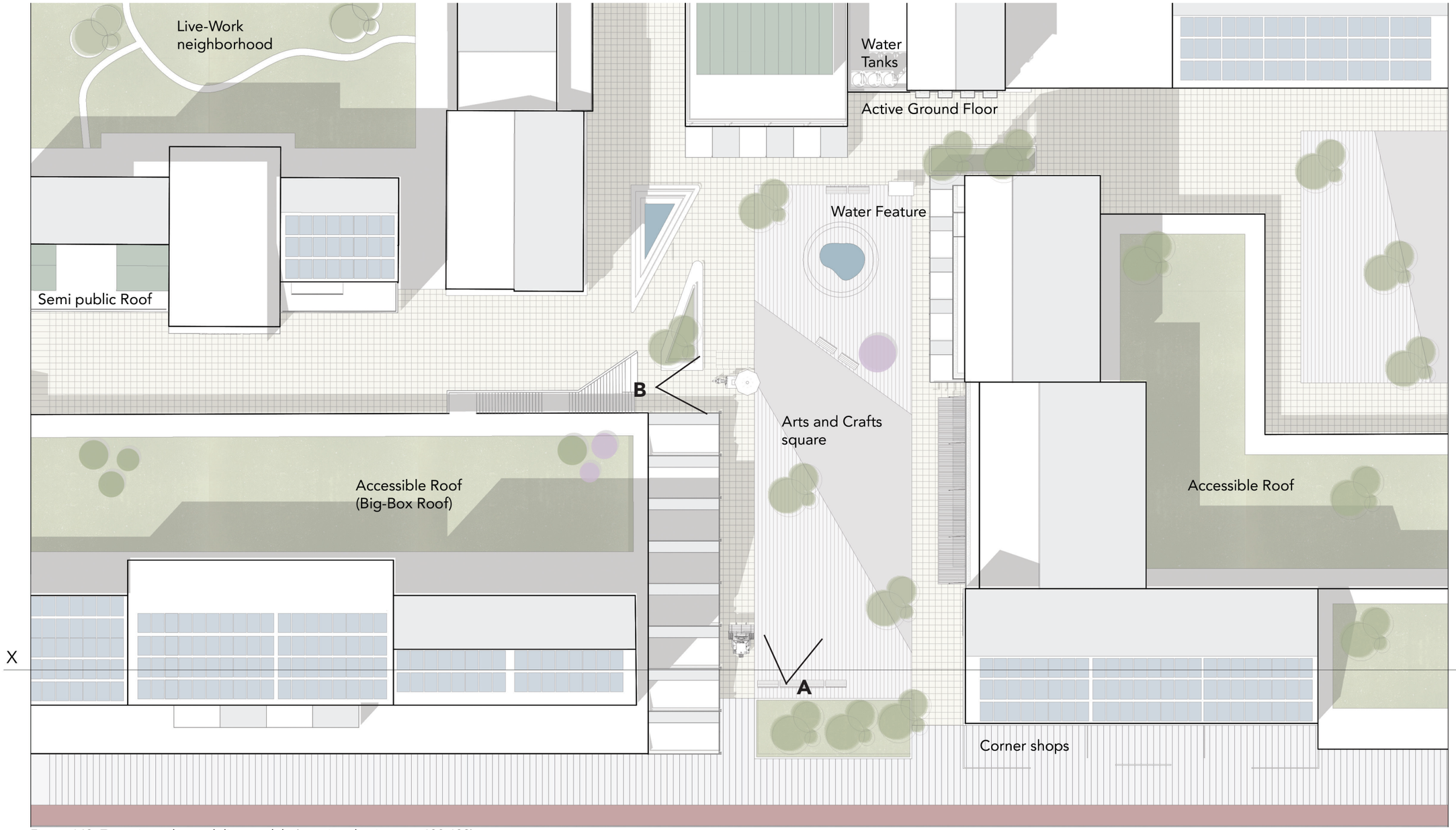


Figure 143: Zoom in to the work-live module (see site plan in page 108-109)

Figure 144: A human eye perspective (A) showing the atmosphere of the Work-Live districts (see site plan on pages 134-135)

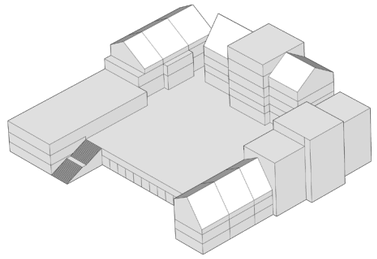
Figure 145: A human eye perspective (B) showing the atmosphere of the Work-Live districts (see site plan on pages 134-135)

Svågertorp Semi Rural Units

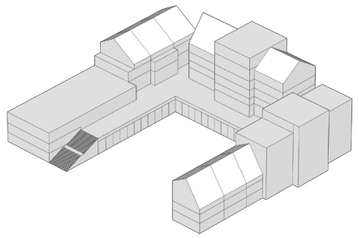
Figure 146: The semi rural buildings atmosphere (by author, isnpired by ReGen Villages project of EFEEKT architects)

Progressive Typologies

a. Phasing-out-from-parking typology

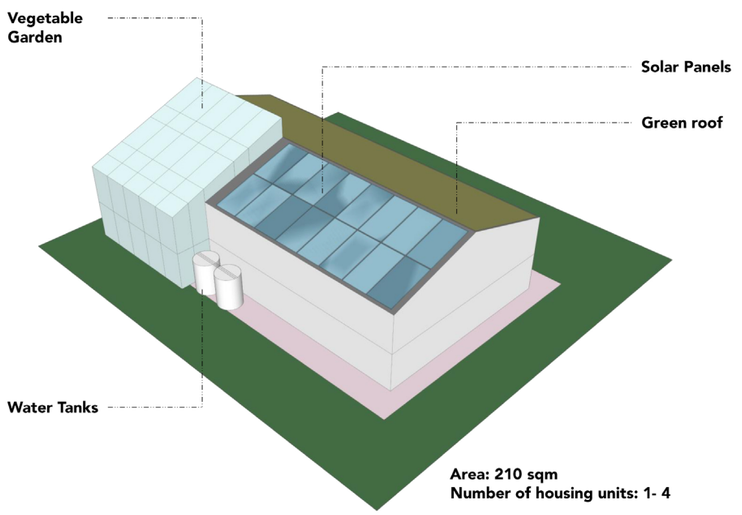


With propal roofing material,
The building can be used now as parking
wiht roof as public space

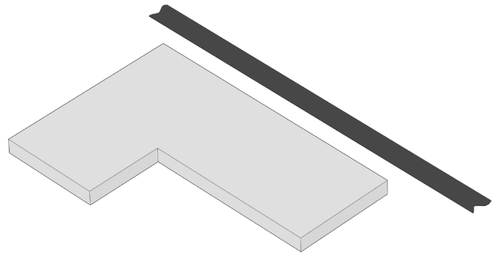


If more functions that need natural light
and ventilation needed. The roof can be recy-
cled into other areas and the public space
will be on the ground again.

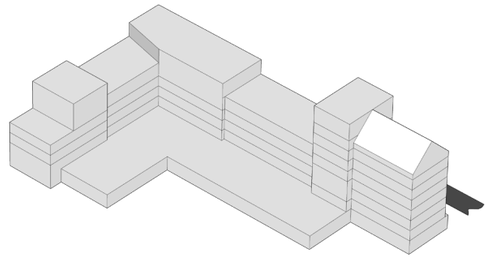
b. The semi rural units typology



c. Upgraded big-box typology



The big box typology nowadays.



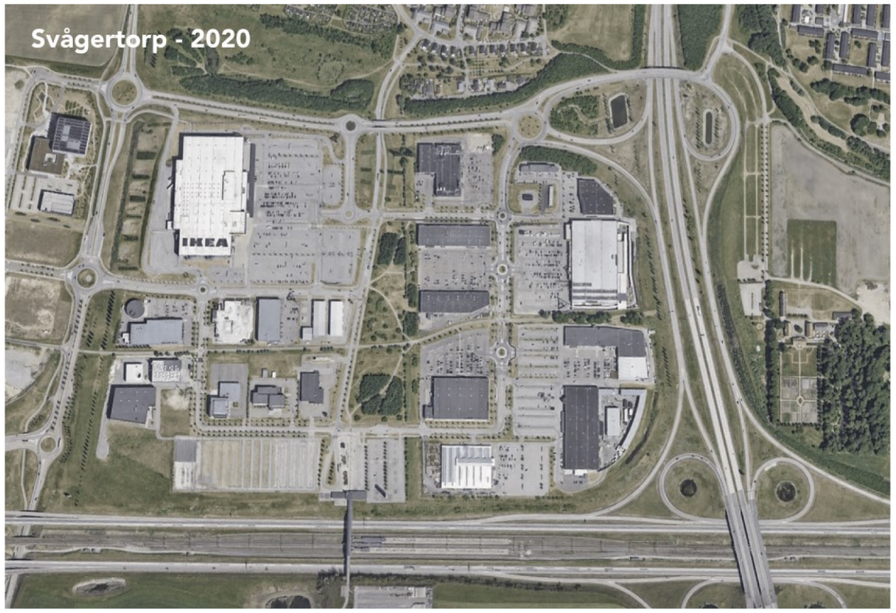
The upgraded big-box typology, with varia-
tion of scale, proportion and height. Part of
the big box roof can still be used as common
area for sun bathing, socialization or taking a
break from work.

- Svågertorp, Now and Then
- Closing Notes

Chapter 04

Design Findings & Reflections

Svågertorp, Now and Then



Population: 0

Population Density: 0 p/hectare

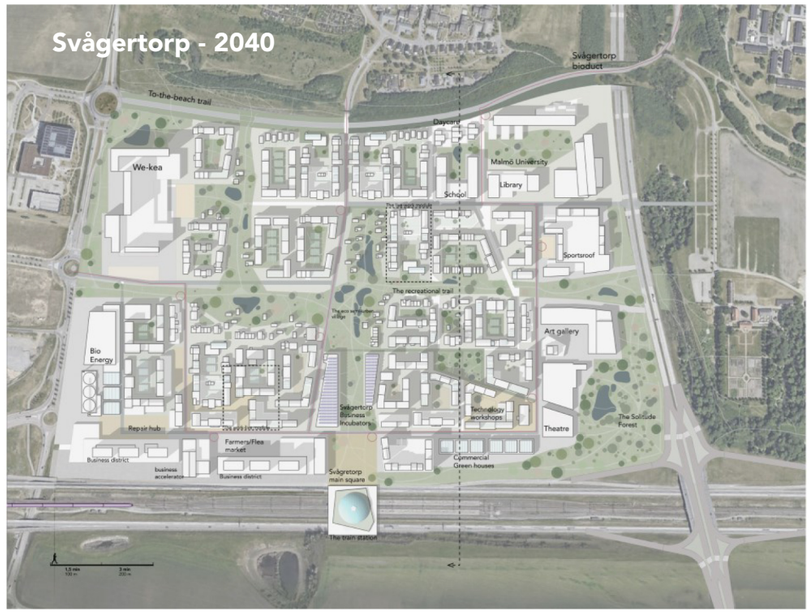
Built up area: 12%

Accessible Green: 6%

Variety of functions: low

Number of businesses: ~ 40 medium to large only

Daily hours of use: 10



Population: 7000-9000

Population Density: 70-90 p/hectare

Built up area: 34%

Accessible Green: 25-42%

Variety of functions: high

Number of businesses: +100 with variety of scales

Daily hours of use: 24

Closing Notes

The case is urgent!

Throughout the history of mankind, people have never been more resource-consuming. According the World Wildlife Fund (WWF), **more than a third of Earth's natural resources have been destroyed by humans in just thirty years!** (We are consuming the future, u.d.). This rings the bell of the huge damage that excessive resource consumption can do to our planet. Places like the external shopping centers symbolize such acts, a mere sealing of farmlands and turning them into mono-functional areas that are car-centric and deserted half of the time. Besides that, they damage the social and economic status of the communities as they create hubs for shopping that get people away from city centers, and small businesses as well. The continuation of creating such spaces only makes the social and financial segregation problems in the world even bigger. Neoliberalism's negative effect on city planning is serious, and such areas are clear examples. As mentioned in the limitations, such problems are big in size and need everybody's immediate action.

A strong public sector is crucial.

The private sector plays a crucial role in the economic growth of the municipalities, cities, and countries. Although, it is important for the public sector represented by decision-makers and municipalities to understand the long-term effects of the private sector's interest in city planning and decisions. Svågertorp, as an example, was planned to be a dense vivid area according to Malmö municipality plans in 1999. A big shift had happened to these plans when the private actors had an interest in establishing their businesses in the area. Many business owners have followed their steps and established their businesses in Svågertorp, or even moved from the city center to Svågertorp, searching for wider showrooms, and cheaper prices. It is more convenient for smaller municipalities to welcome such private actors so they can attract more customers and more employment rates to their districts. But in the long term, these areas are vulnerable, they increase car dependency, damage small businesses, and most importantly, affect the social realm of the cities.

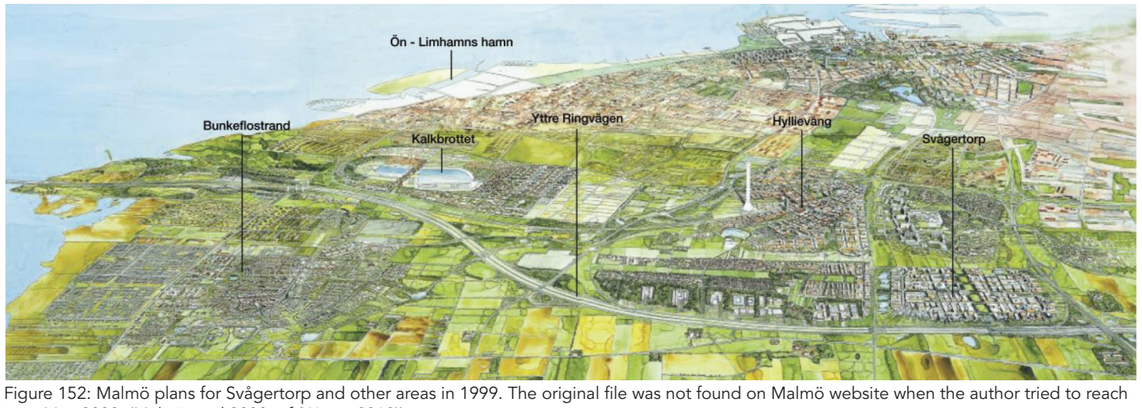


Figure 152: Malmö plans for Svågertorp and other areas in 1999. The original file was not found on Malmö website when the author tried to reach it on May 2022. (Malmö stad 2000, of (Wang, 2012))

The role of technology, innovation, and education

According to what has been discussed in this thesis, car-centric planning and mono-functional districts are still being developed all over Sweden and all over the world. Innovation and technology can play a massive role in changing this norm. Not only online shopping, but mobility solutions such as carpooling, parking rental applications, bike sharing, etc. are important to make the shift from car ownership to more sustainable norms. Innovation in creating circular solutions to city planning, energy consumption or items recycling, upcycling, and reuse is a cornerstone in this shift. Throughout my research, I found many applications that promote sustainable living and responsive consumption. Such applications and ideas are scalable and worth support, they need government support and public interest to grow and contribute to a sustainable world. This cannot happen without solid education that targets all society members of all ages and all backgrounds.

As a participant in the ICLEI congress 2022 in Malmö, I had the chance to visit the educational center in Hyllie (Kretseum) where we learned about the energy production and distribution solutions that have been taken toward more sustainable energy consumption and production in the district. The center hosts different groups of different ages (including school pupils). Such places and acts are part of the process, so people can feel the importance of their acts towards sustainable development goals.

The importance of the process

Svågertorp 2040 development is a project that needs to go into an organic process, it will invite people with ideas, people with small businesses, and people who are searching for a place to live in. Plans need to be set in order not to turn Svågertorp into a new exclusive area that invites only one part of the society. The suggestion of the process mentioned on pages 102-105 can be seen as a timeline as well. The first and most important step toward sustainable development in the area is through introducing more sustainable transportation alternatives. Afterward, incentives for different society actors, especially the craftsmen and small business owners need to be established. The university campus, the library, and the other art and performance centers will play a role in inviting the youth to Svågertorp. Different housing typologies and different sizes were designed so the district attracts everyone. The site has many free-to-be-in areas, where people can enjoy their time, without the need to pay or consume.

With that being said, I only wish for the project to be developed further, and to be a case for future development of external shopping centers in Sweden and the world.

Chapter 05

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List of Figures

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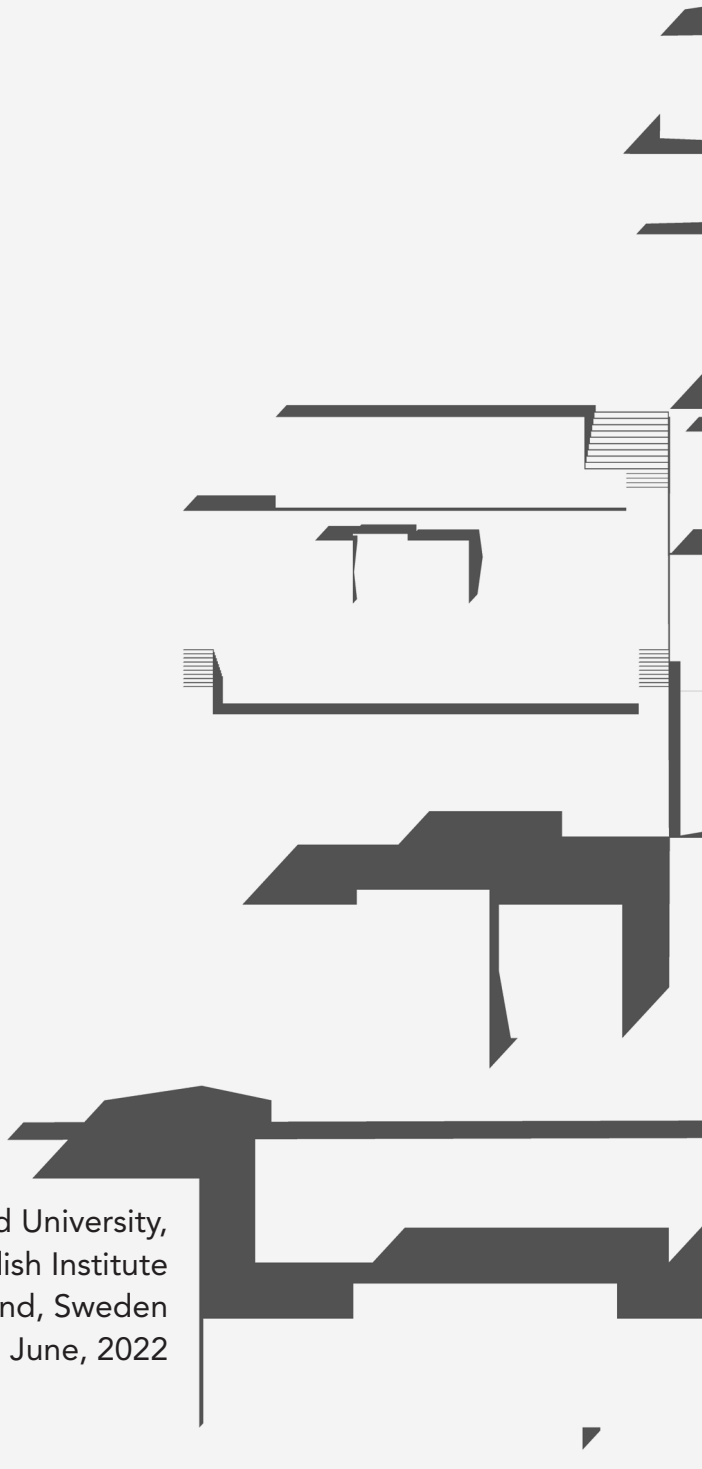

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Lund, Sweden
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