

Urban Living Room

A green, welcoming and cohesive community by the bay

Bällsta harbor, Bromma, Stockholm, Sweden



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A green, welcoming and cohesive community by the bay



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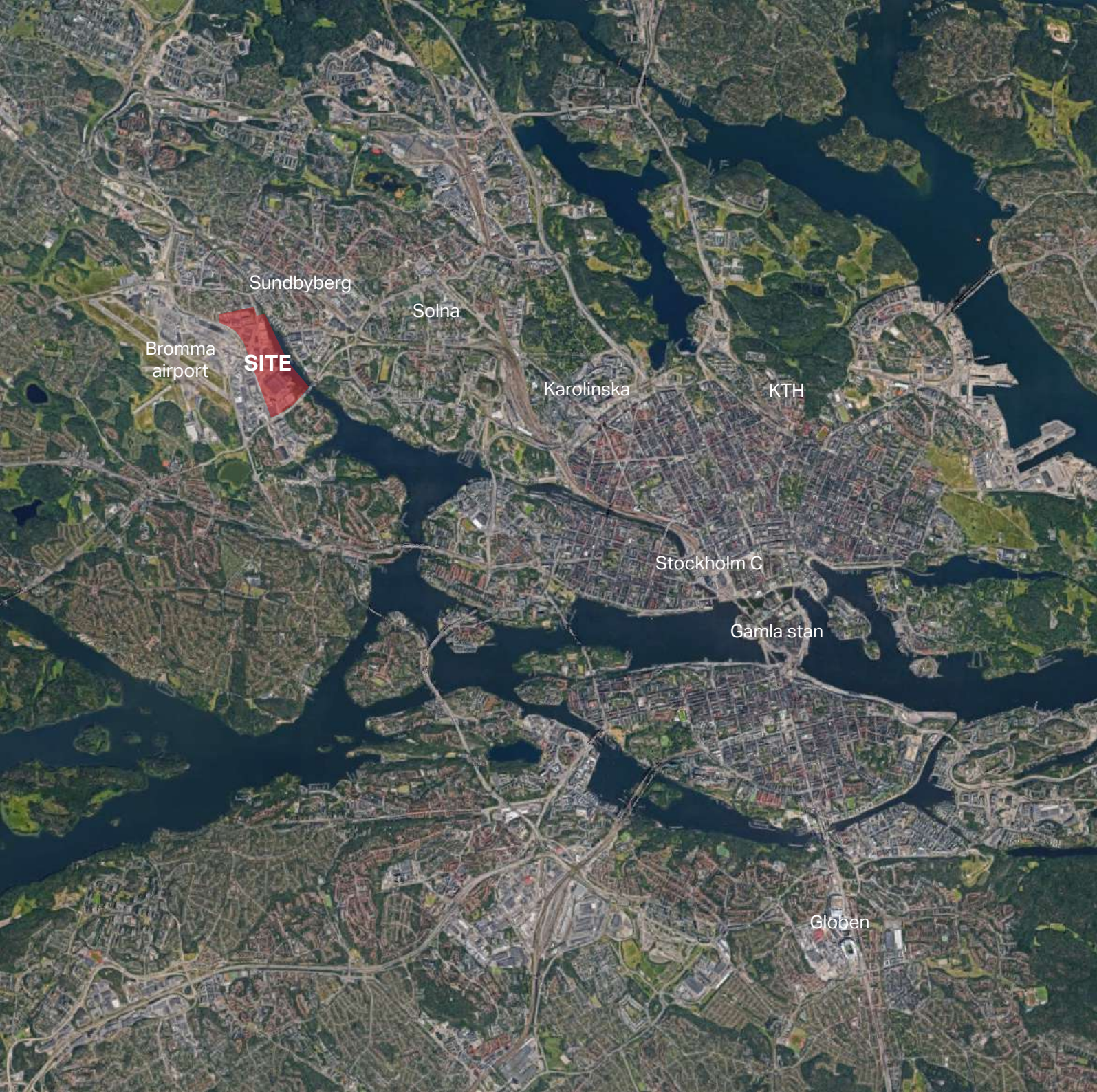
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Last but not least, I would like to thank my parents and my partner for always supporting and encouraging me throughout my study.



Abstract

The site, Bällsta harbor, is a part of Ulvsunda industrial area, located on the east side of Bromma airport in Stockholm. Today, the housing shortage in Stockholm and the debate over the closure of Bromma Airport present Bällsta harbor with new opportunities for redevelopment.

This proposal aims to bring a diverse mix of uses, pedestrian-oriented and children-friendly public spaces, greater coherence and connectivity to the nature and the waterfront, and a resilient environment against flooding. The plan will promote a rich public life and a happy childhood while establishing strong connections between local and regional destinations, as well as creating a close relationship with the nature and water.

In order to reach this vision, I propose 4 strategies: MOVE, STAY, RELAX, and PLAY. By knitting it all together, the plan shows how to bring nature to the city, provide transportation choices, create places to linger and gather, and establish nice environment for children to grow up.

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Introduction

Stockholm is one of my favorite cities in Europe. However, while googling it, I found Norra Djurgaardsstaden area and Ulvsunda are look like 2 huge scars on the satellite map. And I know the municipality has been working on an ambitious development plan for Norra Djurgaardsstaden , so I decide to work on the other one, Ulvsunda.

Ulvsunda is a big industrial area just next to Bromma airport, which is under a debate whether to be shut down and turned into mix-use development. My site, Bällsta harbor, is a part of Ulvsunda. It has been an industrial area for nearly 80 years, with a lot of factories, automobile workshops, materials stores, and supermarkets. It is now surrounded by residential areas, Bromma airport, and Bällsta bay, forming a special landscape that looks like a missing puzzle piece in the area.

With the housing shortage and social segregation in Stockholm, and the debate over the closure of Bromma Airport, I think Bällsta harbor is full of new opportunities and challenges for redevelopment. Therefore, I hope to propose an urban plan that can respond to Stockholm's present and future challenges and offer new perspectives on the ongoing planning process.



1. Analysis: Stockholm



Figure 1: Stockholm County within Sweden (Source: Wikipedia)



Figure 2: Stockholm Municipality within Stockholm County (Source: Wikipedia)



Figure 3: Site within Stockholm Municipality (Source: Wikipedia)

1.1 Geography

Stockholm is the **capital of Sweden and also the country's political, economic, cultural and transportation center**. Together with the other 25 municipalities in Stockholm County (Figure 2), it forms the most populous metropolitan area in Scandinavia.

The latitude longitude coordinates for Stockholm are: 59°N, 18°E. Stockholm County is located on the east coast of Sweden (Figure 1), where the freshwater Lake Mälaren — Sweden's third-largest lake — flows out into the Baltic Sea. It has more than 30,000 islands formed by Stockholm archipelago, and the central parts of the city consist of **14 islands** (Figure 3), which are connected by more than **70 bridges**, so it enjoys the reputation of "**Venice of the North**".

Building on its archipelago bedrock, Stockholm has been shaped in harmony with the landscape, as buildings, bridges and streets have accentuated or been subordinate to the features of the landscape. Therefore, **the blending of its natural and human landscape** (Figure 4) makes Stockholm regarded as one of the most beautiful capital cities in the world and attracts a large number of tourists every year.



Figure 4: Stockholm's landscape (Source: Wallpaper Flare)

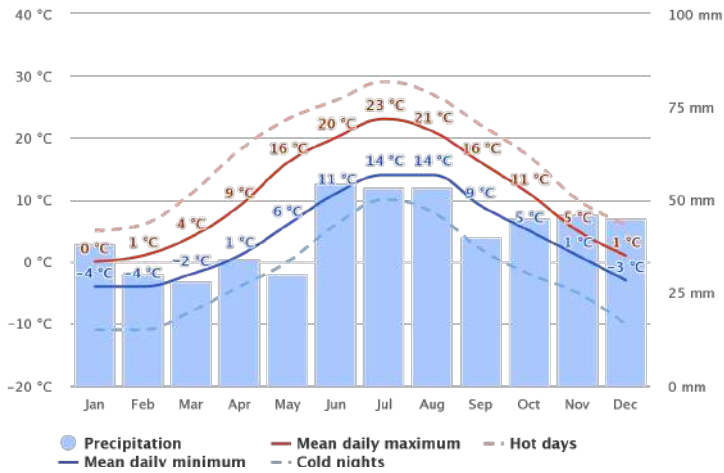


Figure 5. Average temperatures and precipitation (Source: Meteoblue)

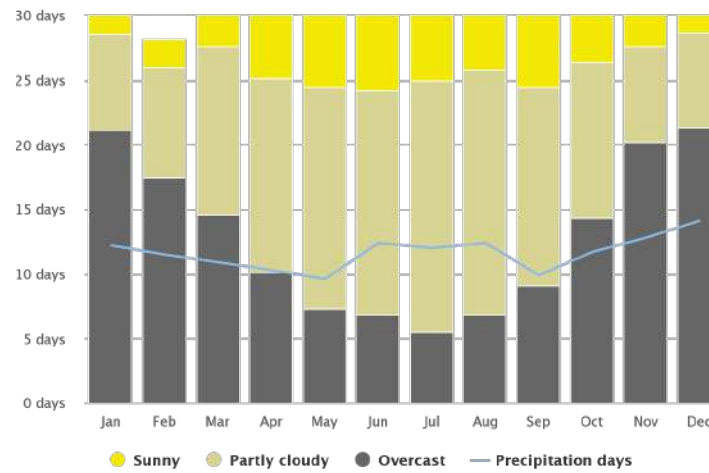


Figure 6. Cloudy, sunny, and precipitation days (Source: Meteoblue)

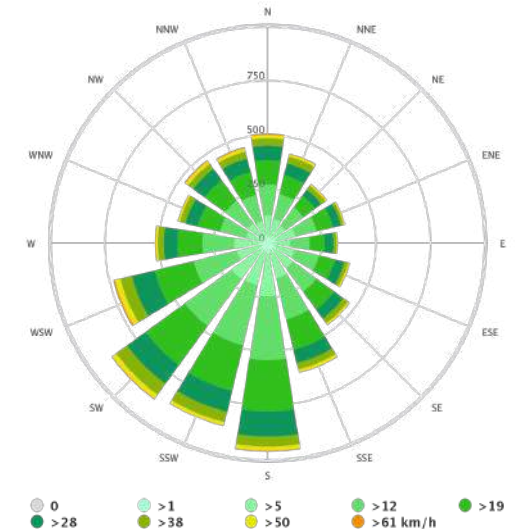


Figure 7. Wind rose (Source: Meteoblue)

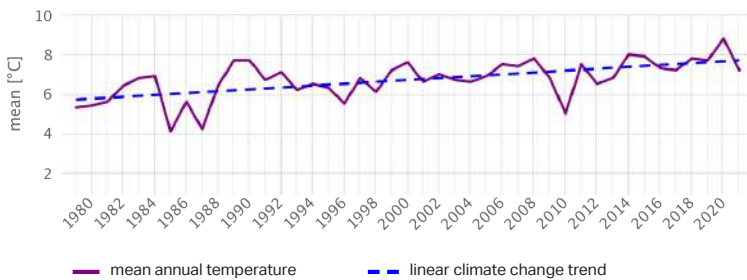


Figure 8. Yearly temperature change (1979-2022) (Source: Meteoblue)

1.2 Climate

Stockholm has a **humid continental climate**. Although winters are cold, average temperatures generally remain above 0°C for much of the year, and precipitation is well distributed throughout the year (Figure 5). Due to the city's **high northerly latitude**, the length of the day varies widely from more than 18 hours around midsummer to only around 6 hours in late December (Figure 6). The wind mainly blows from **south and southwest** (Figure 7), and strong winds often occur in winter.

Winters are cold and dark, usually cloudy with rain and snowfall, and lakes and waterways might be frozen. Northern light can occasionally be observed in winter. Summers are pleasantly warm and sunny. Sometimes there can be hot periods, usually of short duration, in which the temperature reaches 28/30 °C, but due to global warming, hot periods are becoming more frequent.

Because of the climate change, Stockholm's climate has gradually got warmer (Figure 8), which results to the impact on flooding, biodiversity, health, ect. Therefore, Stockholm has executed ambitious **environmental and climate plans** for many years to reach the climate goal: **A fossil free and climate positive Stockholm by 2040** (Figure 9).

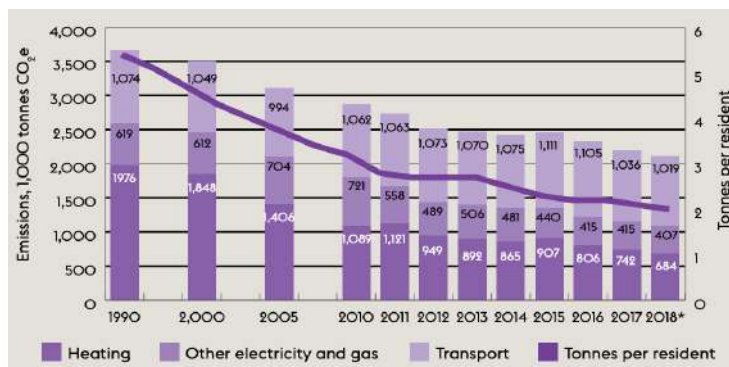


Figure 9. Total greenhouse gas emissions and emissions in tonnes of CO₂e per resident (Source: Stockholms stad)

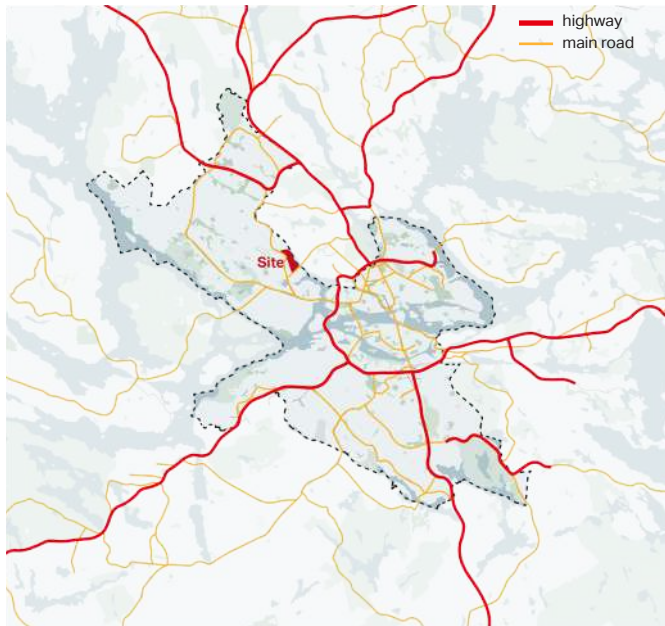


Figure 10. the primary road network

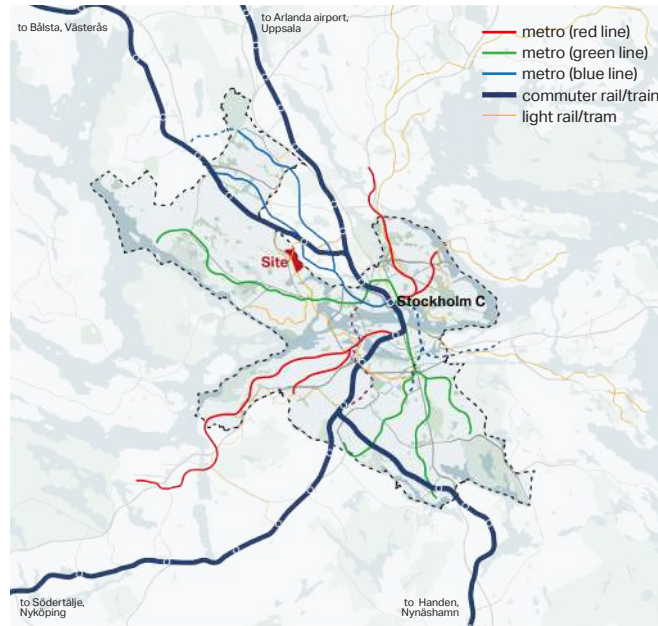


Figure 11. the rail transit network

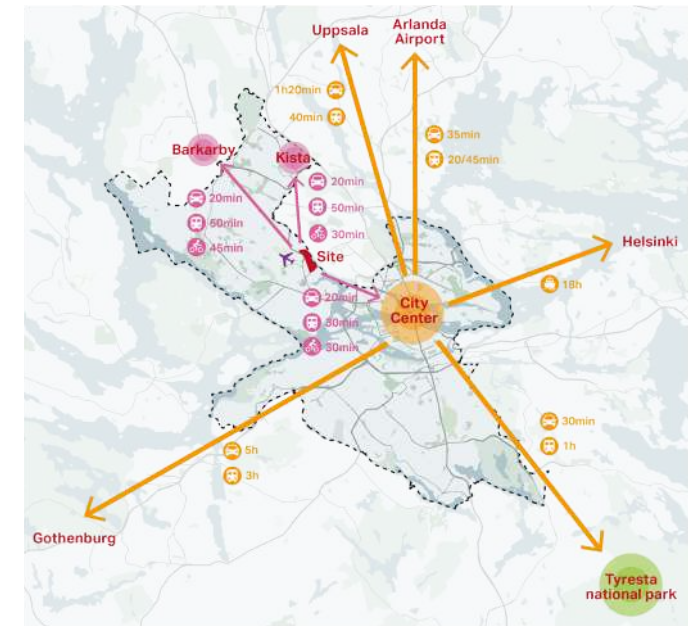


Figure 12. travel time by different means of transportation

1.3 Transportation

There is a **half-completed motorway ring road** exists on the south, west and north sides of the city centre (Figure 10), while the final subsea eastern section is being discussed as a future project. Although Stockholm has a complete road network, it also has one of the world's **highest fuel prices**, and the **congestion tax** is levied on most vehicles entering and exiting the inner city. Moreover, it's often hard to find an available **parking spot** in the city center.

Stockholm has an extensive public transport system (Figure 11). It consists of the **metro, train, commuter rail, light rail/tram, a large number of bus lines, and the commuter ferry**. 36% people tend to take public transportation in Stockholm, among them about 80% people take metro and bus (Figure 13). However, the monthly ticket price of public transport cost 930 SEK, which means Stockholmers would have to spend at least 3.6% of their income (average 25,787.91 SEK per month) for their mobility.

Arlanda Airport is the largest and busiest airport in Sweden, it is connected to Stockholm C by several means. **Bromma Airport** is another Swedish domestic and minor international airport in Stockholm. Because of its proximity to the city, it is popular with the citizens. However, since the issues such as noise and lack of space, as well as the traffic collapse caused by Covid-19, there have been ongoing **debates on whether to shut down the airport**. Swedish government stated that it wanted the closure to take place before 2027, then as much as 1.62 square kilometers of land could be repurposed for residential and commercial development.

In general, the traffic conditions in Stockholm are relatively **good and efficient** (Figure 12 and Figure 14). About 40% of all journeys in the city are made on foot or by bike, and almost half of Stockholmers wish to have more public transport and more bike paths.

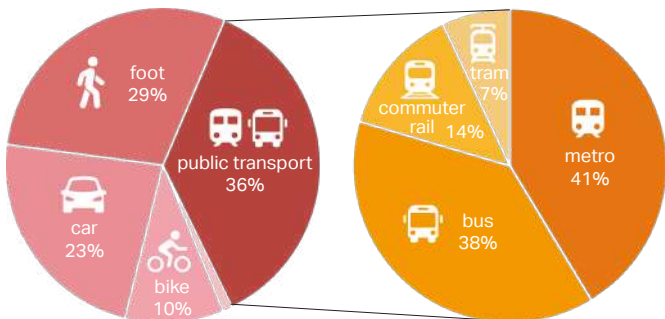


Figure 13. 2019 distribution of means of transport in Stockholm (Source: AB Storstockholms Lokaltrafik)

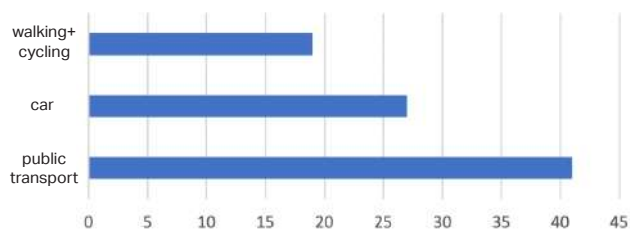


Figure 14. 2019 average commute time in Stockholm (Source: AB Storstockholms Lokaltrafik)

1.4 Demography and education

According to 2021 statistics, the population in Stockholm metropolitan area is more than **2.4 million**, which is about 22% of the total population of Sweden. Approximately **980,000** people live in the municipality, of whom about 30% have foreign backgrounds (Figure 15).

There's a **yearly increase** in it's population (Figure 16) due to high immigration (domestic and foreign) attracted by work opportunities, which also explains why the percentage of **prime people** (mainly 25-60 years old) living in Stockholm (Figure 17) is higher than which of the national average (Figure 18). Besides, although Covid-19 pandemic has caused a significant reduction in the number of in-migrations since 2020, the population is still expected to reach **1.1 million by 2040**, which puts the **housing market** under high pressure.

Stockholm also offers a wide range of **higher education**, for instance, KTH , Karolinska Institute, and Stockholm School of Economics are Europe's top ranking universities. Meanwhile, about 40% of the population has at least three years of post secondary education (Figure 19), which is explained to a large extent by many jobs in Stockholm require more **highly educated people**.

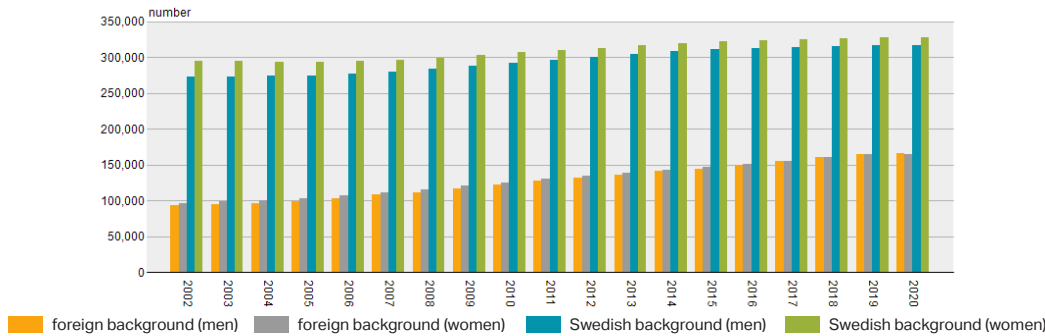


Figure 15. Number of persons by foreign/Swedish background (2002-2020) (Source: Statistics Sweden)

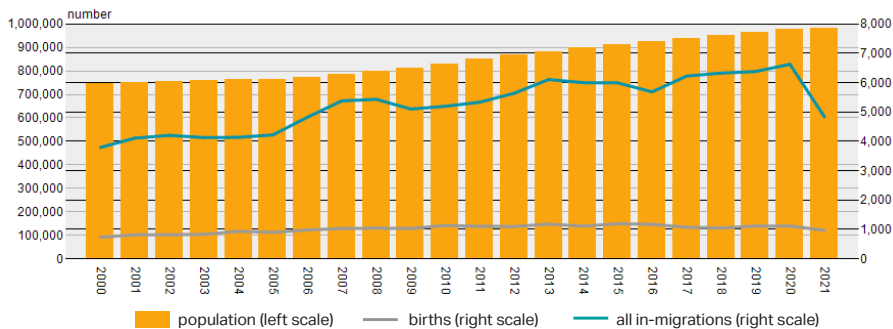


Figure 16. Population growth (2000-2021) (Source: Statistics Sweden)

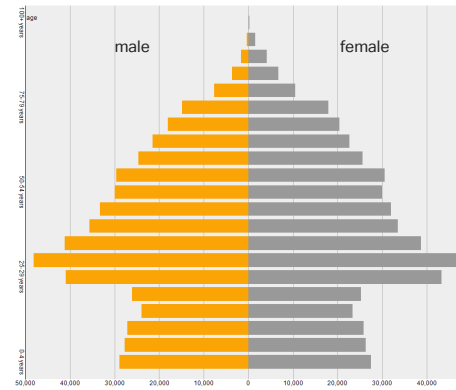


Figure 17. 2021 Population pyramid of Stockholm (Source: Statistics Sweden)

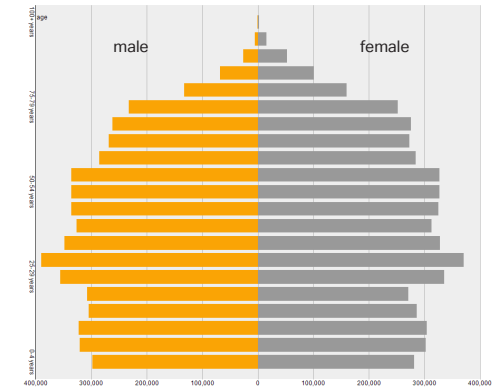


Figure 18. 2021 Population pyramid of Sweden (Source: Statistics Sweden)

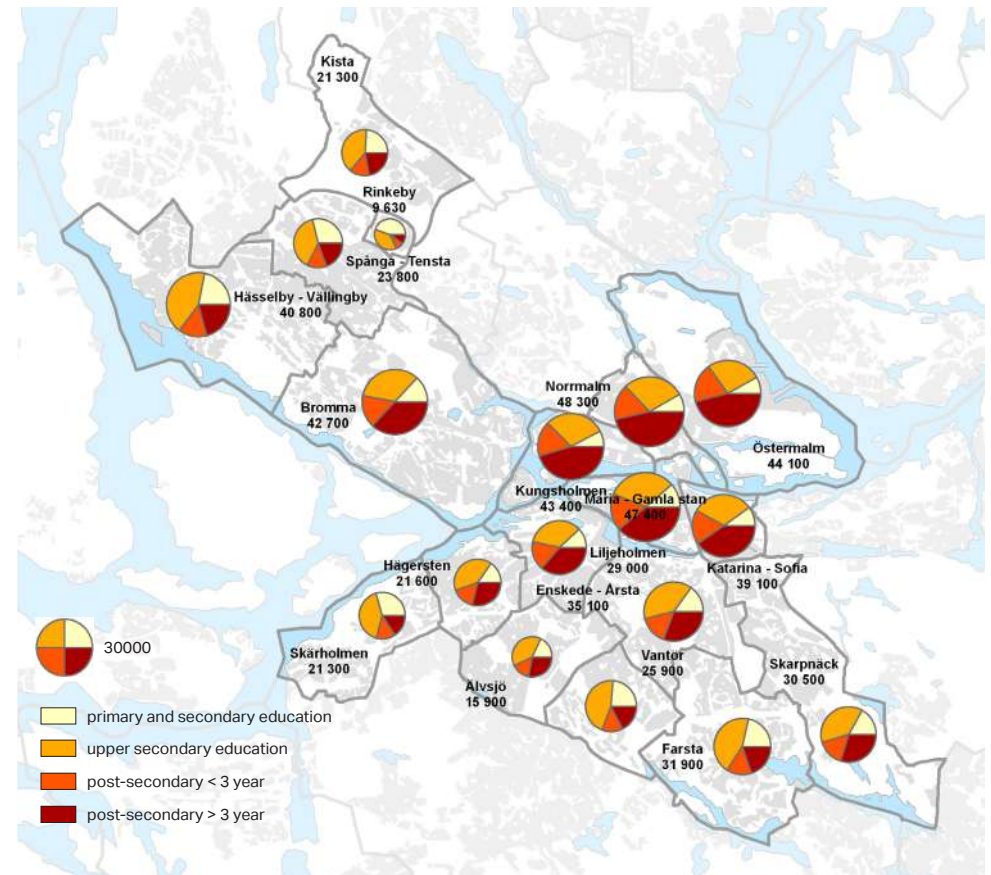


Figure 19. Population 16-64 years of age by level of education (Source: RUF5)

1.5 Economy

Stockholm is the financial center of Scandinavia, and also one of the fastest growing metropolitan areas in Europe. The Stockholm region alone accounts for over **one third** of the country's GDP, with a large, **knowledge-intensive service industry** that is growing all the time and creating huge demand for workers with a **high level of education**. Additionally, about 45% of Swedish companies with more than 200 employees are headquartered in Stockholm.

The last decade has seen a significant number of jobs created in **high technology** companies (Figure 20), especially the information and communication technology (ICT) industry. There are many world-class technology companies such as Ericsson, IBM, Nokia and Samsung located in **Kista Science City**, one of the world's leading **ICT clusters and innovation center**. At the same time, Stockholm is now home to numerous fast-growing **start-ups** (especially in the **creative and cultural sector**) and has the world's most **unicorns** (start-ups valued at more than USD 1 billion) per capita after Silicon Valley. For instance, video game developers King and Mojang, fintech company Klarna and music streaming service Spotify are all the famous unicorns founded in Stockholm. In the future, work on greater digitalization and circular economy is creating opportunities for growth as new services and companies emerge.

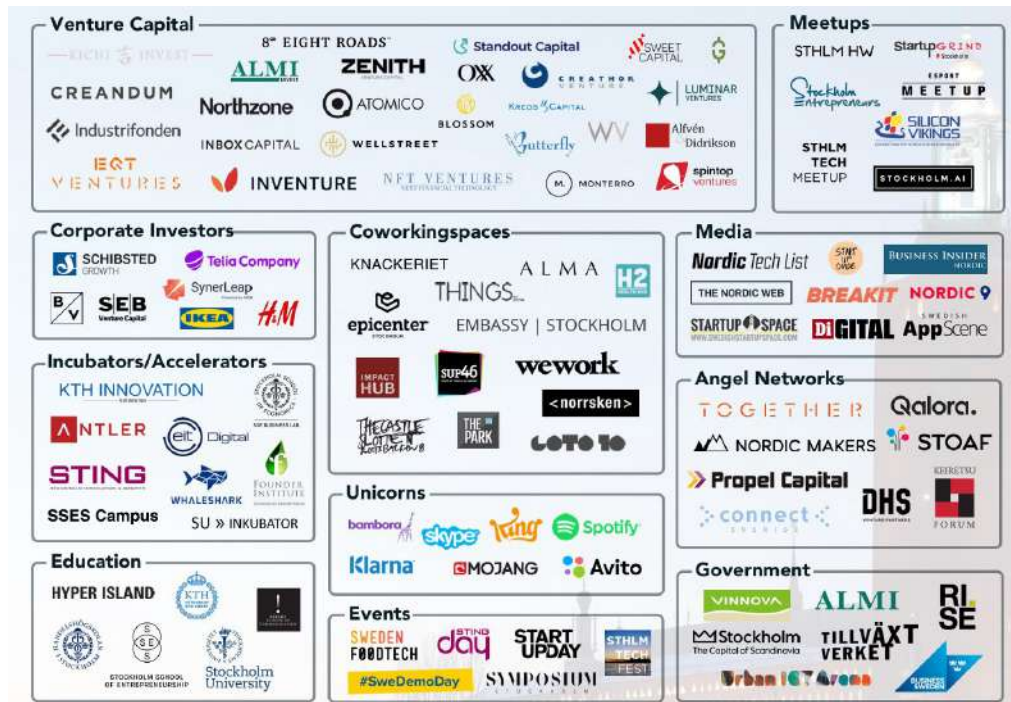


Figure 20. Stockholm tech landscape (Source: Joseph Michael)

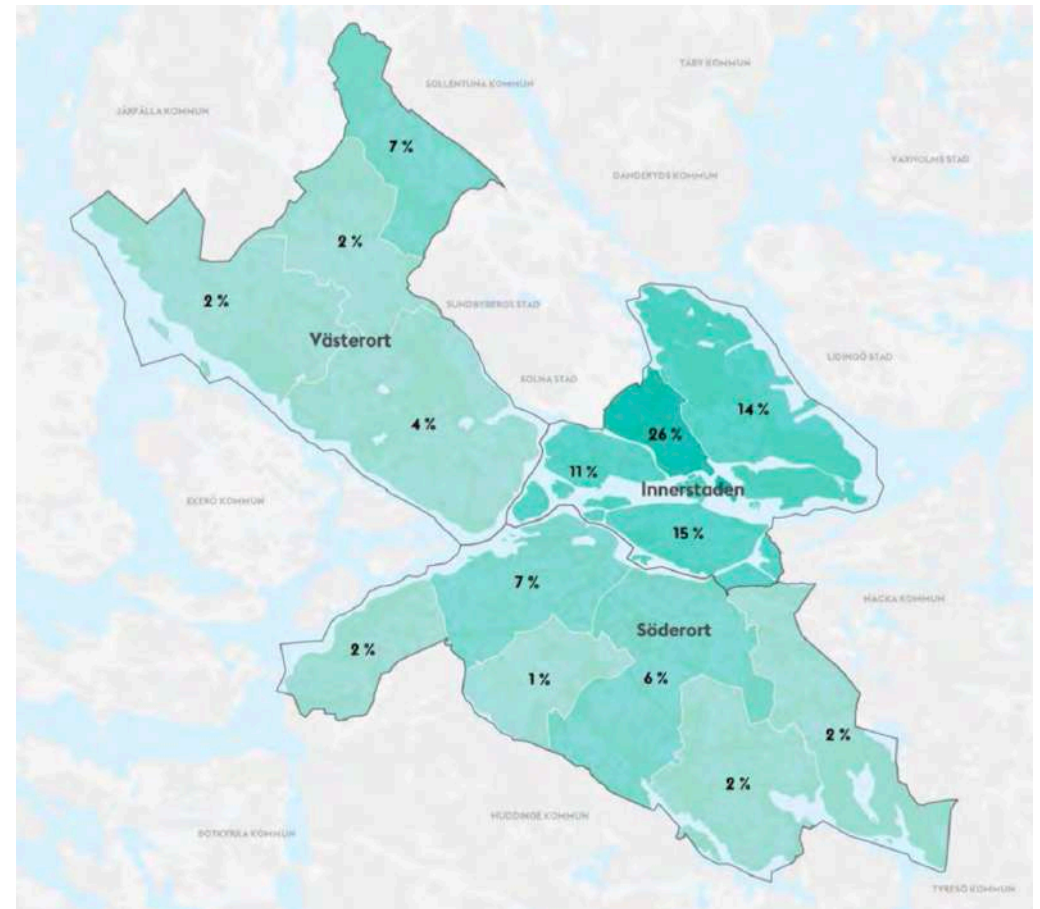


Figure 21. proportion of jobs by city district (Source: Stockholms stad)

However, Stockholm's jobs are **unevenly distributed** (Figure 21) across the city, with around two-third of jobs concentrated in the inner city, despite only a third of citizens living there. This means the daytime population is distributed disproportionately across the city as well, placing uneven pressure on the region's roads and public transport.

Bromma only provides **4% of the city's job opportunities**, and the main industries are transport services related to **Bromma Airport**, as well as the light industry, logistics and retail in **Ulvunda industrial area**. If the airport is closed in the future, the original transportation service will also be greatly affected, so it is necessary to create more job opportunities for Bromma in the follow-up plan.

1.6 Green structure

Stockholm is rich in natural landscape due to its **large area of waterways, parks and green spaces**, which also play as an important part of Stockholm's character and are appreciated by Stockholmers and visitors alike. The cohesive green structure (Figure 22) formed by a network of parks, natural areas, lakes and watercourses weave into the the urban landscape, creating healthy and robust urban environments, as well as unique conditions for flora and fauna. Most Stockholmers therefore have close **relationship** with the nature and highly value the **proximity** to green areas. According to the statistics (Figure 23), 83% Stockholmers can reach a green area within 200 meters walking distance.



Figure 22. green structure
(Source: Stockholms stad)

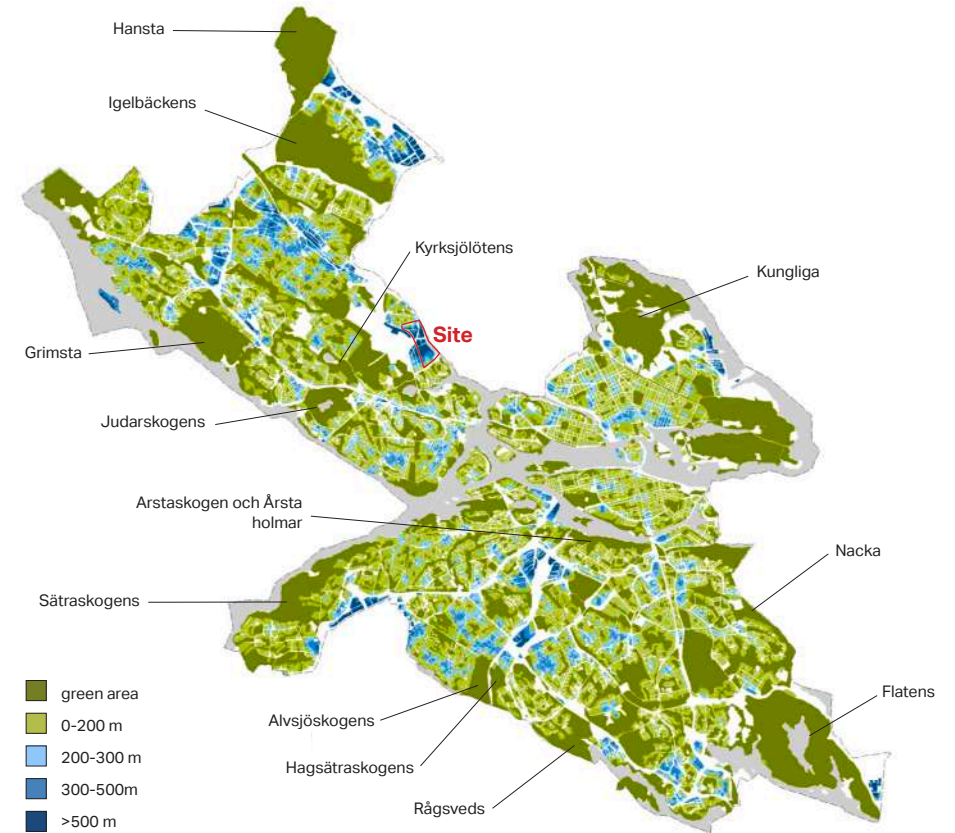


Figure 23. walking distance to green areas
(Source: Spacescape, Stockholms stad)

On the other hand, **species of oak woodland, coniferous forest and wetland**, with their habitat networks, play an important role in Stockholm's urban ecosystem. Therefore, 11 nature reserves, a cultural reserve and a national city park (Figure) are established to protect and develop the natural, recreational and cultural values of those key areas.

As Stockholm is growing bigger and denser, the city's overall ambition is to improve the **accessibility and functions of green spaces**, as well as create stronger **green links and habitat networks** in consideration of the regional green structure.

1.7 Culture

Much of Stockholm's unique attraction lies in the combination of the city's history and the people who make the modern city so alive. Apart from being a large city with an active cultural life, Stockholm houses many **national cultural institutions** such as the Royal Opera, Vasa Museum, and Avicii Arena. It also hosts the annual **Nobel Prize** ceremonies and banquet at the Stockholm Concert Hall and Stockholm City Hall. In addition, there are **two UNESCO World Heritage Sites** in the Stockholm County area: the Royal Palace Drottningholm and The Woodland Cemetery.

Stockholm is a fantastic place to visit, with so many wonderful attractions, rich history and a special kind of Scandinavian charm (Figure 24). With a lot of outstanding performances and representative works in literature, architecture, art, media, entertainment, fashion, sports, food, etc., Stockholm attracts a large number of tourists every year, making the **tourism industry** increase by more than 40% over the past 10 years.

On the other hand, over 30% of its residents come from a foreign background, with a lot of refugees who have arrived in Stockholm in recent years. The city is now working to integrate these new arrivals and to **decrease social segregation**. Therefore, Stockholm has introduced its Vision 2040 program that aims to **provide democratic access to high quality culture**, with a focus on **young people and children**. Increasing **cultural participation** is a key objective. Contributing to this are major investments in libraries and adult education organisations; free park theatre shows in summer; as well as City-funded cultural and community centres across Stockholm.

In conclusion, Stockholm today is now a major centre for the creative and cultural sector as well as one of most visited tourist destination in Europe. Its challenge for the future is to manage its growth to retain its **social cohesion** and high quality of life.



Figure 24. Stockholm's diverse characteristics

1.8 Brief of Solna and Sundbyberg

Solna municipality is a part of Stockholm County, sitting just north of Stockholm city center (Figure 25). It is the third smallest municipality as well as one of the richest municipalities in Sweden. Due to its location and the extensive public transport, Solna is a **popular destination for businesses**, offering a mix of housing, offices, restaurants, hotels and other services. Therefore, the city is one of the fastest-growing municipalities in Sweden. It has more than **80,000 residents** today and this number is estimated to grow up to **100,000 in 2030**.

Sundbyberg municipality is also a part of Stockholm County and located north of Stockholm municipality, right next to Rinkeby-Kista, Spånga-Tensta, and Bromma (Figure 25). It is the smallest municipality in Sweden and is completely within Stockholm urban area. Sundbyberg used to be full of industrial activities, but with the expansion of Stockholm urban area and the extension of public transportation, it has become a **popular area for people to live and work**. Nowadays, Sundbyberg has over **50,000 residents**, as well as a lot of offices in service sectors. Many people commute between Stockholm and Sundbyberg everyday.

In general, although Solna and Sundbyberg are independent municipalities, they both belong to **Stockholm urban area** and are closely connected to Stockholm. These three municipalities often cooperate with each other and share the development plans in economy, transportation, housing, etc. As Stockholm region is growing, Solna and Sundbyberg both have plans (Figure 26 and Figure 27) to **renovate and expand their station areas** in response to future development needs. This will enhance the stations' status as **transportation hubs**, as well as promote the **vitality** of these areas.

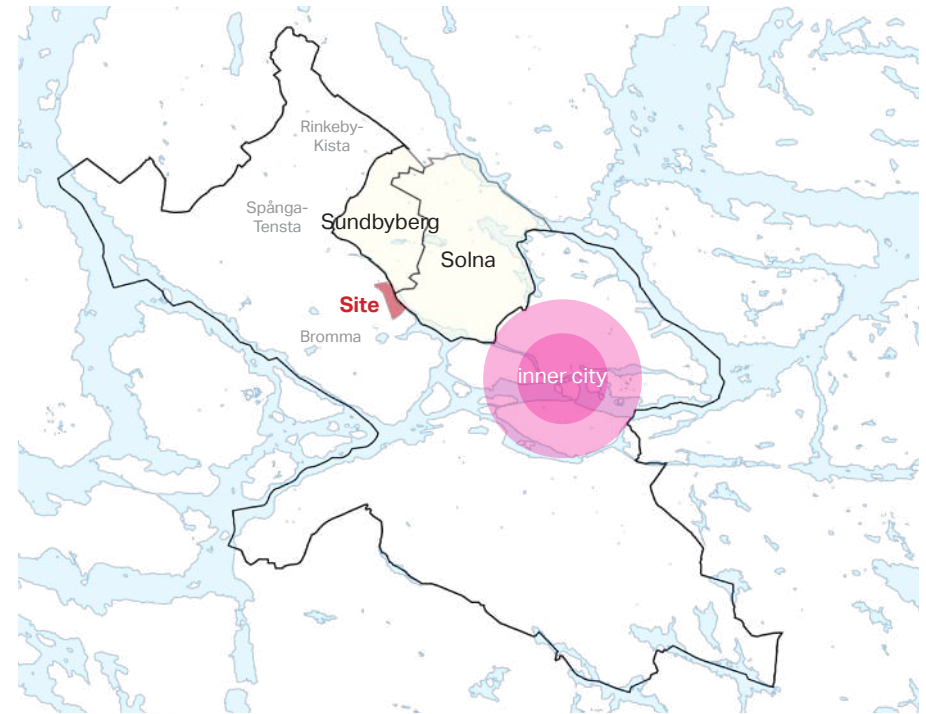


Figure 25. location of Solna and Sundbyberg



Figure 26. rendering of Solna station
(Source: Solna stad)



Figure 27. structural plan of Sundbyberg's new city center
(Source: Sundbybergs stad)

2. Analysis: the site



2.1 Region

Although the site is not located in the inner city, there are some **local centers** such as Sundbyberg centrum, Solna centrum, Brommaplan and Alvik near to the site for **daily activities and transportation transfers**. Thanks to good traffic conditions, it takes only **20 to 30 minutes** from the site to the city center, Kista or even the Drottningholm Palace.

The site is adjacent to Bällstaviken and there is a big park at a distance of 800 meters, both of which are **important habitats** for some birds, amphibians and fish. There are **3 nature reserves** about 3 kilometers away from the site, and there is **a green corridor** extending from the west through the south of the site to Kungsholmen and the the shore of Liljeholmen.

Overall, the location and traffic conditions of the site are quite good. Although there are few accessible green spaces within 400 meters to the site, there are still several large natural areas in this region.

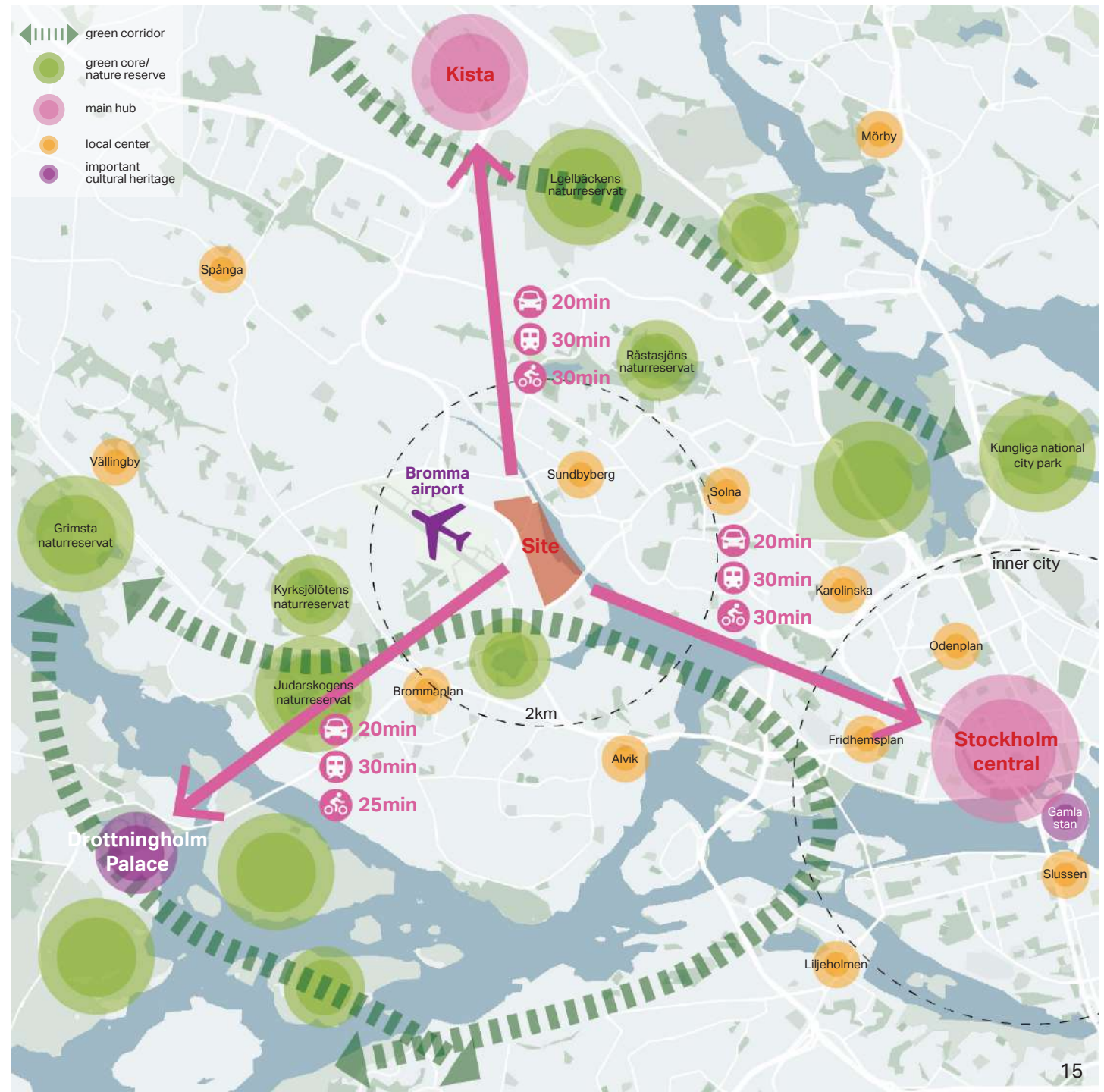
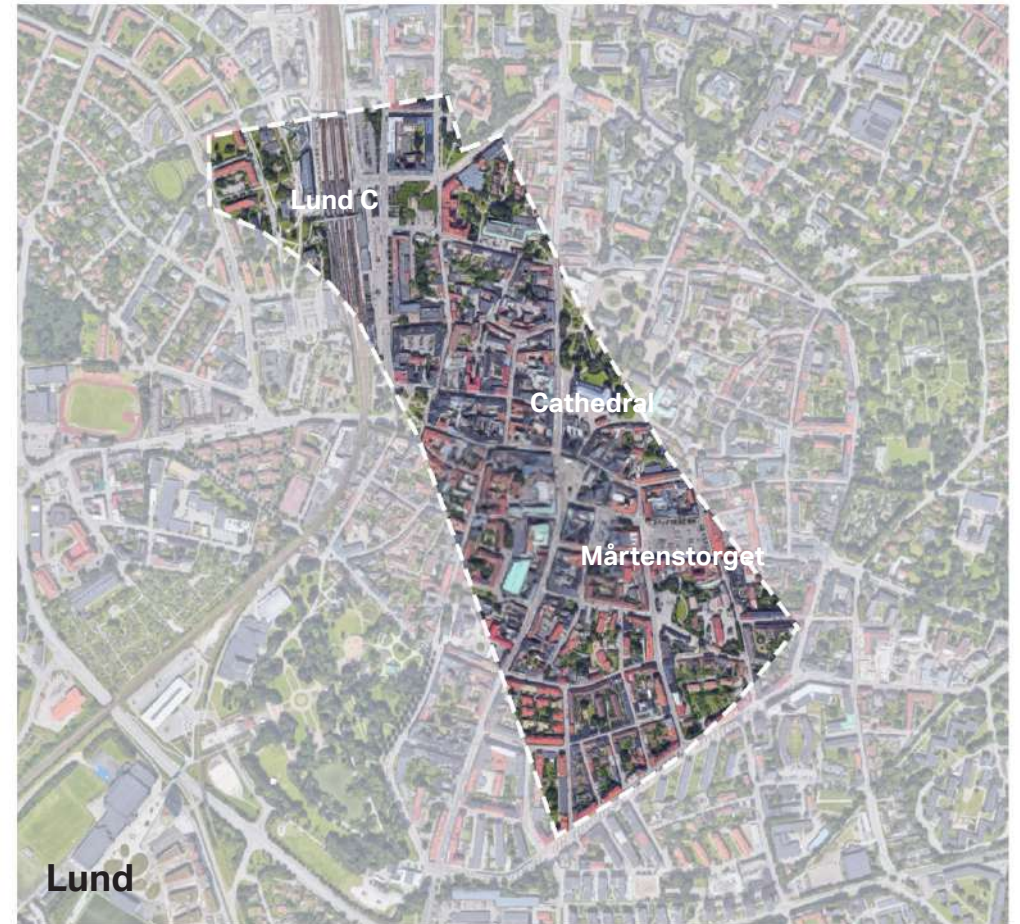


Figure 28. regional analysis

2.2 Scale comparison



The site is about 1136 to 1362 meters wide and about 446 to 628 meters long, and the total area is approximately **58 hacters**. The scale comparison with Lund (Figure) helps to understand the size of the site, as well as the quality and dimension of the built environment.

2.3.1 Surroundings: road network



Figure 29. road network

Ulvsundavägen and Norrbyvägen are the main roads in this area, with **heavy traffic** and not easy for pedestrian to cross. There are many **dead-end streets** and fences in the site, so the accessibility within the site is quite poor.



Figure 30. wide and noisy main road



Figure 31. fences and dead-end road

2.3.2 Surroundings: rail transit



Figure 32. rail transit

Sundbyberg centrum acts as the **transport hub** in this area, with bus, metro, tram and commuter train. People can easily commute to many places from here. There are **two tram stops** in the site, making people easily get to Sundbyberg centrum and Solna centrum. In addition, the spur to Bromma flygplats is going to be extended to Kista, bringing this area closer to workplaces in the north. On the other hand, although Solna strand looks so close to the site, it would take 20 minutes by walk or 12 minutes by bus to get there from the site.

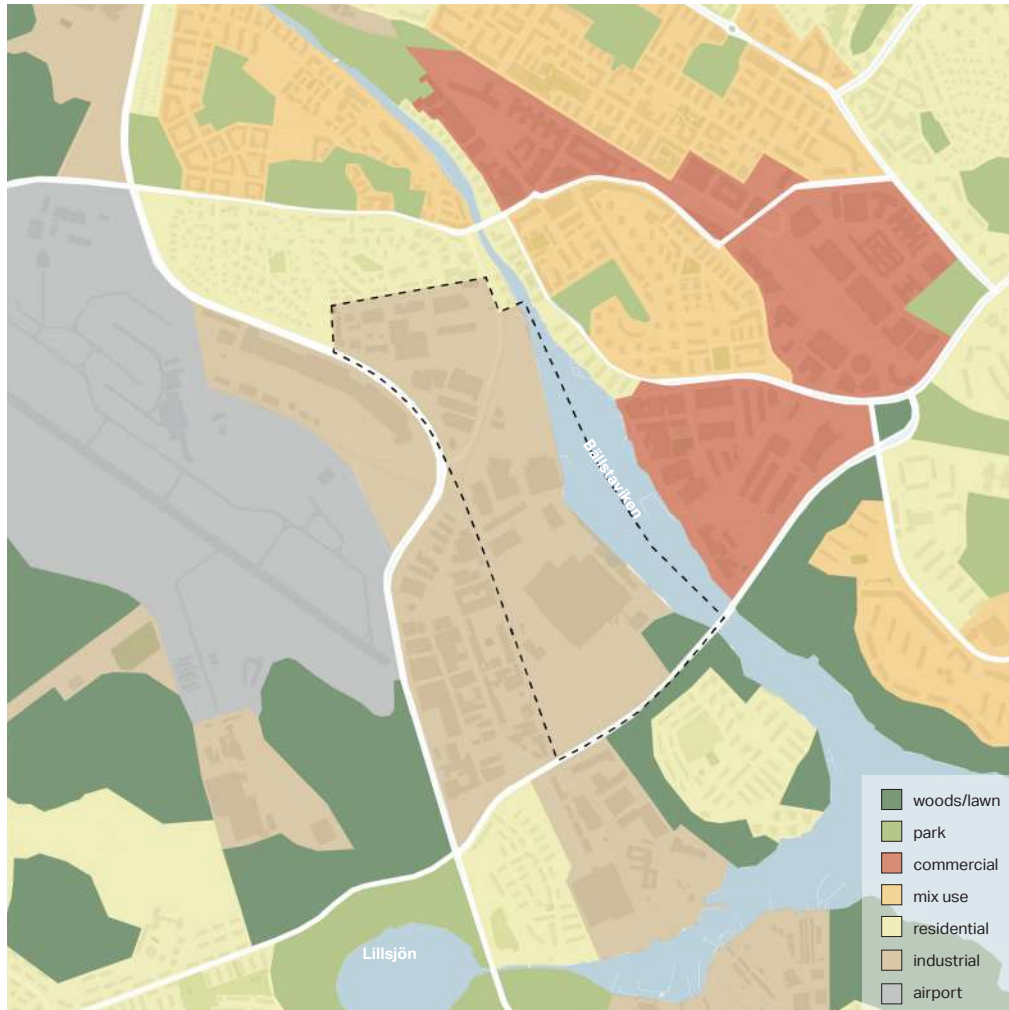


Figure 33. Norra Ulvsunda tram station



Figure 34. Karlshövden tram station

2.3.3 Surroundings: function



The site is completely an **industrial area**, with the Bromma airport in the west, the bay Bällstaviken in the east, and both the north and the south are residential areas built in the 1950s. The area around Sundbyberg centrum is mostly a mixed-use urban area.



Figure 36. residential area at the other side of the river



Figure 37. a office building at the other side of the river

2.3.4 Surroundings: pedestrian and bike flow



Figure 38. pedestrian and bike flow
(Source: strava)

According to the heatmap of those who use Strava during exercise, the most popular walking/cycling path in this area is the riverside trail on the east side of the bay Bällstaviken, with nice view and greenery, while there are few people walking/cycling in the site cause this area is quite unattractive and **not pedestrian-friendly**.



Figure 39. a nice riverside path at the other side of the bay



Figure 40. an unattractive street within the site

2.3.5 Surroundings: blue-green structure



Figure 41. blue green structure

The main green patches in this area are around the lake Lillsjön and on the southern banks of the bay Bällstaviken, and there are two popular recreational green corridors along the east side and south side of the bay Bällstaviken. However, there is almost **no greenery** within the site, only an oak forest on the southeast side, which has important **ecological value**. On the other hand, except the south part of the shoreline, almost whole shoreline within the site is not accessible.



Figure 42. the oak forest



Figure 43. two people came ice swimming

2.3.6 Surroundings: terrain

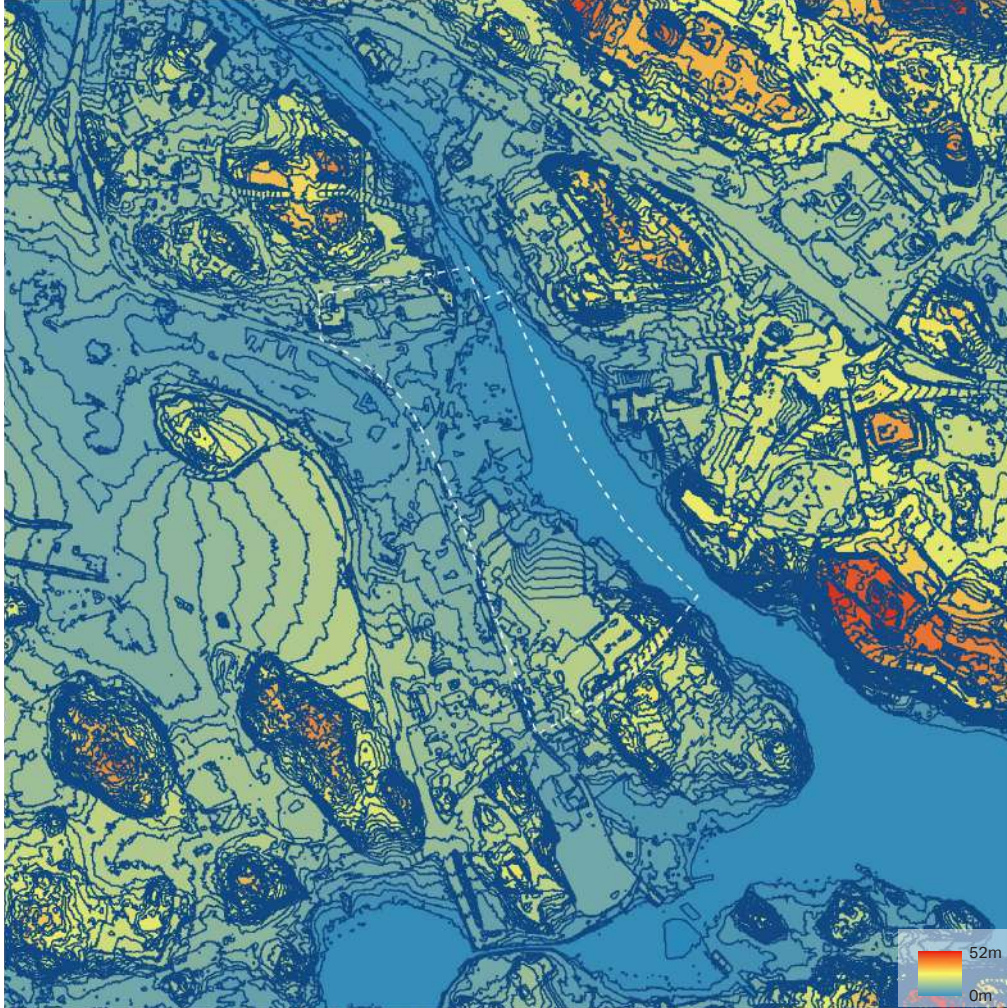


Figure 44. terrain

The terrain on the north and south sides of the site is relatively high, but the terrain of the site itself is generally very **flat and low**.



Figure 45. a slope under the bridge



Figure 46. middle part of the site is flat and low

2.4 History

The site is a part of Ulvsunda industrial area, which was a farm in the 17th century. Stockholm municipality acquired Ulvsunda in 1904 to make room for industries in need of both railway and quays. Businesses such as technology factories, rubber factories, breweries, food companies, wholesalers began to settle in the west part of Ulvsunda from the 1910s, and expanded eastward in the 1940s, so the buildings in the site were mostly built from the **1940s to the 1980s** (Figure 47 and Figure 48). Today the area is filled with businesses such as the automobile industry, wholesale companies, building materials stores, furniture stores and supermarkets that require **large space for storage, office and parking** (Figure 49 and Figure 50).

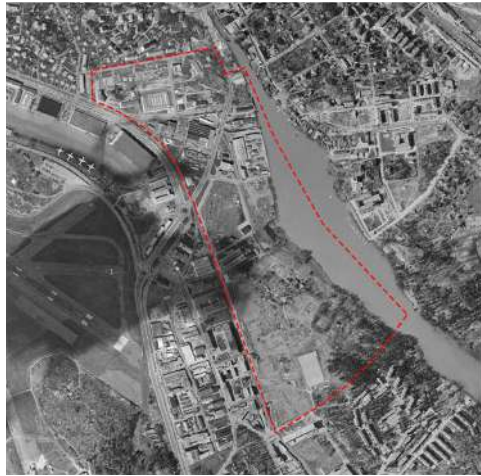


Figure 47. 1960
(Source: miljodataportalen)

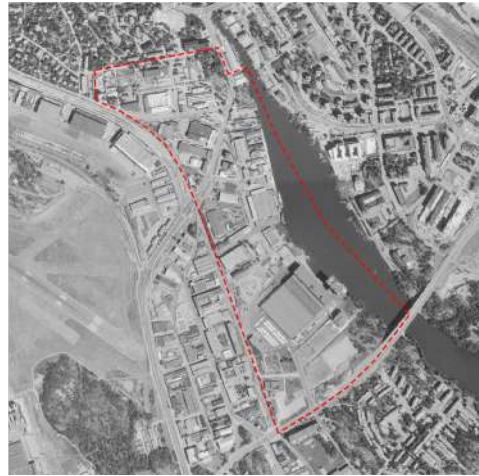


Figure 48. 1975
(Source: miljodataportalen)



Figure 49. 2000
(Source: Google earth)



Figure 50. 2020
(Source: Google earth)



Figure 51. Pripps Brewery in 1971
(Source: Pripps-tidningen)



Figure 52. Pripps Brewery in 2019
(Source: Mikael Andersson)

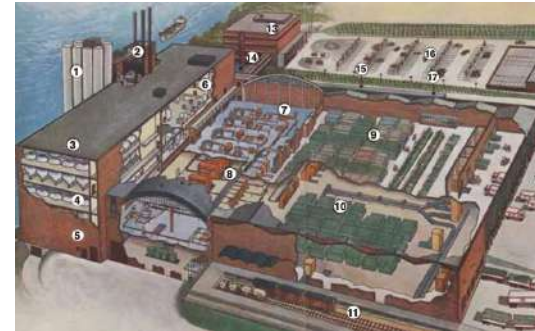


Figure 53. the perspective section of Pripps Brewery 1970
(Source: Nyrens Arkitektkontor)



Figure 54. supermarket in the brewery now

The largest building in the site was originally the headquarter and the main factory of **Pripps Brewery** (Figure 51 and Figure 53) built in **1970**. It was one of the largest and most modern breweries in Europe then. After 30 years of production, the brewery was abandoned since Pripps merged with Carlsberg.

The brewery has been considered as a **landmark** (Figure 52) of this area for decades with high **cultural and historical value**. Therefore, after the closure of the brewery, the municipality bought it to ensure its preservation and revitalization for future urban development. Currently, the interior space of the building is rented out as supermarkets, material stores, playgrounds, restaurants, etc (Figure 54).

2.5 Current situation

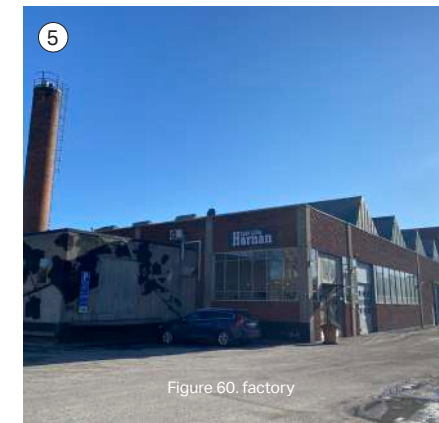
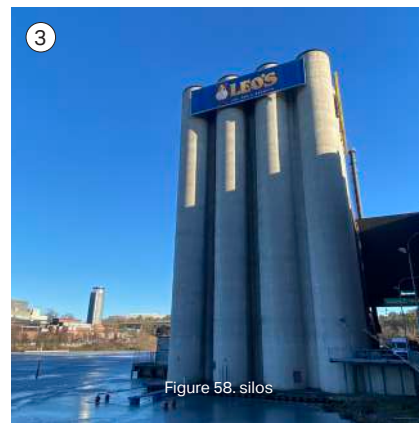
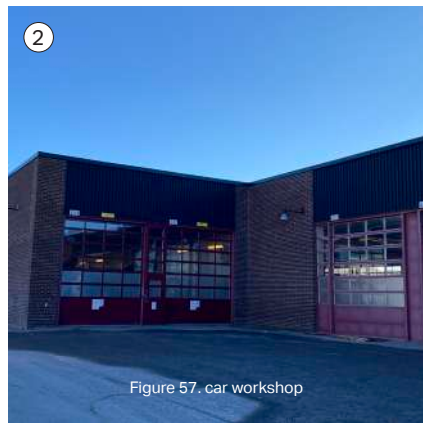




Figure 61. oak forest



Figure 62. the path under the bridge



Figure 63. bus parking, a slope and a storage place



Figure 64. path between the brewery and silos



Figure 65. the fork of two tram branches



Figure 66. construction site



Figure 67. the path along the shoreline



Figure 68. big parking lot

The buildings are all for commercial and industrial uses , and many of them are ruined and abandoned (Figure 56 to Figure 60). On the other hand, except the oak forest at the southeast corner of the site (Figure 61), there are **few green spaces and social spaces**, and most of the public space is occupied by **large parking lots and roads**.

The shoreline of the site is mostly composed of **hardened surface** (Figure 71), which is not conducive for creatures to live. Nonetheless, **the middle and southern parts** of the shoreline have relatively **high ecological value** due to more vegetation (Figure 70 and Figure 72). Water lilies, shellfish, fish ,shrimps, reeds, insects and amphibians (Figure 73 to Figure 80) can be found in these areas.



Figure 69. waterfront with medium ecological value



Figure 70. waterfront with high ecological value (Tyrens)



Figure 71. waterfront with low ecological value



Figure 72. waterfront with high ecological value



Figure 73. lily



Figure 74. reeds



Figure 75. buttercup



Figure 76. oak tree



Figure 77. perch



Figure 78. mussel

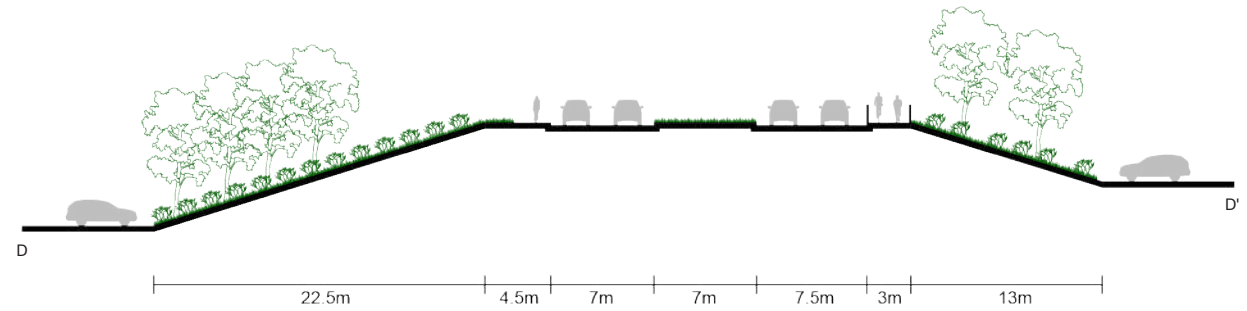
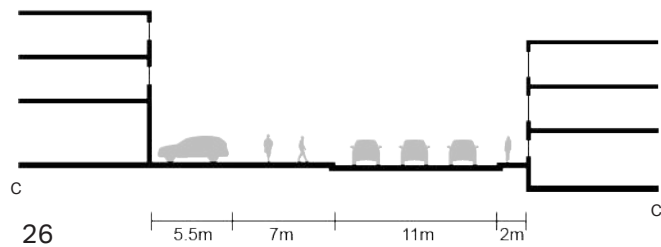
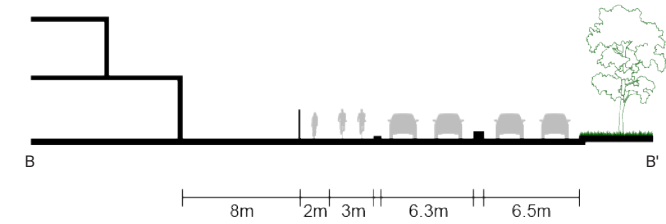
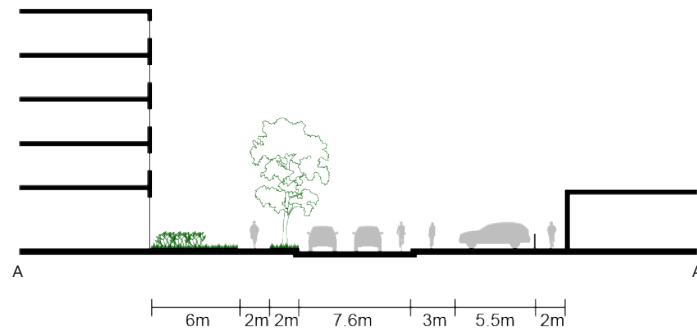
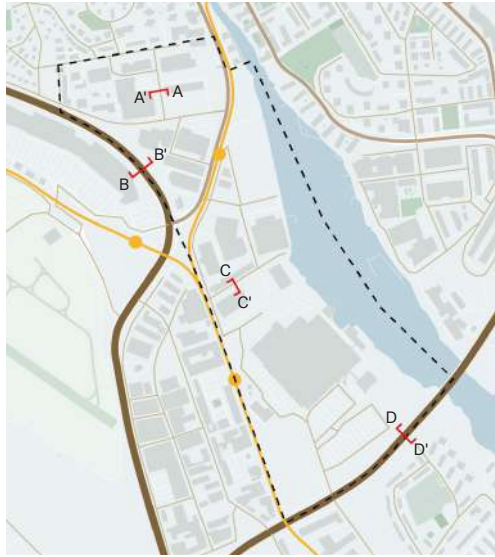


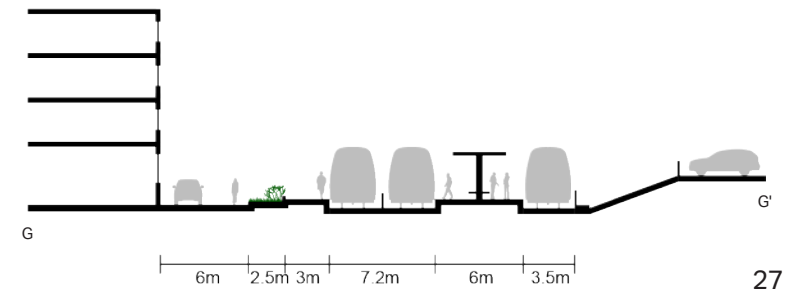
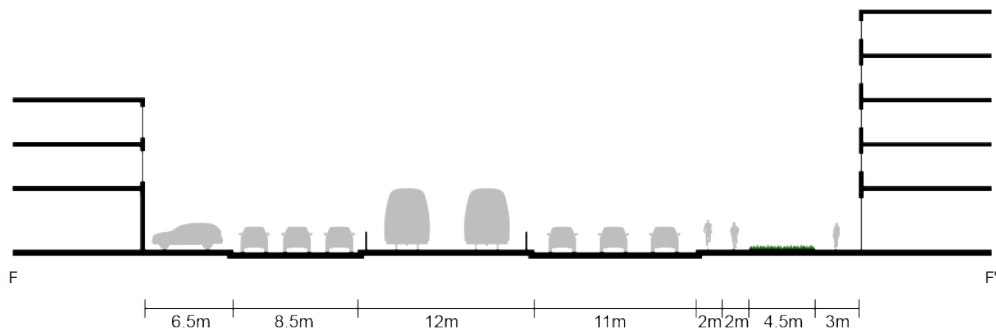
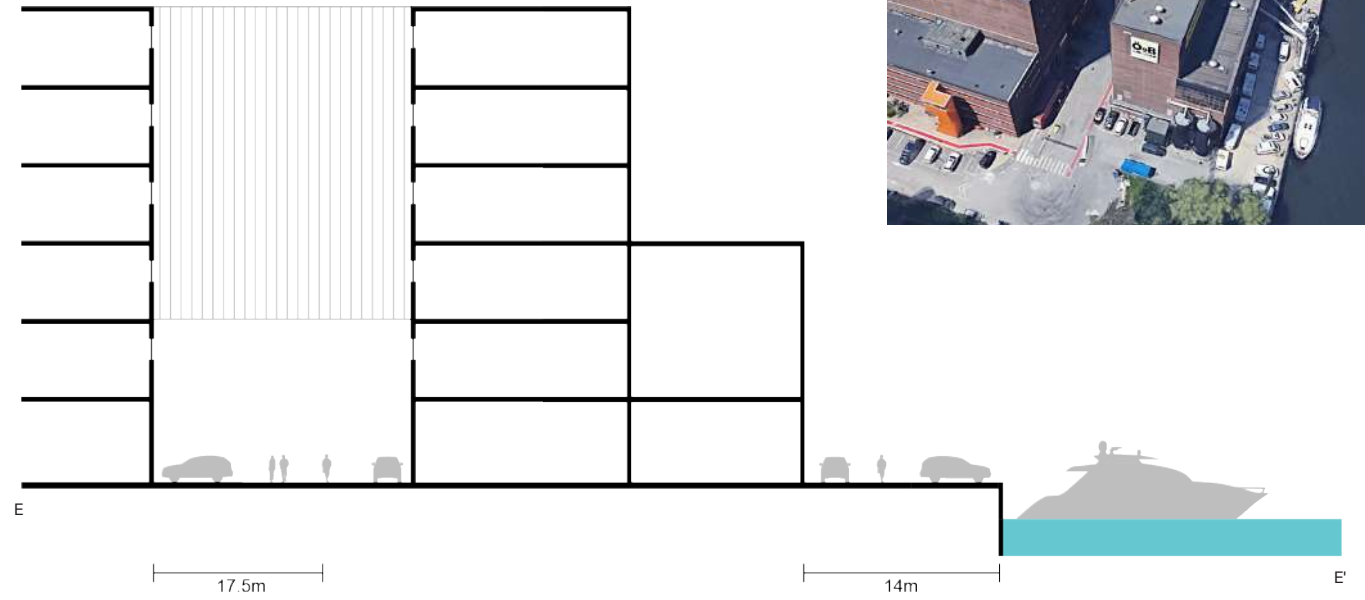
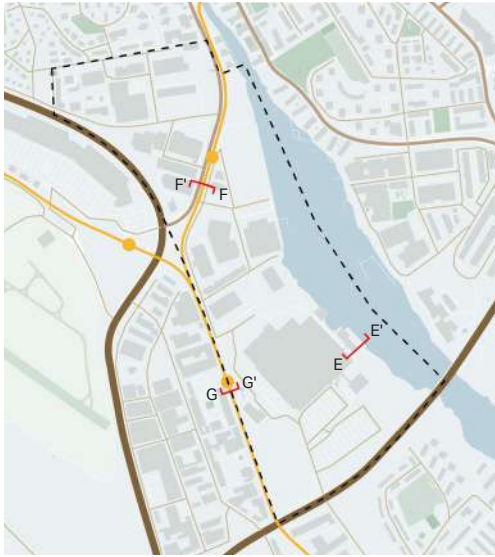
Figure 79. mallard



Figure 80. frog

2.6 Streetscape





2.7 Municipality's vision and restrictions

The municipality hopes that the site can become a vibrant, safe, high-density area where is mixed with residential, commercial, offices, sports, public services and public spaces.

Due to the insufficient capacity of Mariehäll's primary school, and the future development of this area will bring more people to move in, **a primary school and several kindergartens** are required in the new plan.

The municipality also hope to take advantage of the brewery's cultural-historical value to make it become a **cultural and activity center**. In addition, the new plan must create **a network of habitats and ecosystem services** for the area to connect Stockholm's green structure (Figure 81).

However, due to the proximity to the airport, the new proposal must take into account the relevant restrictions. In addition, since the site is close to water and its terrain is low and flat, the risk of flooding and pollutants must also be considered. Therefore, the new proposal must meet the following rules:

1. Residential buildings cannot be built in the area where aircraft noise exceeds FBN 55 dBA (Figure 82).
2. The buildings in the site shall not taller than 52 meters.
3. Since the future of the airport is currently uncertain, it's good to keep the flexibility for the buildings within the noise restricted area to become housing.
4. To avoid the risk of flooding (Figure 83), the foundation level of buildings must be higher than +2.7m, and the stormwater management should be efficient with recreational and biological values.
5. The water body of Ballstaviken is primarily affected by discharges of polluted stormwater (Figure 84), which should be handled in the future plan.

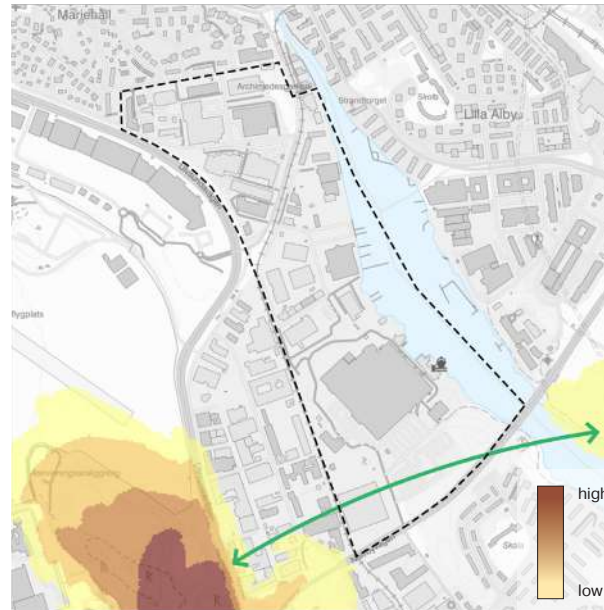


Figure 81. important habitat patch
(Source: miljodataportalen)

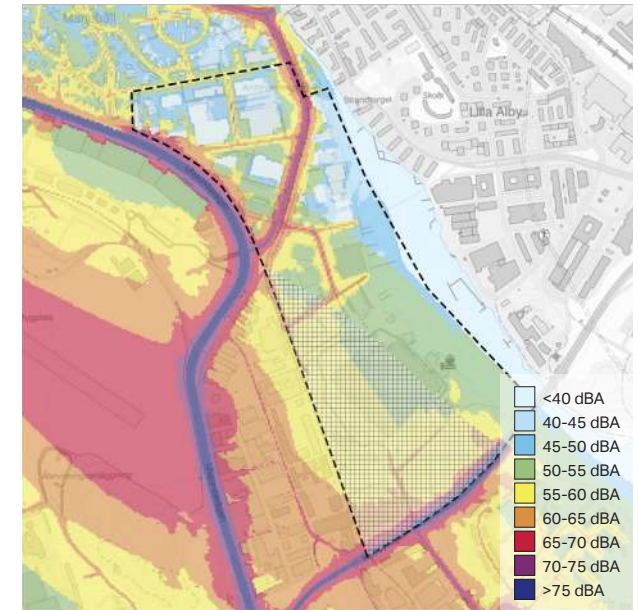


Figure 82. noise (residential buildings cannot be built in the raster area)
(Source: miljodataportalen)

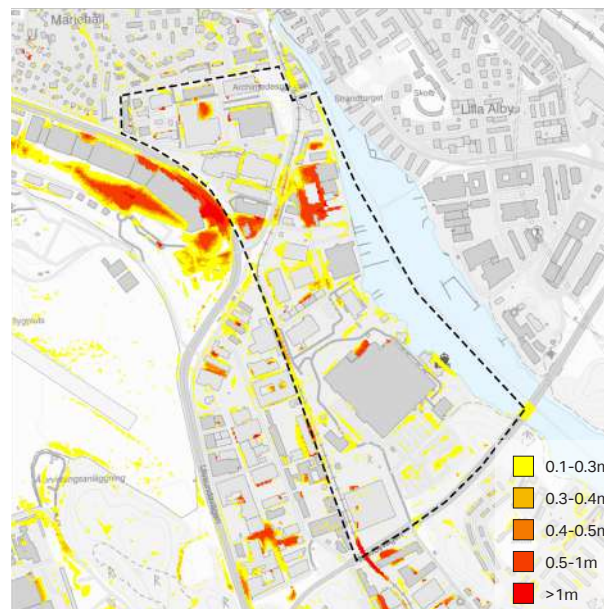


Figure 83. flooding risk
(Source: miljodataportalen)

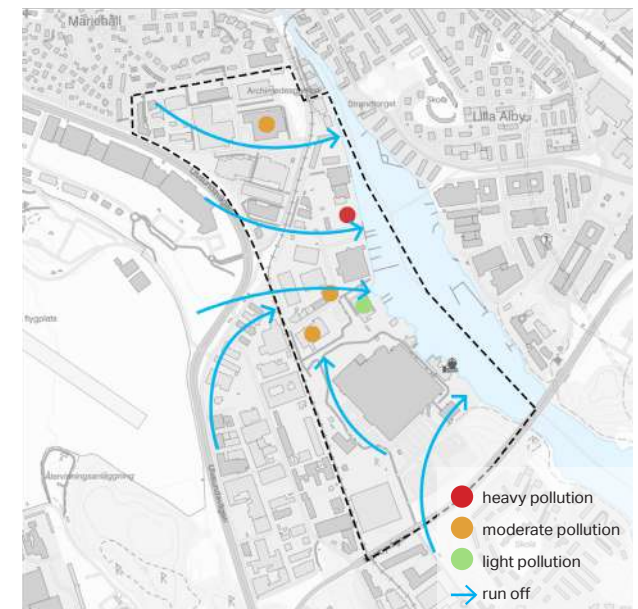


Figure 84. pollutants and direction of run off
(Source: Tyrens)

2.8 Conclusion



ADVANTAGES

- Location, close to the city center
 - Good connection with public transport
 - Proximity to the water
 - Historical legacy
 - Oak forest
-



MAIN PROBLEMS

- Uncomplete road network
- Poor accessibility
- Unsafe and unattractive public spaces
- Little vegetation
- Car-dominated
- Unattractive waterfront





OPPORTUNITIES

- Extension of the tram line
 - Link the eco-network
 - Schools
 - Renovation of the brewery
-



CHALLENGES

Flooding risk

Pollution

Noise

Uncertain future of the airport





3. Proposal

3.1.1 Question

1. How to respond to the climate change challenges while retaining a close relation to the water?
2. How to create a cohesive built environment which is welcoming for everyone, especially young people and children?
3. How to weave public space and nature into a dense cityscape?

3.1.2 Goal

1. bring a diverse mix of uses
2. pedestrian-oriented and children-friendly public spaces
3. greater coherence and connectivity to the nature and the waterfront
4. a resilient environment against climate change

3.1.3 Vision

A green, welcoming and cohesive community by the bay

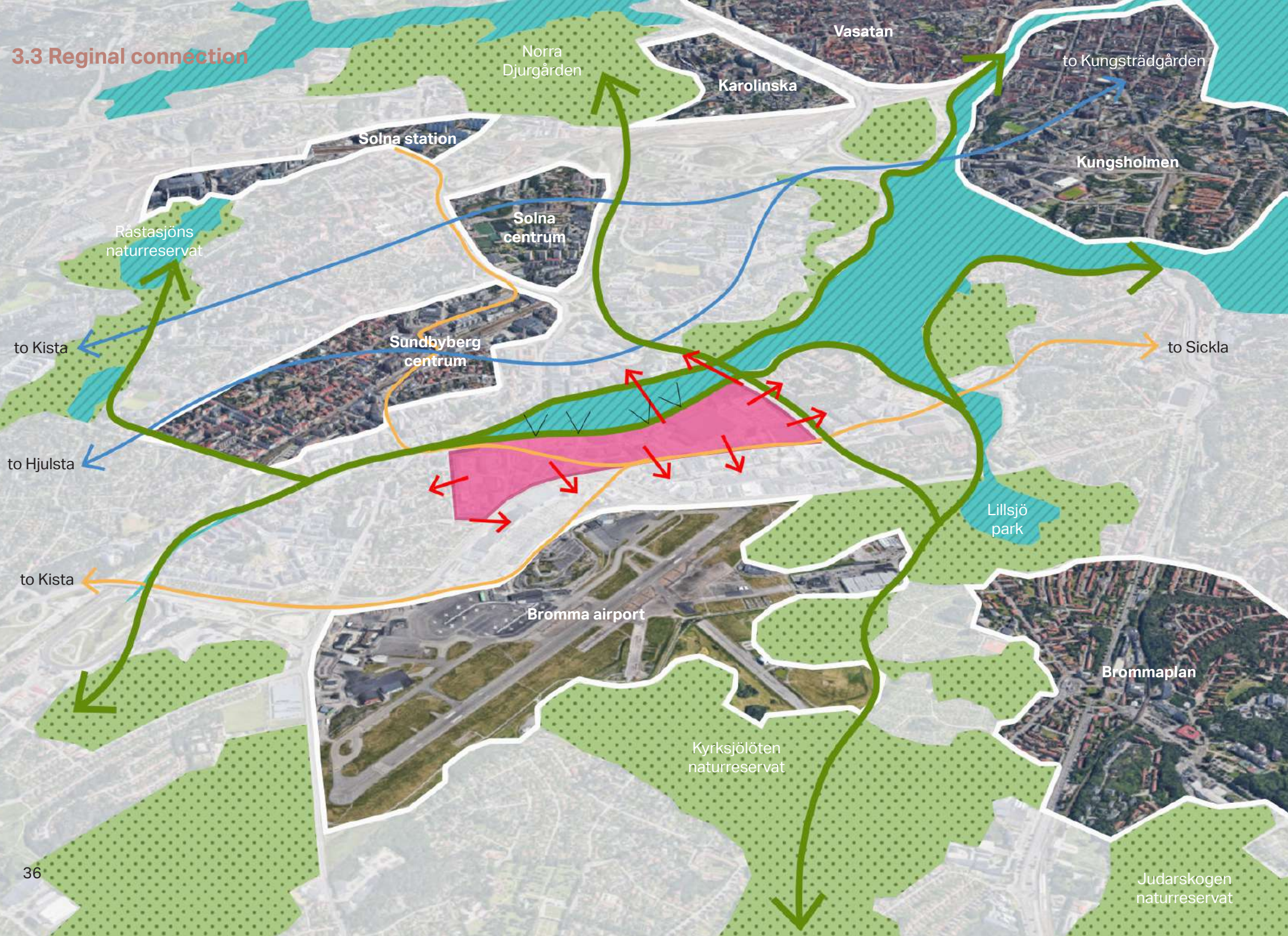
The plan will promote a rich public life while establishing strong connections between local and regional destinations, as well as creating a close relationship with the nature and water.



3.2 Concept and strategies



3.3 Reginal connection



3.4.1 Design process: demolish and preserve

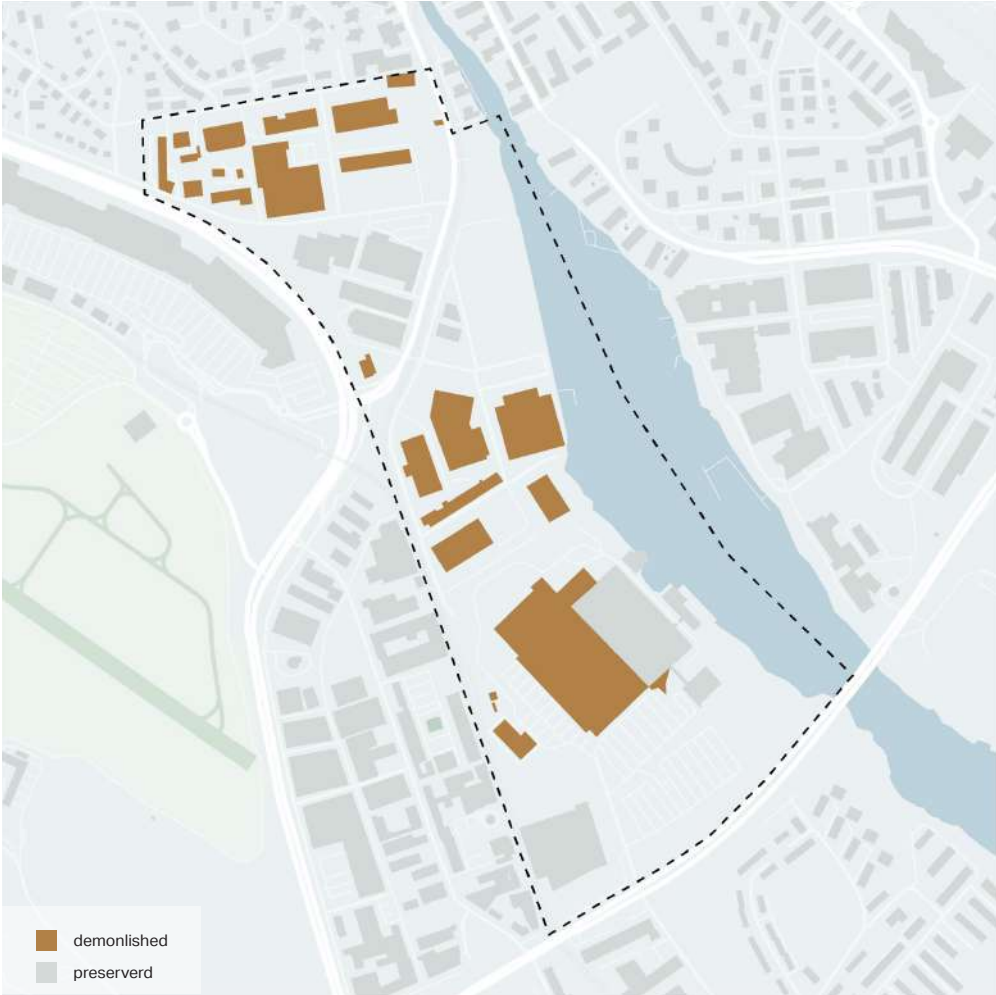


Figure 85. demolished and preserved buildings

According to the conditions of the buildings, I suggest to demolish these buildings (Figure 85), and keep those which have better quality and higher historical values. The demolished buildings are about 84100 square meters, and the materials of them (Figure 86 and Figure 87) should be recycled and reused, which can help Stockholm to reach the goal of being fossil free. The main part of the brewery (Figure 88) is going to be cultural uses (Figure 89), and I recommend the silos (Figure 90) to turn to an apartment or a hotel (Figure 91).



Figure 86. a building with bad conditions



Figure 87. abandoned buildings



Figure 88. the supermarket in the brewery



Figure 89. co-working hub/stadium/exhibition center

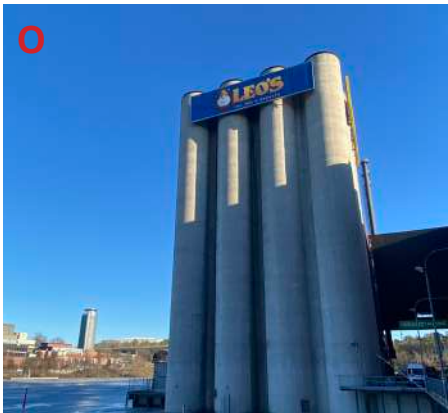


Figure 90. the silos of the brewery



Figure 91. apartment/hotel

3.4.2 Design process: road network



Figure 92. road network

Taking the original road network into account, I propose a secondary road that goes through the whole site (Figure 92 and Figure 93), and some shared streets as supplement. In shared streets (Figure 94), there are some decorations, seats and active groundfloor, and cars must slow down.



Figure 93. secondary road

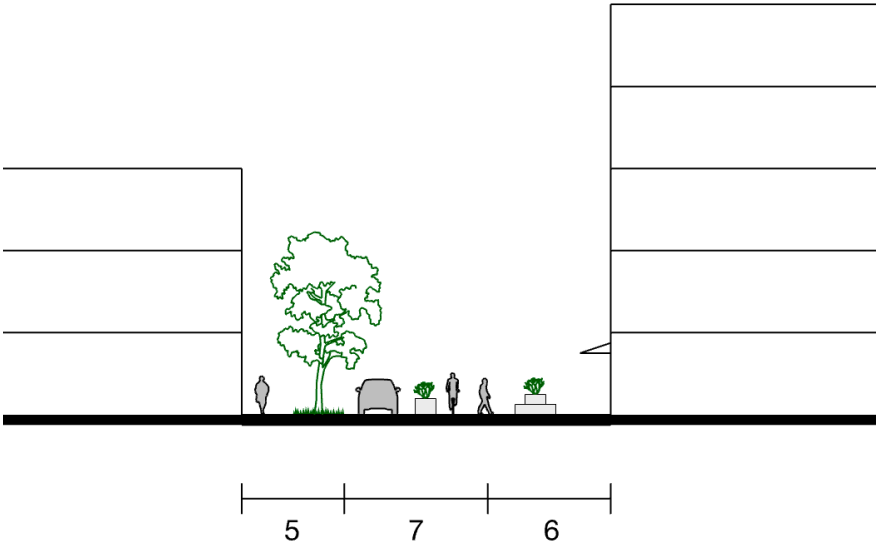


Figure 94. shared street

3.4.3 Design process: blue green structure



Figure 95. blue green structure

Taking the terrain and flooding risk in to consideration, I propose the blue green structure that extends along the waterfront and connects the surroundings, and the green nodes can collect more rain water and purify it before it flows into the bay.

3.4.4 Design process: function

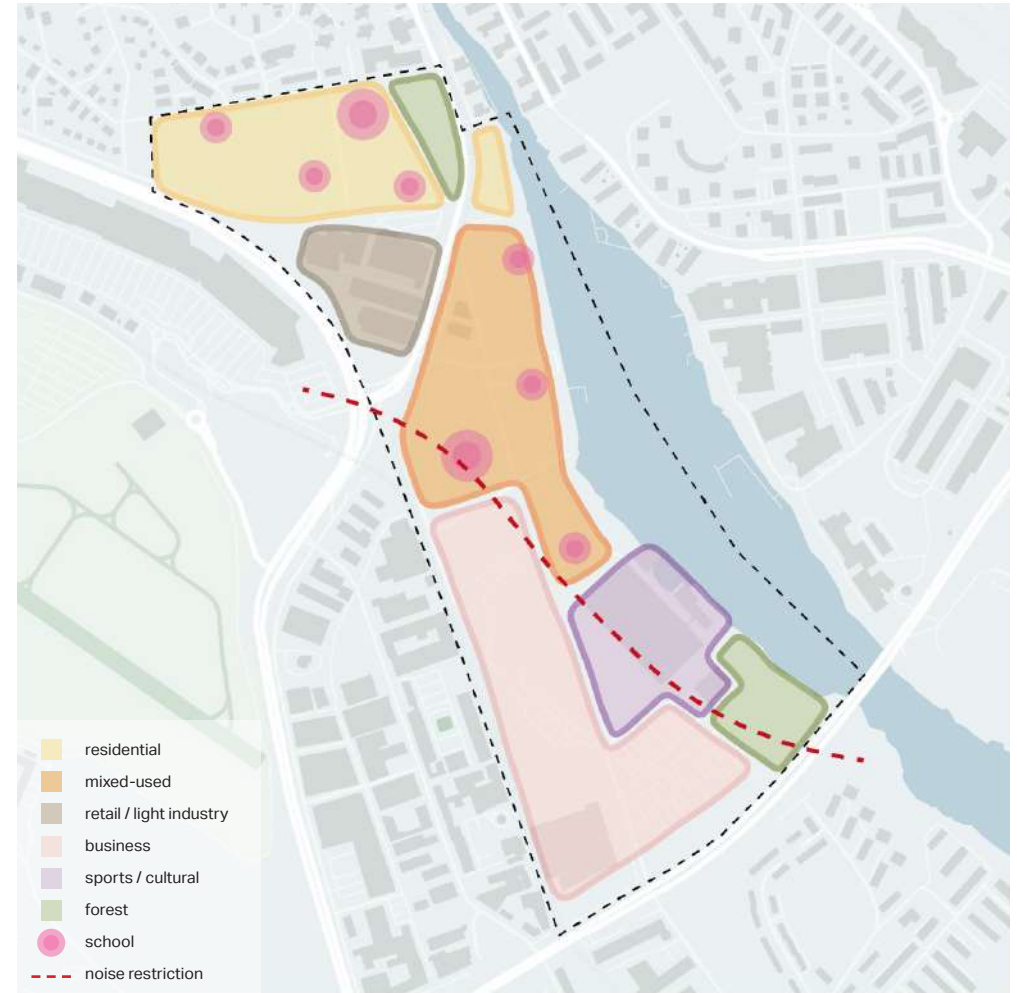


Figure 96. function

According to the noise restriction, the area under the restriction line is proposed for business and public use, and the brewery area would act as the cultural and activity center. The middle part is mixed use and the north part is mainly for residential use. In the brown area, I keep the old buildings as retail and light industry, so people can go there to work and do everyday shopping. In addition, I also proposed 2 elementary schools and several kindergartens for the future kids.

3.4.5 Design process: buildings



Figure 97. buildings

According to the functions, I propose the urban blocks to be integrated into the surrounding scale. The blocks should be a contemporary interpretation, but also moulded to respond to the environment.

3.4.6 Design process: public realm

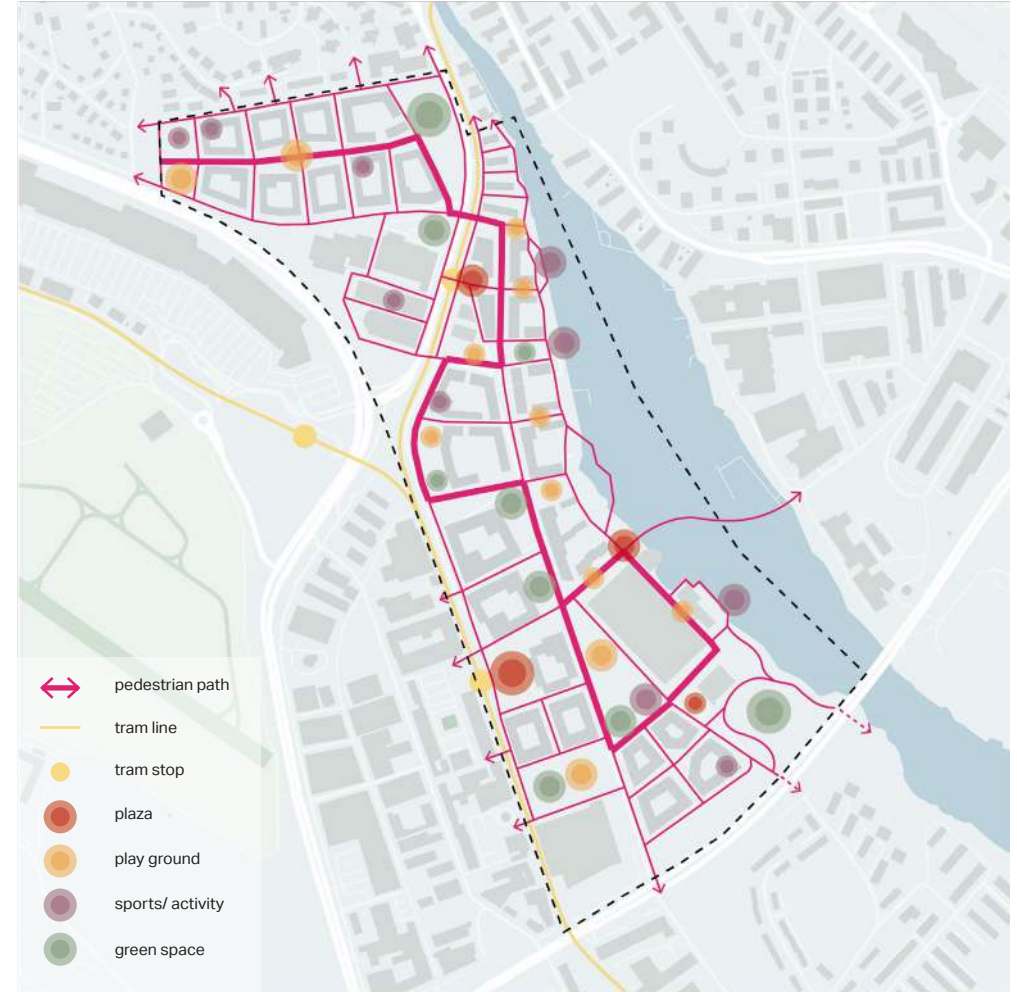


Figure 98. public realm

A playful pedestrian path is weaved into various public spaces through the whole site, and a pedestrian and bike bridge is created to connect the other side of the bay so people can get to the metro station Solna Strand more easier.

3.4.7 Design process: building typology

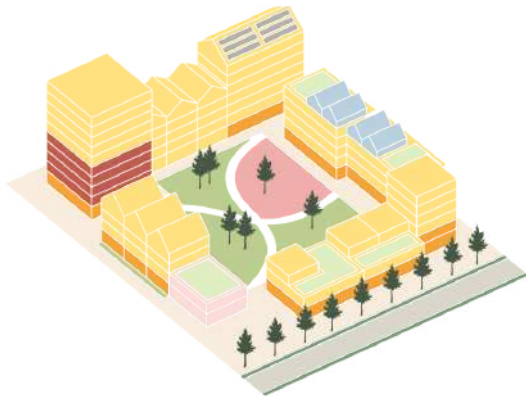


Figure 99. mixed use block

Mix-use block with active ground floor, roof garden, public service and playground.

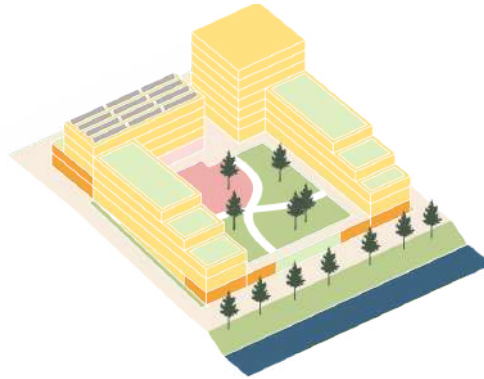


Figure 100. waterfront block

Mix-use building facing to the bay, so the residents could have a good water view and also keep their privacy from the people walking along the waterfront.

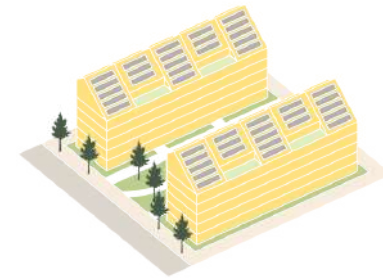


Figure 101. middle rise apartment

Apartments which are same as the other side of the bank. It can form a sense of symmetry with the buildings on the other side of the river.



Figure 102. parking house

Parking house with a playground on the roof.

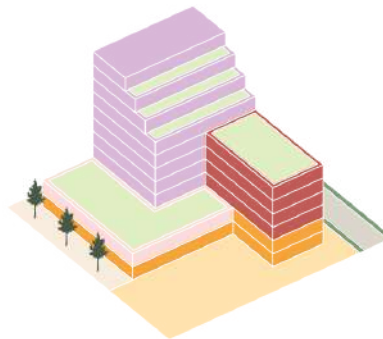


Figure 103. commercial building

Building facing to a plaza, with the function of retail, office, hotel and public uses.

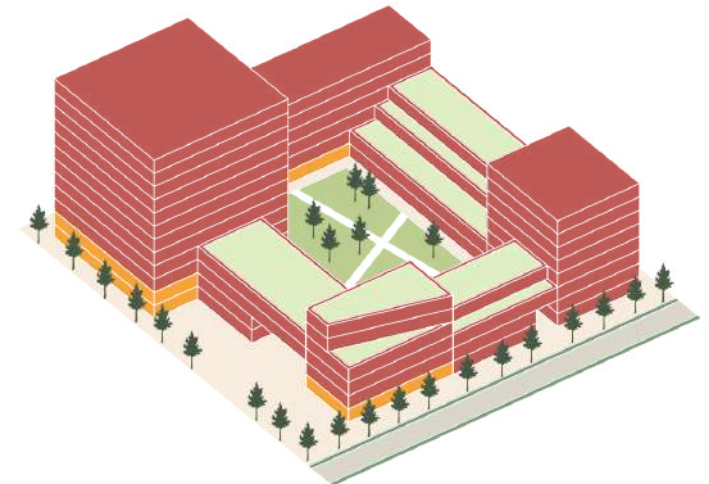


Figure 104. office building

Office building with some restaurants and retails on the ground floor. I hope it can have the flexibility to transfer to residential use if Bromma airport is closed, so I suggest the width of the building should not be too wide but the space between the columns should be wide.

3.4.8 Design process: green space



Figure 105. green space

According to the blue green structure, I propose a waterfront park along the bay, some buffer areas along the main road, 2 urban farming places near schools and residential area, and many parks throughout the site.

3.4.9 Design process: phasing

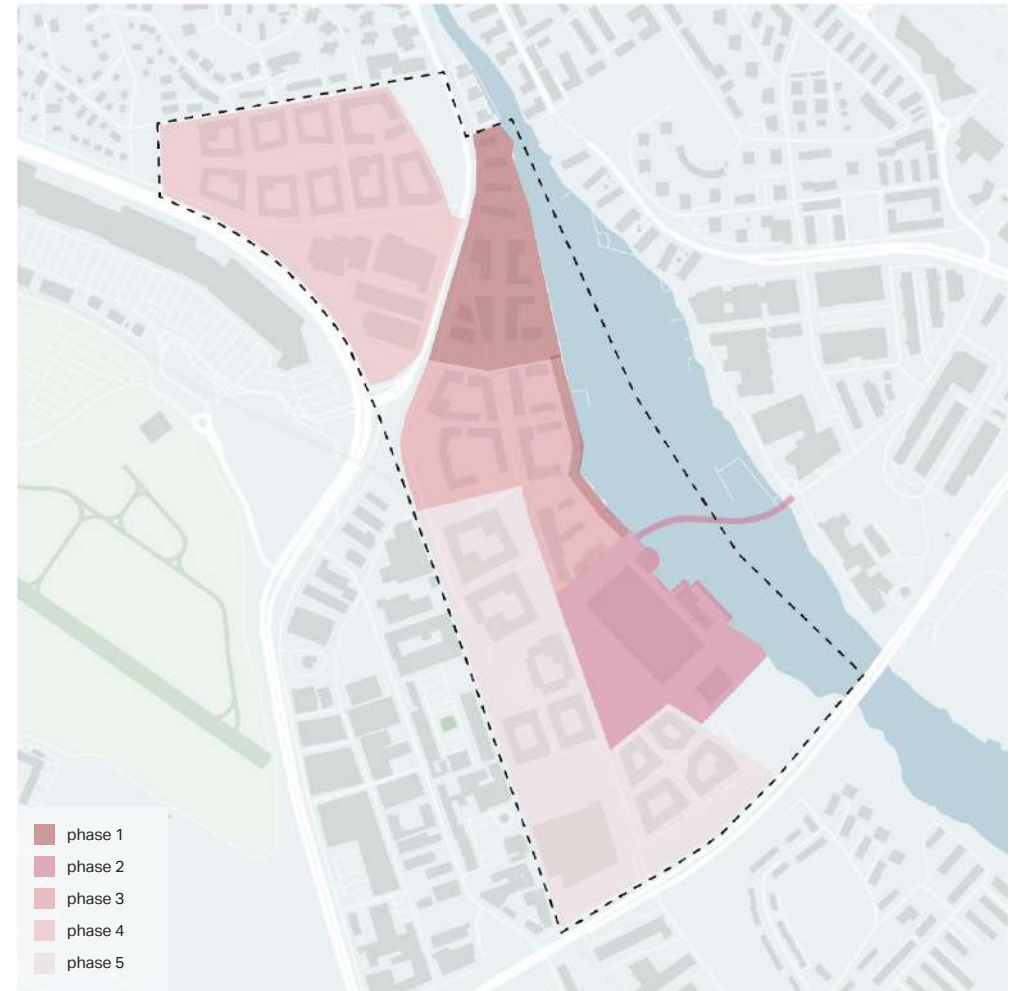


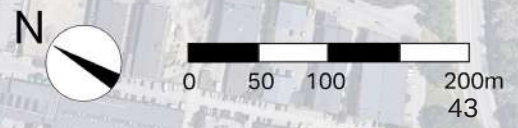
Figure 106. phasing

According to the current situation and the pollutants, I suggest that the area around Karlsbodavägen tram stop and waterfront park that connects to the brewery should be developed first, so there is more time for the other areas to clean up the pollutants and demolish the useless building. The brewery, activity park and the pedestrian bridge can be developed next, so they can act like a catalyst to activate the site. I leave the business area to the last part so it can have time to see whether the airport will be closed, then the plan for this area can be adjusted.

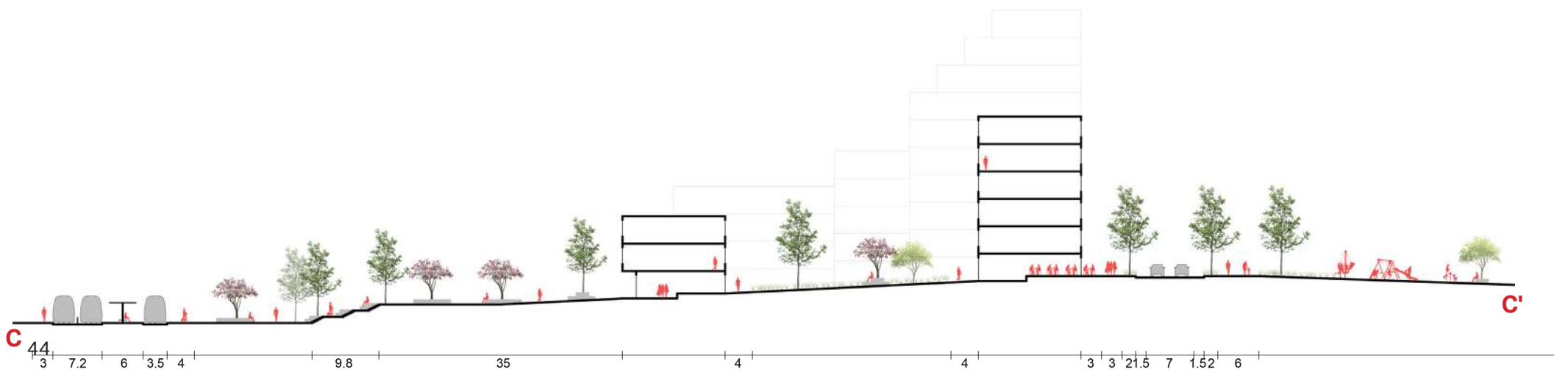
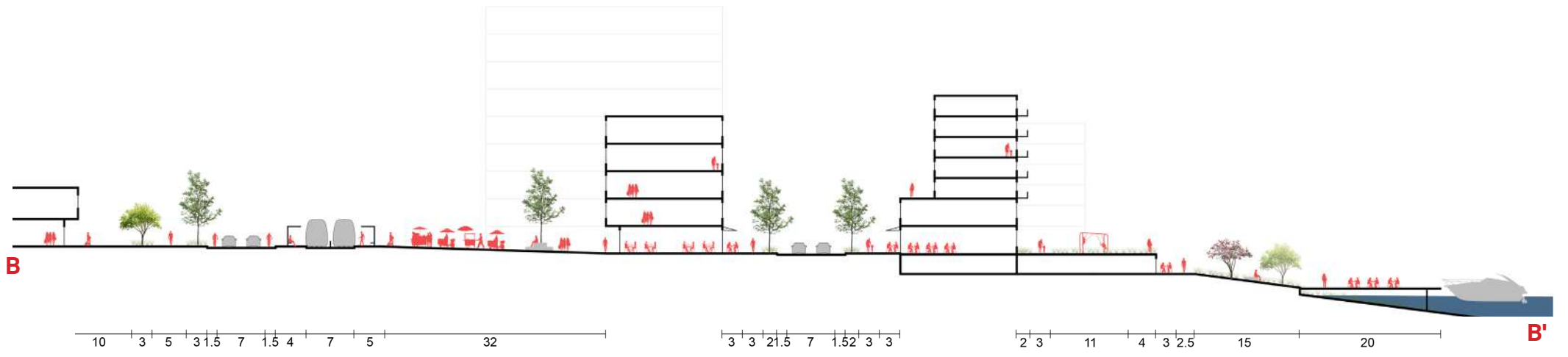
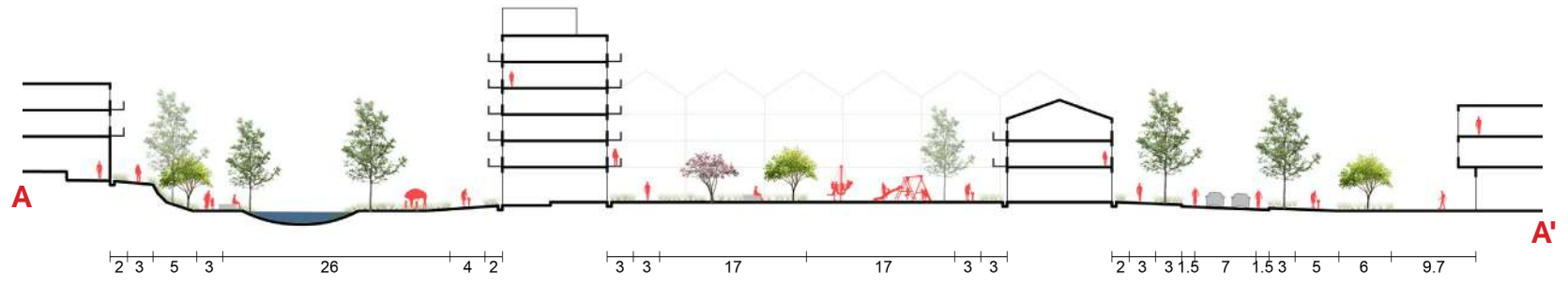
3.5 Master plan



- | | |
|------------------------|------------------------------|
| ① Norra Ulvsunda plaza | ⑦ pedestrian and bike bridge |
| ② activity park | ⑧ primary school |
| ③ stadium | ⑨ kindergarten |
| ④ cultural center | ⑩ Karlsbodavägen plaza |
| ⑤ hotel | ⑪ community park |
| ⑥ residential tower | ⑫ urban agriculture |



3.6 Section



3.7 Detail plan



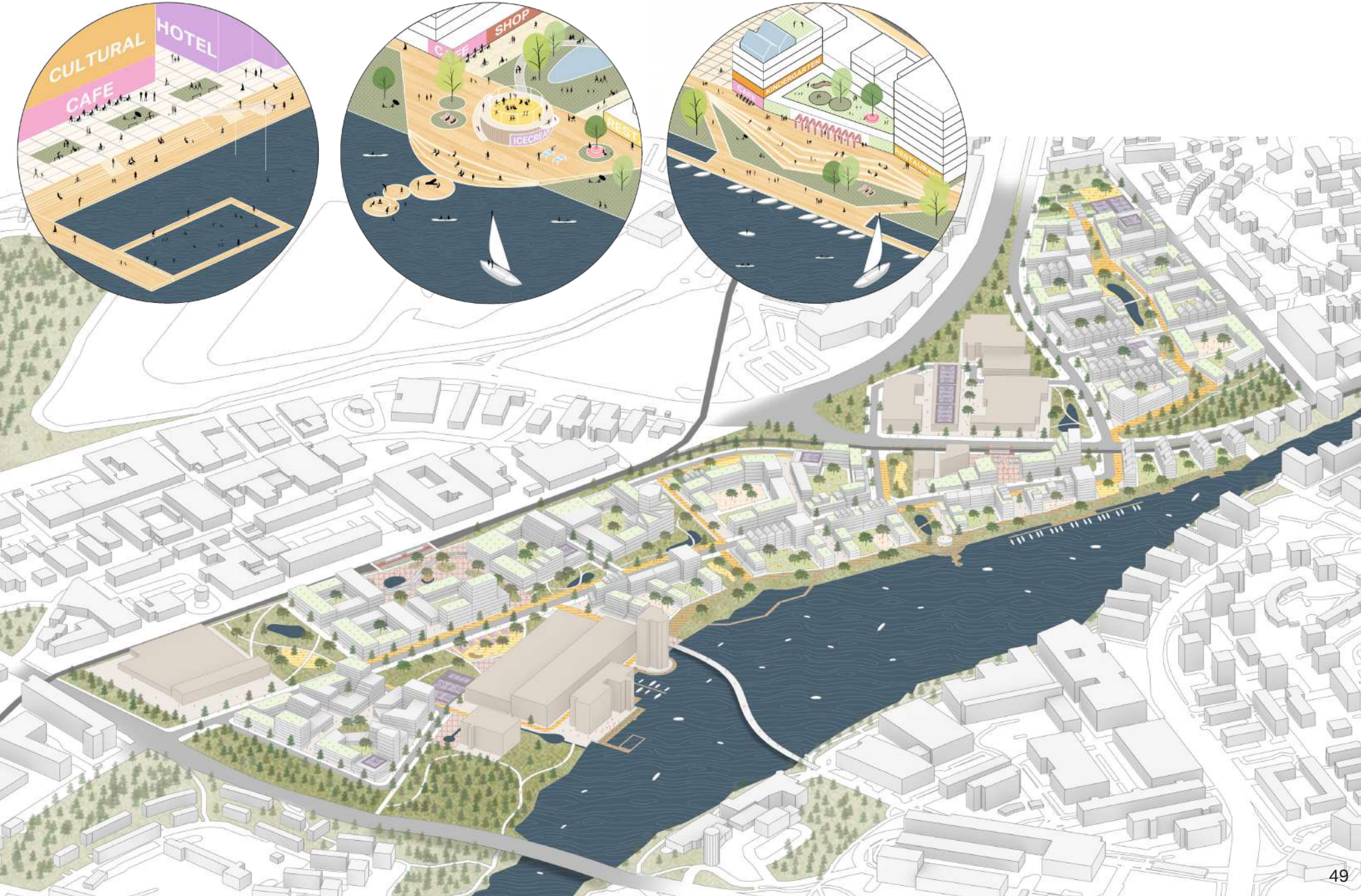
tram stop







3.9 Axonometric



4. Conclusion



4.1 Conclusion

The thesis aims to seek for the comprehensive solutions to the current main challenges in Stockholm, including housing shortage, social segregation, climate change.

After a thorough and in-depth analysis and taking the public space as the starting point, I proposes four strategies for building an urban living room based on the site's characteristics, problems and opportunities. In the design process, I try to integrate the strategies by considering history, road network, blue-green system, function, architecture, public space, and propose a holistic and human-oriented plan.

My proposal creates a dense green network that increases the green space rate from 10% to 30%. The building coverage ratio was originally 27%, but it will reach 32% after demolishing 84,100 square meters of old buildings and creating 487,200 square meters of new buildings. 35% of the buildings are planned for residential uses, creating about 2,800 homes.

Based on the unique history, the brewery will become the catalyst, a activity hub, which is not only for the locals but also worth for tourists to visit. Diverse and resilient public spaces are created to promote a rich public life as well as reinforce a close relationship with the nature and water. Safe and complete roadwork will ensure people's walking experience and strengthen the connection between local and regional destinations. Mixed use developmet and various housing options will create a vibrant environment that attracts more people to live and work here. In the promising future, the site will become a green, welcoming and cohesive community by the bay.

4.2 Feedback

1. should think more about the noise affect in public spaces
2. should set principles for recycling materials from demolished buildings
3. the scale of Norra Ulvsunda station plaza and stairs is too big
4. shared street should be clarified
5. distance between street trees should be clarified

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Urban Living Room:

A green, welcoming and cohesive community by the bay

Master Thesis
Sustainable Urban Design

By: Chia-Yu Chang

May 2022

Lund University

School of Architecture, LTH