Thesis Plan

Stockholm 2050
A resilient metropolitan region

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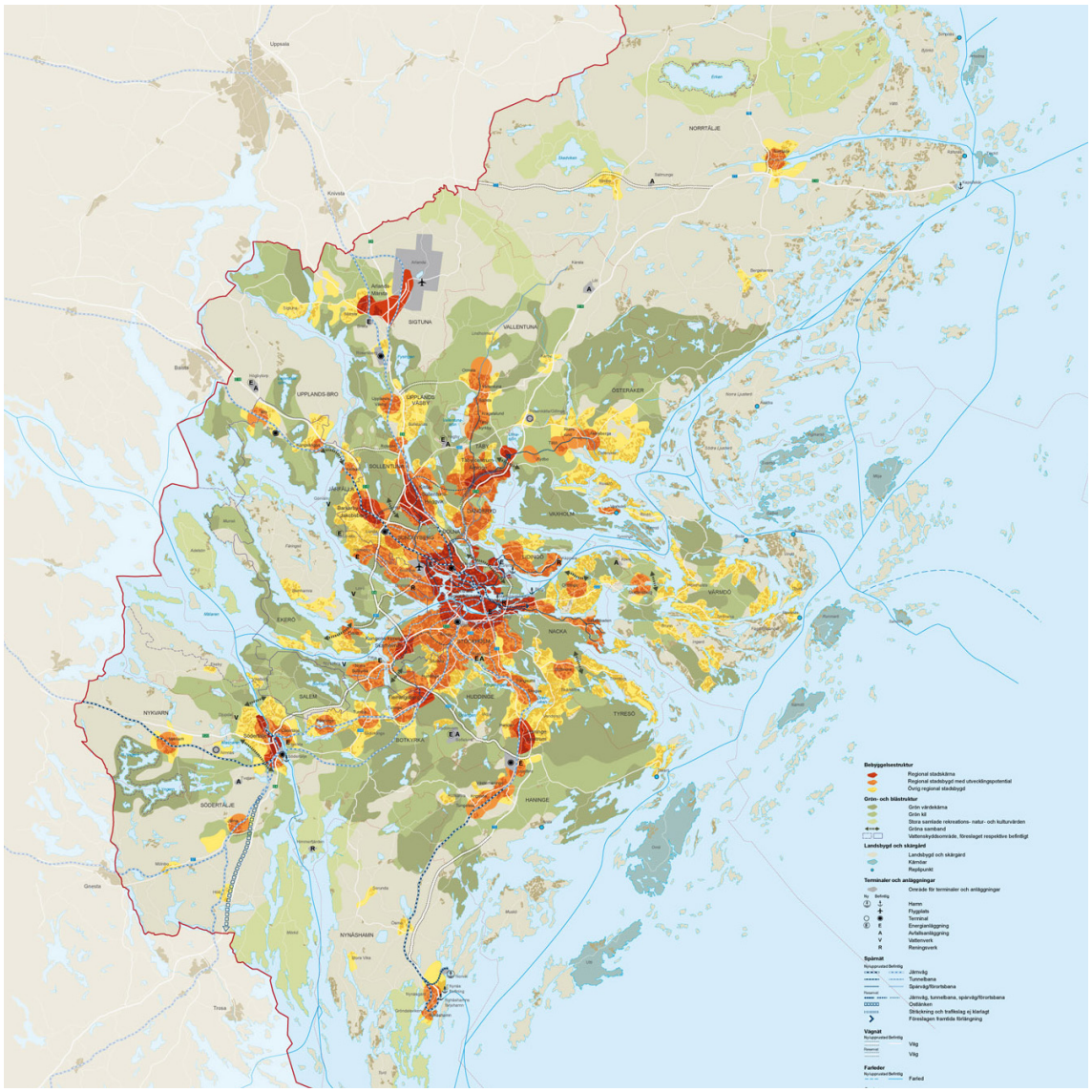
Photo from stockholm.se

1. MOTIVATION

I'm born and raised in Stockholm, but I have only lived one third of my life there. The other two thirds I have lived throughout Europe, in France, Germany, Italy, Spain and now in the Netherlands. Despite my absence from Stockholm, my love for this beautiful city has never wavered. Every time I go back to visit the city, I immediately feel that I'm back home. No other city throughout the world, where I have lived or have visited, has triggered such 'home' feeling in me.

After two years at the Faculty of Architecture in Delft and two years working at an architecture office in Berlin, I knew that Urbanism was my passion. Around that time I started to follow the urban development in Stockholm. Through official channels (open sources through governmental websites), news and social media, I had the possibility to follow and read about the development of the city and region.

By now I have several ideas, based on what I have read and my own experties as an urban planner, on how and in which direction the city and region should grow in the future. This graduation project is a first step to test these ideas and develop them into concrete plans, and furthermore contribute to the debate on urban planning and urban development in Stockholm.



Vision Stockholm 2030, source: rufs.se

2. PROBLEM DEFINITION - CONTEXT ANALYSIS

The Metropolitan Region of Stockholm

Stockholm is Sweden's capital and the country's cultural, political and economic centre. Stockholm is located on Sweden's central east coast, where the Lake Mälaren flows out into the Baltic Sea. The central parts of the city consist of fourteen islands that are continuous with the Stockholm archipelago, with more than 30.000 islands. Over 30% of the city area is made up of waterways and another 30% is made up of parks and green spaces. It is the most populous urban area in Sweden and as in the Nordic region.

The Metropolitan Region of Stockholm is one of the **fastest-growing** regions in Europe, and its population is expected to number 2.6 million by 2025. The region is home to around 21% of Sweden's total population, and accounts for about 29% of its gross domestic product. The almost total absence of heavy industry makes Stockholm one of the cleanest capitals in the World. The city was granted the 2010 European Green Capital Award. Sweden is one of the leading countries when it comes to reaching climate goals, due to its integrated administrative system, cuts on co^2 emissions by 25% per capita in ten years and Stockholm's decision to become fossil fuel free by 2050.

Problems

The Metropolitan Region of Stockholm is one of the fastest-growing regions in Europe, and its population is expected to number 2.6 million by 2025 and 3.4 million by 2050 (*source: scb.se*). Every year the population of the region grows with around 33.000. It has to do with: higher birth-rate, in 2015 it was 1.36, which means an increase 13.000 people; national emigration and immigration, which means an increase of 3.000 people; and international emigration and immigration, which means an increase of 17.000 people (*This number is rather high compared with other years, it has to do with the current crisis in the Middle East*).

Due to the population growth the region is confronted with these main problems:
- Housing shortage;
- Being a radial and monocentric city;
- Car dependency;
- Segregation.

• Housing in the region
2015: 1.020.000
2030: 1.350.000

• New built housing:
2015: 12.000
Needed: 24.000 annually

• Housing shortage
2014: 122.000
2030: 140.000

• Plans for new housing
2016 - 2030: 330.000
Needed: 400.000

As the population has increased, the housing market has barely done anything to accommodate the newcomers with housing. Today Stockholm is facing a new record high housing shortage of 122.000 dwellings (*from 2014, source: chambers.se*). The average waiting time for a rental apartment is between 7 and years, for a housing cooperative between 10 and 20 years (*source: bostad.stockholm.se*). When newcomers arrive to the city, they already have a disadvantage in comparison with someone that has lived for a long time in the city.

In 2015 12.000 new dwellings were built, this number hasn't been this high since the million programme in the 60's and 70's. To keep up with the increasing population and tackle the housing shortage, the number of new built dwellings has to be doubled (*source: chambers.se*). According to the plan of Stockholm **Vision 2030**, 330.000 new dwellings will be built by 2030 (*source: rufs.se*). This won't be enough. In a recent study made by the University of Chambers, in Gothenburg, Stockholm has to build more than 400.000 new dwellings, otherwise the housing shortage will just keep growing.

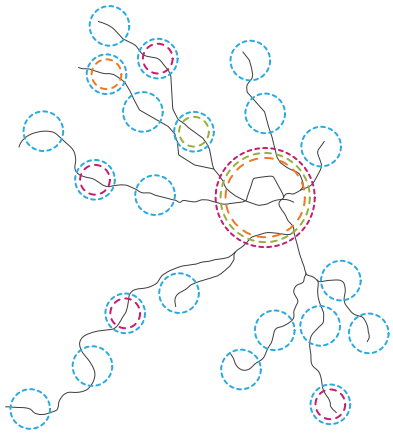
The development of city has been inspired by the Copenhagen 'Finger-Plan' and today Stockholm has become a radial city. Along the radials, subway lines connecting the outer suburbs with the city centre. This has led to Stockholm becoming a monocentric city. More than 54% of the regions workplaces and most of the regions commercial and public services (*source: rufs.se & scb.se*) are located in the city centre. This and due to urban sprawl, has made the areas outside the city centre to become commuter suburbs.

Stockholm being a radial and monocentric city, more and more people are using the car as a mean of transportation. The radials of the city are not well connected with each other, due to urban sprawl people tend to live further away from the city and the public transport is reaching its maximum capacity. The average daily distance travelled

54% of the regions **workplaces** are located in the city centre.

Most of the regions **commercial services** and **public services** are located in the city centre.

Due to urban sprawl, areas outside the city centre have become **commuter suburbs**.



Drawing made by the author

in Sweden increased from about 1 km in the early 19th century to about 10 km in the 1950s; from there, it increased rapidly, finally peaking a few years into the 21st century at around 45 km (*Frändberg and Vilhelmson, 2011*). In 2015 the amount of cars on the road has never been this high and it could increase by 80% by 2030 (*source: scb.se*). Owning a car in Sweden comes at a high cost for the households and the environment In average 17% of their income goes to the car (*source: spacescape.se*) and traffic on the road stands for almost 44% of the total co2 emissions in the region (*source: scb.se*). At the same time, the car is not a democratic mean of transportation, only 40% of the Swedish population has access to a car (*source: theinclusivecity.se*). Only 50% of the inhabitants between 16 and 25 has a driver's license (*source: scb.se*).

• Cars in the region
2015: 890.000 *(new record)*
2030: +80%

• Emissions
2015: 44% of the total CO^2

• Expences
2015: 17% of the income

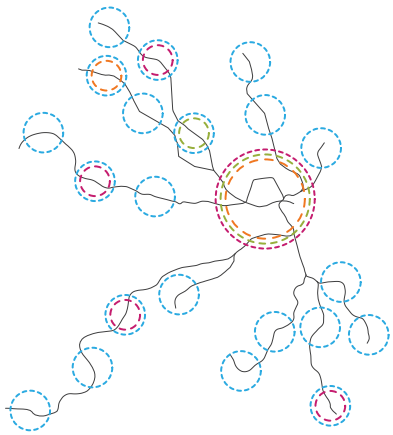
• Access to car
2015: 40% of the population

Due to the housing shortage the prices for housing in the city centre has risen to new records. Beginning of 2017 the average price per m2 is 9.000 (*source: scb.se*). This means that an average apartment in Stockholm (*2 rooms, kitchen and bathroom, 57 m2; source: scb.se*) would cost more than a half million. In Stockholm rental apartments are becoming scarcer, this causes ethnic clustering and pushes groups with fewer resources out to the outer suburbs. Today one can find a degree of concentration of social and ethnical groups in certain areas in the region. Most affected by this are people with a foreign background. Ethnic and income segregation has increased during the past decades in Stockholm (*Nordström-Skans & Åslund, 2009, Lilja & Pemer, 2012*).

Due to the housing shortage, the prices in the **city centre** has risen to new records.

2017: **9.000** €/m^2 (*source: scb.se*)

People with a low income and with a foreign background have been pushed out to the outer **suburbs**.



Drawing made by the author

These problems are not only a social and an economical phenomenon but also a spatial issue

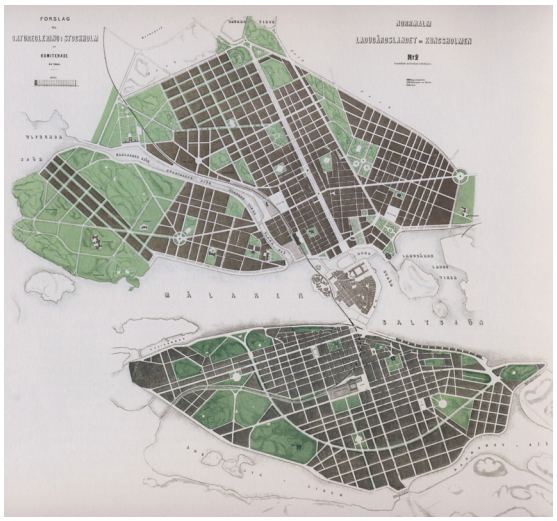
Sweden has had an increasing immigrant population in recent years (*source: scb.se*), has relatively low income inequality (*Musterd, 2003*), and low intergenerational inequality considering educational and occupational inheritance (*Breen & Jonsson, 2005*). Despite this, several studies show that ethnic and income segregation has become a permanent feature in Sweden's largest cities over the past decades: Stockholm, Gothenburg and Malmö (*Dahlberg, 1995, Hårsman, 2006*).

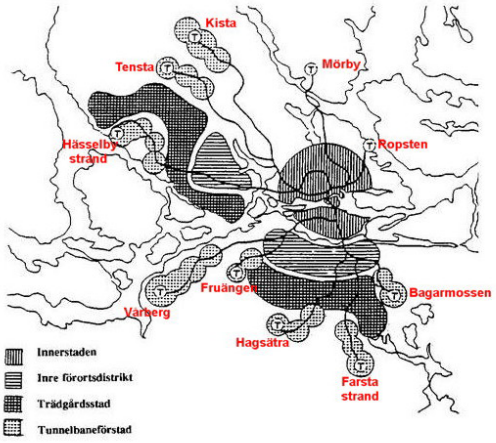
The composition of residential neighborhoods to a large extent reflects a person's wealth and income since neighborhoods vary in housing prices. In Stockholm there are significant differences in areas of rental and home-owner housing markets; rental housing is primarily located in certain suburbs where immigrants and groups with low socio-economic status are more likely to live.

The beginning of mass motoring in the early 50's generated exponential growth in daily travel that continued for several decades, resulting in increased urban sprawl. People living in the inner-city areas with mixed land use, travel shorter distances and use more sustainable transportation modes (*public transport, cycling, and walking*) than others do.

For the past 150 years Stockholm has had several development plans for the city and the region. Some plans have been successfully developed and praised by the international community: "*the organic growth and the internal reconstruction of Stockholm and its region is an example to all other cities because they show foresight in land policy and intelligent co-ordination of the many problems confronting the modern city*" (*Larsson, 1962*). Other plans have been heavily criticised for being the cause of the problems the city is facing today.

- Lindhagenplanen 1866
- Generalplan för Stockholm 1928
- 1946 års Cityplan
- Generalplan för Stockholm 1952
- City 62
- Tunnelbaneplan för Stockholm 1965
- City 67
- Söder 67
- Cityplan 1977
- Översiktsplanen 1999
- Promenadstaden 2012
- Vision Stockholm 2030





Both drawings from stockholm.se

The Stone City

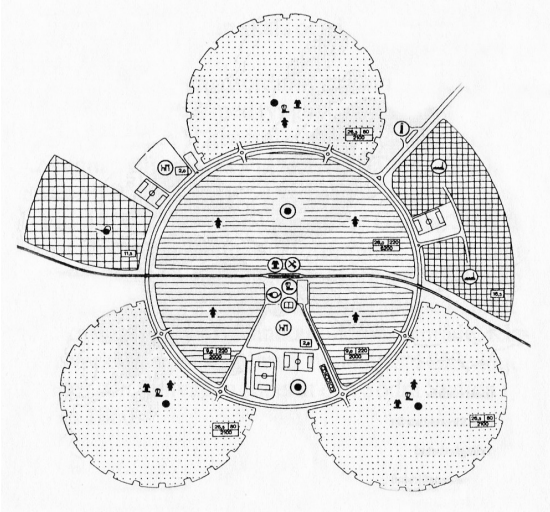
During the industrialization Stockholm became quickly the leading factory town with a massive migration of labor from rural areas. The population increased from about 100.000 in 1856 to 200.000 inhabitants in 1884. Stockholm city plan from the 1600's was now filled rapidly with housing and people, and soon reached its limits. In addition to which inadequate water supply and waste management caused major hygiene problems. The mortality rate was very high in the city, even in comparison with other European cities.

Albert Lindhagen was an urban planner, lawyer and politician. In 1866 he introduced the Lindhagenplanen (also known as the stone city). The plan laid out a regulated network of streets, probably influenced by, among other things, Georges-Eugène Haussmann's transformation of Paris and James Hobrecht's plan for Berlin. The principle was a grid plan with square blocks, surrounded and crossed by large avenues and boulevards. Lindhagen's starting point was 'movement in the city and its natural paths' and a 'seamless system of communications'. Furthermore, the plan would facilitate the rapid growth of traffic, improve the hygienic conditions of the dwellings and reduce the risk of fires.

The Subway City

A new master plan for Stockholm had to be developed because of the huge housing shortage and due to migration to the city after World War II. At the same time, there was criticism on the 1930's suburbs around the centre with only small houses. The main complaint was that these suburbs only contained housing. The work on the master plan started immediately after the war and continued until 1952. The work was inspired by similar regional plans as the "Copenhagen's Finger Plan" and the "Greater London Plan". But instead of using the solution from London to the problem, in Sweden was decided to link the new suburbs to their city.

An important part of the Stockholm expansion was the decision to build a new subway system. The new suburbs, in the master plan called "Subway suburbs", would be built like pearls on a string along the subway lines. With the subway inhabitants could reach the centre of the city, within 30 minutes. This strategy was established in the master plan from 1952. In each new district that is connected with the new subway, there should be a mix of housing with commercial and public services. And everything should be clustered around a centre at a subway station. The ABC-City was initiated.



Drawing and picture from stockholm.se

The ABC-City

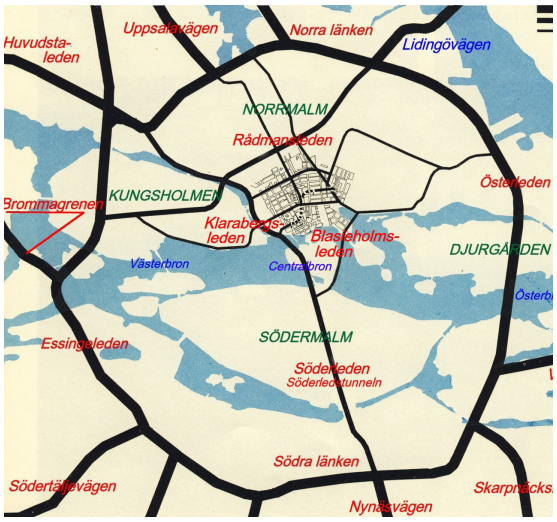
The concept of ABC-City (*Arbete-Work, Bostad-Living, Centrum-Centre*) had a major impact on housing construction and urban planning in Sweden during the post-war period. There was no more space in the city and expansion could only take place on undeveloped land, far outside from city centres. The concept meant building settlements along the subway lines, where people, within short distances could live, work and have access to commercial and public services and more. Around the subway station, would be the centre of the district, apartments within a distance of 450 meters, small houses within 900 meters and industries within 600 meters. In total these districts should have around 16.000 inhabitants.

This ABC-City was initiated by Sven Markelius, the zoning director of Stockholm between 1944 and 1954. In most cities this concept remained on paper, only in Stockholm, two areas were built based on the concept of the ABC-City, Vällingby (*1954*) and Farsta (*1960*). The idea of the ABC-City was good, but it didn't work. It turned out that these centres couldn't provide with enough jobs. They became commuter suburbs where people had to go, by public transport or by car, to the city centre for work. The 60's became the decade of the consumers and department stores arose, which took most of the commercial services from the districts. Despite the expansion of the ABC-City, the housing shortage remained high in Stockholm and the Million Programme took over.

The Million Programme

The Million Programme is the common name for an ambitious public housing programme implemented in Sweden between 1965 and 1974 by the governing Swedish Social Democratic Party, to make sure everyone could have a home at a reasonable price. The aim was to construct a million new dwellings during the programme's ten-year period. During the 50's and early 60's there was an acute housing shortage in Sweden, particularly noticeable in Stockholm, where in 1960 more than 100.000 people were on waiting lists for housing. Increased car ownership, modernism and the desire to move out from the narrow stone city, were trends during that time, which affected the design of the suburbs and design of the public housing.

Many of the currently marginalized urban areas are suburbs around the centre of Stockholm, which were built during this reform. Today, it is common to blame this reform and the urban planning of that time, for having created segregation. The choice of concrete as a visible construction material, the monotonous architecture, large-scale buildings and barren outdoor environment, are mentioned as typical characteristics that made these areas unattractive. Those who could afford it, left the districts. And the remaining people were those with weak financial resources, often with an immigrant background or socially excluded.



Drawing and image from stockholm.se

The City Plans

The City Plans were mainly plans for traffic in and around the centre of Stockholm and was the driving force for the transformation of the city centre of Stockholm. There were four City Plans, 1946, 1962, 1967 and 1977. Many of the proposed plans were never realised due to heavy resistance from the opposition parties and inhabitants. The expected population growth was a key factor in establishing these city plans; In addition, there are also other factors such as the expected level of income and the car's attractiveness as a mean of transport toward the collective traffic. During the making of these City Plans in the 50's and 60's, there were plans for the expansion of the subway system. Many of these expansions were never realised, because the priority lied on building new roads to accommodate the increasing amount of cars on the road.

In the 70's, plans were made to improve accessibility, road safety and reduce car traffic. These would primarily focus on improvements for vulnerable road users through traffic remediation, more traffic signals, safe crossings and inappropriate parking. Even the buses were proposed to be a prioritized category, by the organization of collective lanes, measures that would enable a bus network for greater accessibility. Through the proposed measures, using the car in the centre would be restricted. The poor accessibility by car in the centre areas would be offset by measures to improve accessibility for buses and pedestrians.

The Walkable City

The new Stockholm City Plan outlines four urban development strategies that, carefully balanced over time, will lead to a more integrated and better connected Stockholm. The focus of this balance is on making space for around 200,000 new residents by 2030 while at the same time developing the qualities that make the city so attractive. This plan is also part of two other strategic projects on the development of the city and region: the RUFS 2010, a strategic vision for the metropolitan area 2030, and Vision 2030, Stockholm - A World-Class City.

The urban development strategy presented in this City Plan (The walkable City) comprises four parts that together create a more integrated and better connected Stockholm. The strategies involve central Stockholm continuing to be developed, a focus on the strategic nodes in the outlying areas and better links between the different parts of the city. A strategy is also proposed for safeguarding and developing vibrant city life in other parts of Stockholm.

Images from rufs.se

RUFS 2010 & RUFS 2050

RUFS 2010, the regional development plan for the Stockholm region, Vision Stockholm 2030, was developed to make life better for everyone who lives, works and spends time in the region. RUFS 2010's formal status as a regional plan and regional development programme means that it is a steering document for government planning in the county. The regional development plan forms the basis of, among other things, the municipalities strategic planning, regional structural programmes and infrastructure plans. When new programmes and initiatives are launched, RUFS 2010 performs an important function and expresses the collective desire of the Stockholm region.

Work is now under way to produce the next regional development plan, RUFS 2050. RUFS 2050 is a further development of RUFS 2010, and the vision is to be Europe's most attractive metropolitan region.

3. PROBLEM DEFINTION - PROBLEM STATEMENT

Stockholm has inherited a segregated city, with a record high housing shortage and being a radial and monocentric city, more and more people are depended on the car as mean of transportation. The urban sprawl of the region comes at a high cost for the households and environment. It is quite useless to talk about cheap/affordable housing, if you don't include transportation costs. The more time people spend on travelling time, the bigger consequences it has on their economy. But also for the state, social services for one household in a dense city costs the state 15.000 SEK/year, meanwhile in the suburbs the costs can go up to 35.000 SEK/year (*source: spacescape.se*). It is more efficient and cost-effective to serve a larger number of people in a smaller area, than to serve a smaller number of people in a larger area.

Many of the goals of Vision Stockholm 2030 will not be achieved on time and not all the current issues will be tackled. The housing shortage will remain an issue, most probably the region won't meet its climate goals and there won't be sufficient investments done to improve the network of public transport. Right now RUFS are working on a strategic vision for the metropolitan region of Stockholm 2050. According to their time plan, they want to present it by the end of 2018. Not much of their work has been published yet. With this project I want to contribute to this vision with my own ideas and proposals.

4. RESEARCH QUESTION

The research question would be: How can the metropolitan region of Stockholm become resilient to environmental threats, due to the population growth, urbanisation of land and car dependency?

5. SUB RESEARCH QUESTIONS

1. How can the vision be implemented and become a feasible project?
- **1.1** What is the role of the government and what are their responsibilities?
- **1.2** What is a reasonable time plan to implement strategies?

2. How can the city be developed towards a polycentric city?

3. How can urban sprawl be prevented in a region where urban development is inevitable?
- **3.1** What are the possible strategies to tackle the housing shortage and segregation?

4. How can public transport become the main mean of transportation and equally accessible throughout the region?

5. What are the strategies to protect the environment in a growing metropolitan region?
- **5.1** How can these strategies help the region to achieve its climate goals?

6. AIMS OF THE RESEARCH

The aim of this research is to investigate how a strategic vision can be achieved within a time plan, in this case by 2050, and investigate the Swedish administrative division, to understand who does what and when. The objective of this project is to set up a detailed time plan and develop several strategies which will work as guidelines for the development of the region, in order to achieve the goals to become a connected, an accessible and a sustainable metropolitan region by 2050.

The goal of this project is to present several detailed strategies that will work as guidelines for the region, on how it can become resilient to environmental threats, due to the growing population, the devouring of green spaces by the demand for urban development and infrastructure needed for mobility.

7. DESIGN PROPOSAL

A Vision

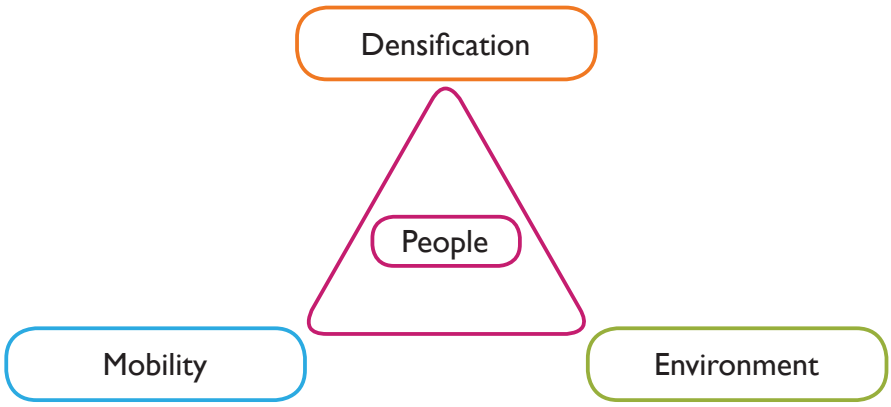
With my graduation project I intend to present a vision for the Metropolitan area of Stockholm 2050. A vision on how the region can become resilient to environmental threats, due to the massive population growth, due to the needed urban development and needed infrastructural projects.

VISION

Stockholm 2050
A resilient metropolitan region

Throughout the project the focus will be on three aspects and these three has one common ground: the growing population.

Densification: To prevent urban sprawl, densification of the region is needed, in order to ensure housing, jobs and services to the people.
Mobility: The public transport is reaching its maximum capacity and infrastructural investments are needed to ensure people access to the region.
Environment: Measurements are needed to protect the environment and at the same time it has to be accessible to the people.



These three aspects will be translated into three goals that the region needs to achieve by 2050 in order to become a resilient metropolitan region.

An Accessible City: Each citizen of the region should have access to affordable housing, commercial and public services and other services for their daily needs.
A Connected City: The region should be well connected and public transport should be the main mean of transportation.
A Sustainable City: The region should be able to develop and expand and protect its unique environment, without increasing the carbon footprint caused by the growing population.

GOALS

An Accessible City | A Connected City | A Sustainable City

Urban Development | Infrastructure | Environment

The challenges of the region lies firstly in the urban development. Where and how should the city expand or densify. The region has to ensure its citizens with affordable housing. Efficient and mixed land use is needed to provide inhabitants with commercial and public services. As the city becomes more compact and densified, there is also a need to provide people with attractive public spaces. Secondly the region needs a strong and robust infrastructure network, ensuring people access to the region by car, bicycle and public transport. An efficient street network and create more space for pedestrians to promote walkability. Thirdly but not last the environment. What are the necessary steps to become fossil fuel free by 2050. How can the environment be integrated into the urban fabric, in order to protect it, ensure people access to the green areas and preserve biodiversity in the region.

STRATEGIES

Polycentric city - Develope several regional centre's

Improve and expand the public transport network

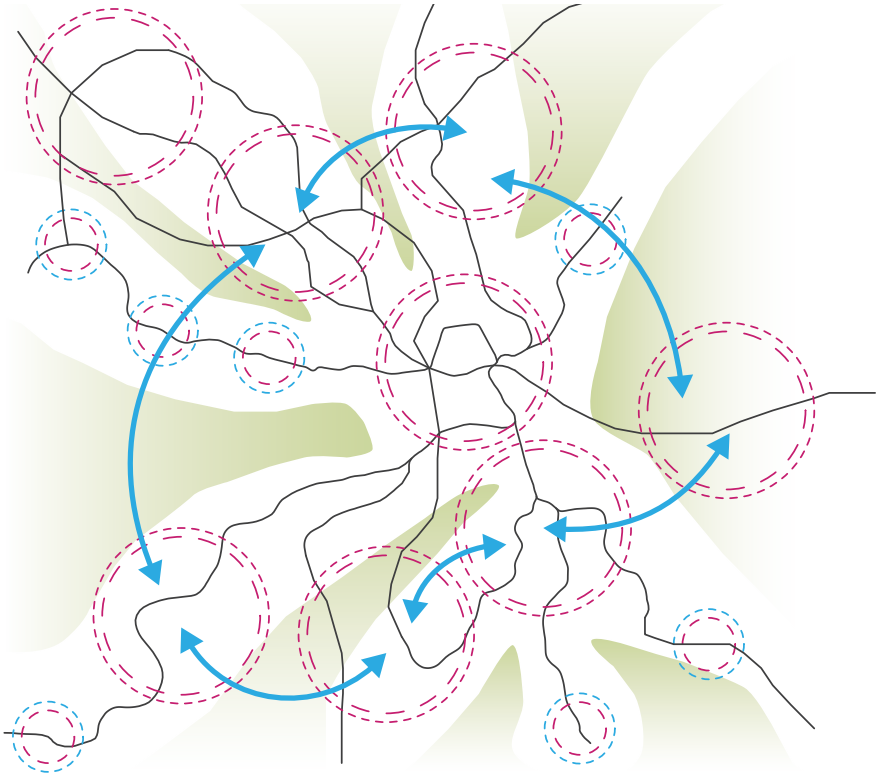
Build a compact city with attractive public spaces

Densification of the city and an efficient and mixed land use

Integration of the green wedges into the urban fabric

Several strategies will be developed. At the moment these strategies are very broad, but throughout the project these strategies will be clarified and provide the project the necessary steps to achieve the goals.

At the end I envision a well-connected metropolitan region with several highly densified regional centres, which provide the citizens with housing, jobs, commercial and public services and other services that they need in their daily life.
(*Drawing made by the author*)



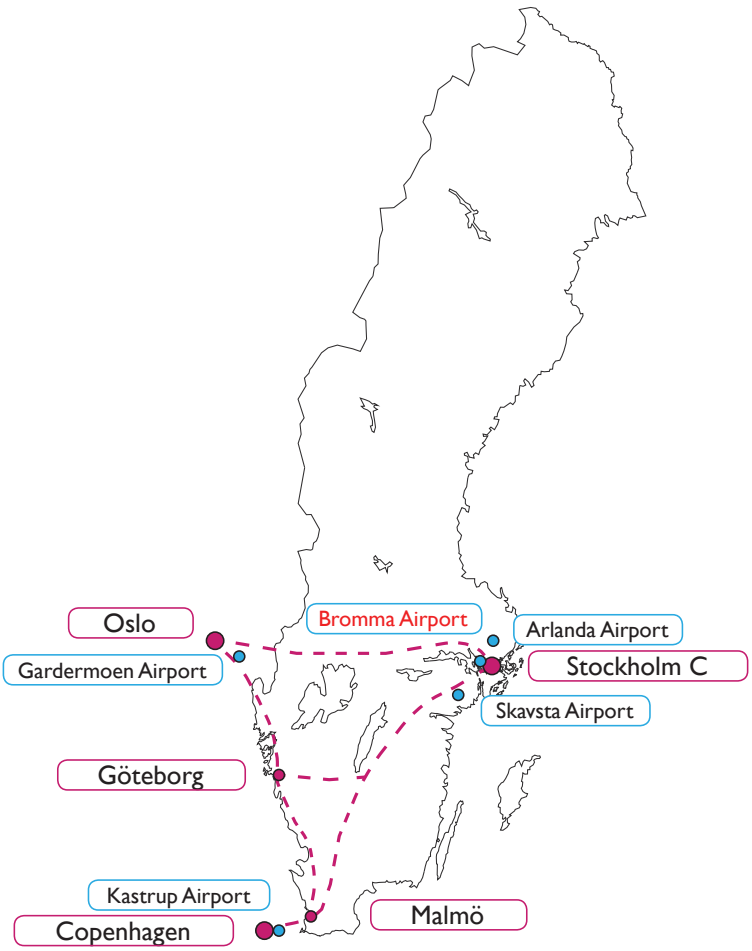
Three scales

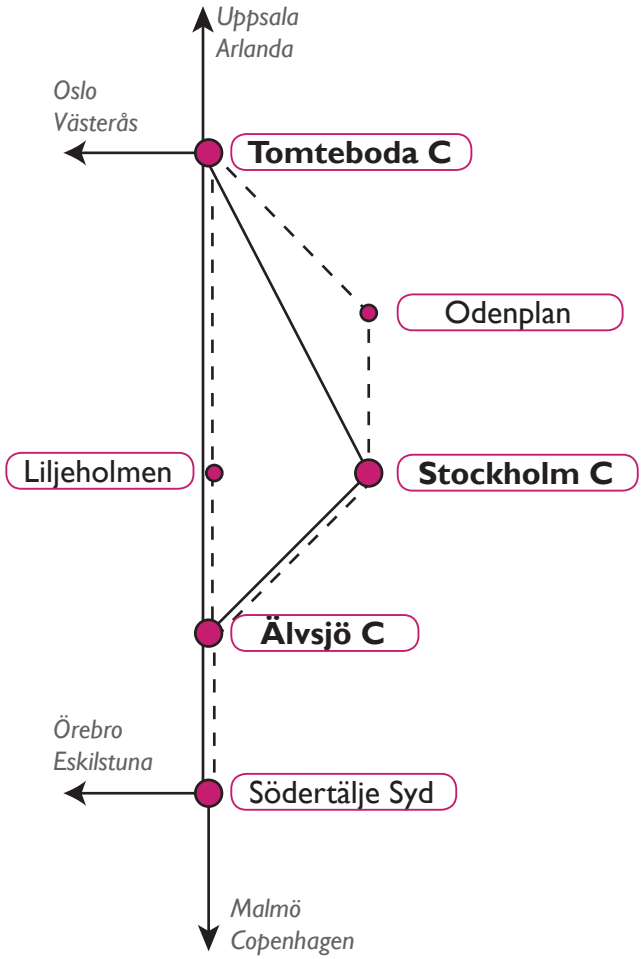
Throughout the graduation project I will work on three different scales: the national scale, the regional scale and the city scale. An intervention at one scale will have an effect on the other two scales. Therefore it is important to clarify what happens at what scale and what the implications are on the other scales.

National Scale

On the national scale, and to some extent even international scale, the focus will be on airports and national and regional trains. The main airport of Stockholm, Arlanda Airport, is reaching its maximum capacity. The discussion today is to expand the airport or to build a new one, to the south of Stockholm. Bromma Airport, located close to the city centre of Stockholm, has an operating contract till 2038 and will be closed after that. The three capitals of Scandinavia are together discussing on connecting each other through a new network of high-speed trains, to reduce travel time and to compete with the airlines, and to connect it with the European network. The train network through Stockholm is today very vulnerable, if the system gets disrupted it effects the entire country.

The drawings below are a first proposal to the mentioned topics above. They will be further developed during the project.
(*Drawings made by the author*)

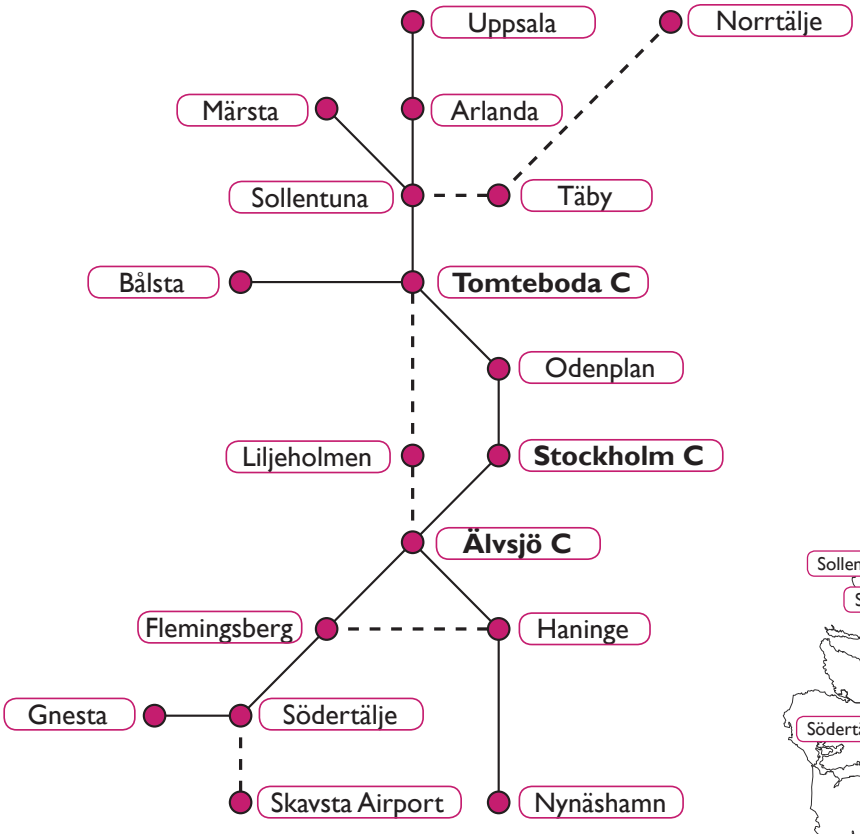


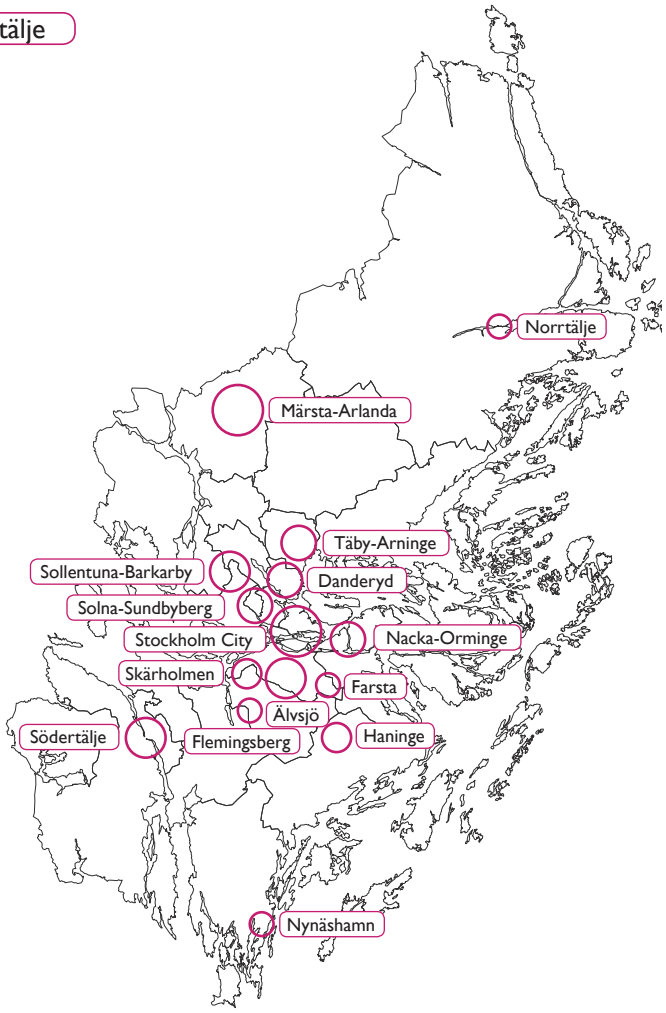


Regional Scale

On the regional scale the focus will be on regional centres, highways, commuter trains and the green wedges. The goal is to find and appoint several areas in the region, which have the potential to become new regional centres, in order to create a polycentric region. These centres will be connected with each other by an improved network of commuter trains, for the longer distances, and an improved network of subway lines. Part of the project is to restrict cars from the city and offer public transport as the main mean of transportation, and promote bicycle and walkability. At the same time, cars will still be part of our lives for an unforeseen time, therefore it is important to improve the road network and ensure access to the city. The radiality of the city has created green spaces between the radials, also known in Sweden as the green wedges (de gröna kilarna). They are the lungs of the city and provide the citizens with recreational spaces. There is the need for a strategy how to protect these green wedges while the region is being developed.

The drawings below are the first attempt to investigate potential locations in the region that could become regional centres and how these centres can be connected through an improved network of commuter trains.
(*Drawings made by the author*)



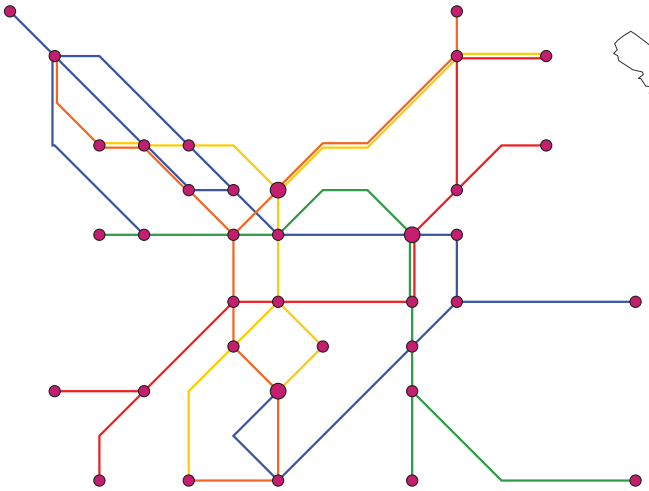


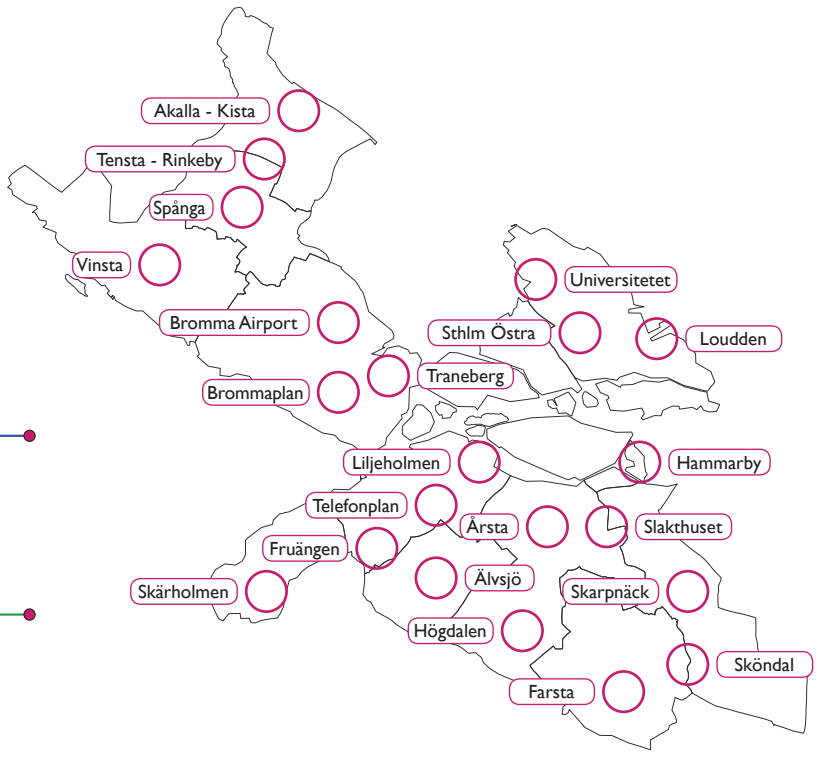
City Scale

On the city scale the focus will be on expansion and densification, subway and tram lines, and the green wedges. The goal is to find areas and places in the municipality of Stockholm, which have the space for urban development and possibilities for densification. The subway and tram lines are reaching their maximum capacity and there is the need for expansion of the existing lines and to build new ones. The goal is to investigate where and through which areas the potential new lines could be drawn, and defining which areas will be connected with the subway or with the tram or both. As the city is growing, it will have an impact on the green wedges. The goal is to set up strategies on protecting the green wedges and to integrate them into the urban fabric of the city and region.

The drawings below are the first attempt to investigate potential locations in the municipality of Stockholm where urban development and densification could take place and how the districts and other municipalities around Stockholm could be connected through an improved network of subway and tram lines.
(*Drawings made by the author, photos from: stockholm.se*)





8. INTENDED END PRODUCTS

The intended end products will be multiple.

Firstly, the main end product will be a vision for the metropolitan region of Stockholm. I will explain the goals that the region has to achieve, in order to become resilient to environmental threats, due to the growing population, urban development and infrastructure. I will present a set of strategies that will work as guidelines for the stakeholders, in order to become an accessible, a connected and a sustainable region.

Secondly, I will present a time plan till 2050, where I will show which projects have priority for the development of the region, why they are prioritized, how they will be developed and when they need to happen. Furthermore I will explain the different stakeholders, what their role is, when they come in action and what their responsibilities are.

Thirdly, I will visualize the vision through a series of maps at different scales. With these maps I want to show what the implications are of the different interventions at different scales and what these interventions means for the region throughout the time.

9. RESEARCH APPROACH - METHODOLOGY AND FRAMEWORK

The first group of questions – the one on implementation and feasibility – has been investigated through a literature review of governance in Sweden, the Swedish administrative division and their role and responsibilities at urban development projects.

Moreover an analysis has been done on the Swedish Negotiations, where public and private organisations cooperate to find solutions for co-financing of projects in Sweden. These negotiations clarifies which projects has priority and sets a time plan, which should lead to greater efficiency and a faster completion of the projects.

The second question – the one on polycentric city – will be investigated through mapping. The goal is to find several areas in the region that has the potential and possibility to become regional centres. A regional centre that provides the citizens with housing, in proximity to work, services and other amenities they need in their daily life.

The third group of questions – the one on urban development – will be investigated firstly through mapping. The goal is to find areas in the city that has space and possibilities for urban development and densification. Moreover to present some examples on how it could be realised through a set of drawings.

Secondly through a literature review on densification. Higher density has economic, social and environmental benefits. It can slow down the gentrification process by building affordable housing in the attractive areas. It can stop the segregation process by building diverse housing, with public and commercial services in the poorer suburbs.

The fourth question – the one on public transport – will be investigated through mapping. When the second and third question have been answered, an analysis has to been done on how to connect these new regional centres, new urban developments and areas that have been densified, with each other. The analysis will answer what kind of public transport is necessary, where and how it has to go and what the advantages are.

The fifth group of questions – the one on environment – will be investigated firstly through mapping. Define the green spaces in the region and make an analysis on how the green spaces can be better integrated into the existing urban fabric and future urban developments. Moreover to present some examples on how it could be implemented through a set of drawings.

Secondly through a literature review on biodiversity and ecosystems in cities and how urbanisation can minimize the global impact on the environment.

Swedish Adminstrative Division

Sweden is divided into 13 administrative levels. However not all of them has an administrative function. Eight of them has no administrative function. Number two and three are not used anymore, but remain historical legacies and cultural identification for many people. The other six levels, are purely for statistical purposes. Remains five levels that has an administrative function.

01•	**Swedish National Government**	(*Sveriges Riksdag*)
02•	Swedish Lands	(*Sveriges Landsdelar*)
03•	Swedish Provinces	(*Sveriges Landskap*)
04•	**Swedish Counties**	(*Sveriges Län*)
04•	**County of Stockholm**	(*Stockholms Län*)
05•	Metropolitan Region of Stockholm	(*Storstockholm*)
06•	Urban Area of Stockholm	(*Stockholms Tätort*)
07•	**Swedish Municipalities**	(*Sveriges Kommuner*)
07•	**Municipalty of Stockholm**	(*Stockholms Kommun/Stockholm Stad*)
08•	Main Districts	(*Stockholms Huvudområden*)
09•	**City Districts**	(*Stockholms Stadsdelsområden*)
10•	Registration Districts	(*Stockholms Distrikt*)
11•	Districts	(*Stockholms Stadsdelar*)
12•	Base-areas	(*Stockholms Basområden*)
13•	Quarters	(*Stockholms Kvarter*)

The **Swedish Lands** are three traditional parts, essentially three collectives of provinces, in Sweden. Most commonly they are called '*landsdelar*', which simply translates to '*parts of the country*'. Although they have no administrative functions these '*landsdelar*' are used in weather reports. Their boundaries can therefore be seen on weather maps on television and in the press.

The **Swedish Provinces** are historical, geographical and cultural regions. Sweden has 25 provinces and they have no administrative function. In 1634 they were replaced by the Counties of Sweden. Dialects and folklore rather follows the provincial borders than the borders of the modern counties.

Metropolitan Region of Stockholm is defined by official Swedish Statistics (*scb*) as all of Stockholm County. It is the largest of the three metropolitan areas in Sweden, but it has no administrative function.

The **Urban Area of Stockholm** is the largest and most populous of the urban areas in Sweden. It has no administrative function of its own, but constitutes a continuous built-up area, which extends into 11 municipalities in the County of Stockholm. '*Tätort*' is the central concept used in statistics. The definition is: An urban area is any village, town or city with a population of at least 200, for which the contiguous built-up area meet the criterion that houses are not more than 200 meters apart when discounting rivers, parks, roads, etc. – without regard to the ward, municipal or county boundaries.

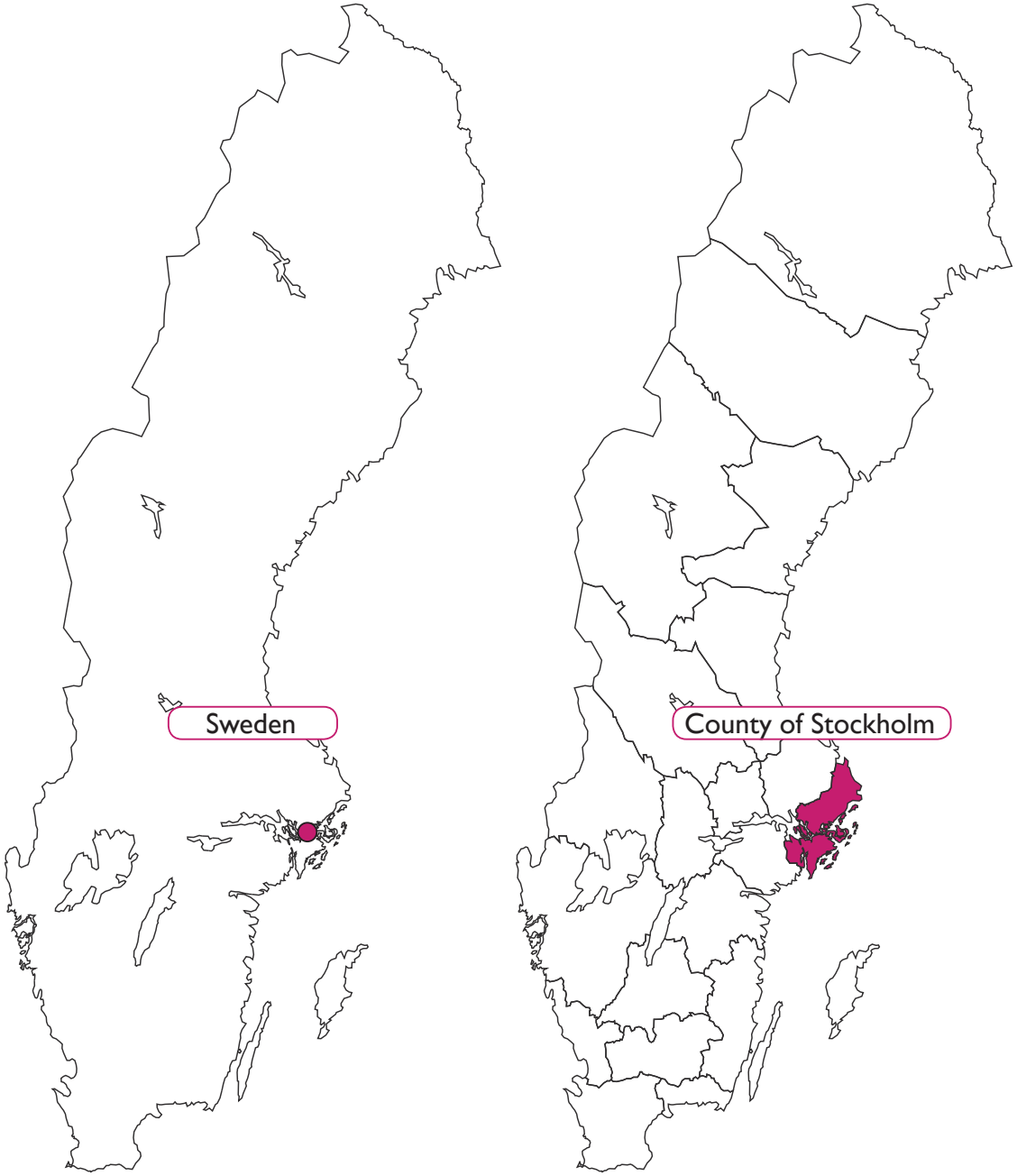
Stockholm's 14 **City Districts** are divided into three **Main Districts** for statistical purposes, however these districts have no administrative function in the city's

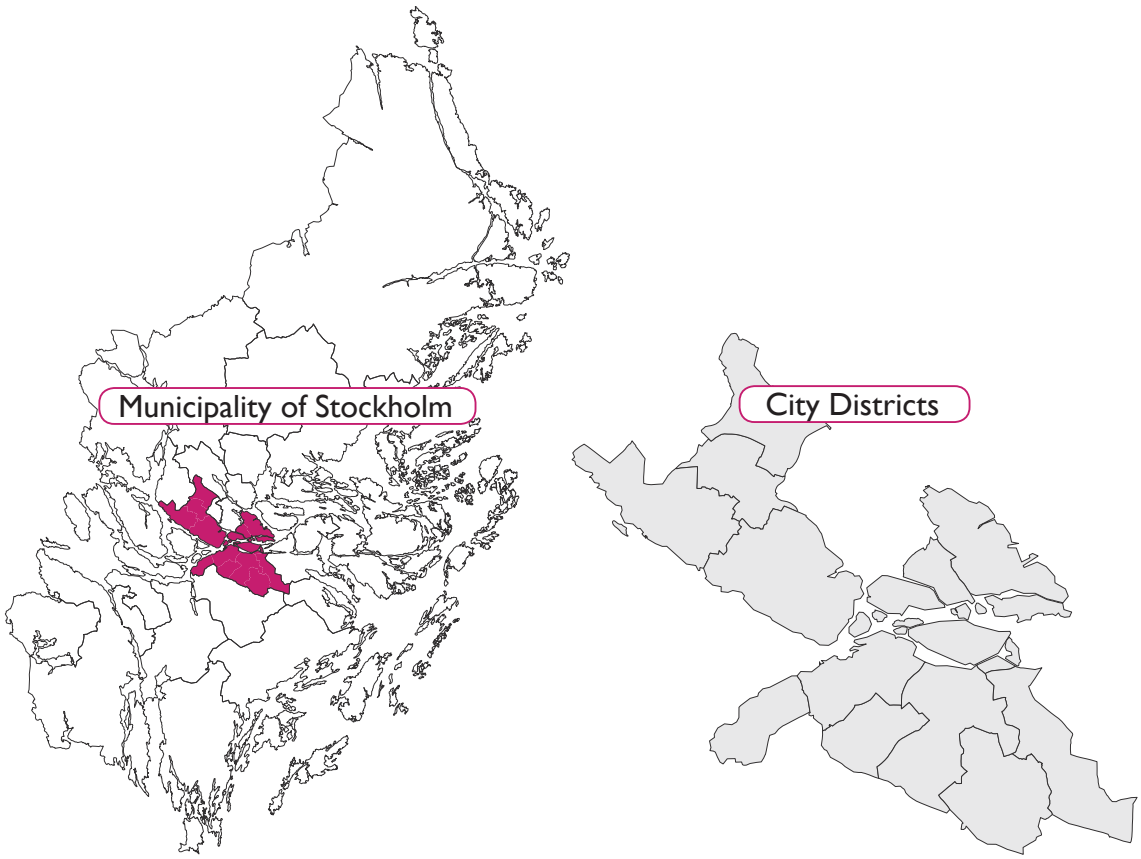
governance. Innerstaden (Stockholm City Centre), Söderort (Southern Stockholm) and Västerort (Western Stockholm).

Each city district is divided into smaller **Districts** (*116*), **Base-areas** (*406*) and **Quarters** (*6.500*). They all have no administrative function, just for statistical purposes.

The remaining five levels have administrative functions. The fifth level, **Registration Districts**, is the smallest administrative subdivision. It is used for population registration in Sweden (*folkbokföring*), e.g. elections, the civil registration of births, marriages, civil partnerships and deaths, and for the collation of census information. This level will not be taken into account in this project.

The four remaining levels are: - The Swedish National Government; - The Swedish Counties; - The Swedish Municipalities; - The City Districts.
(Drawings made by author)





Drawings made by the author

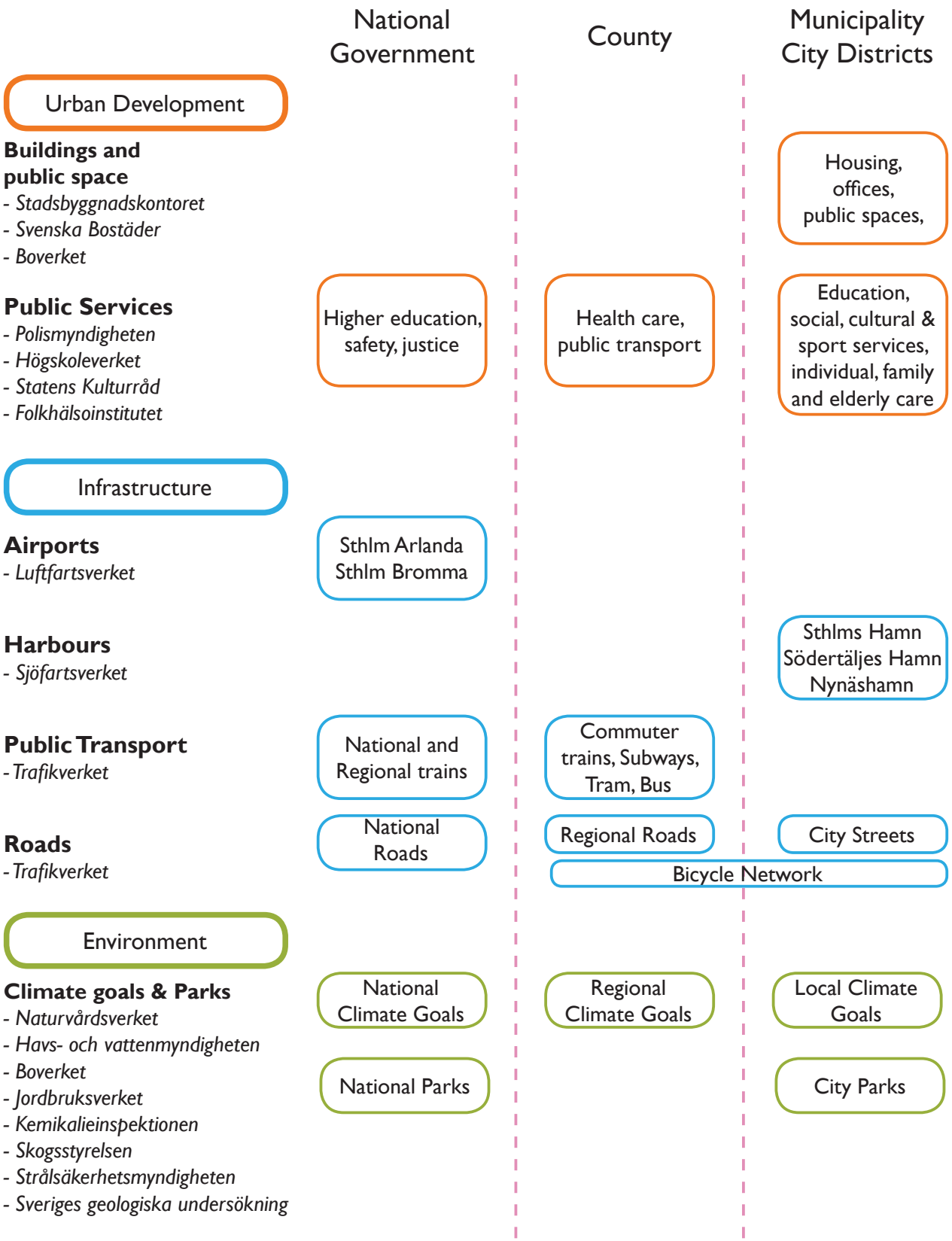
Regarding to my graduation project, these are their main responsibilites:

Through 240 administrative agencies the **Swedish National Government** runs the country. One of their responsibilities are to finance major infastructural projects and set national climate goals.

The **Swedish Counties** (*21 counties in Sweden*) main responsibilities are the municipal affairs of the county, primarily regarding public healthcare, public transport and culture. A number of several other government agencies are organised on a county basis, regarding the police, employment, social insurance, and forestry services.

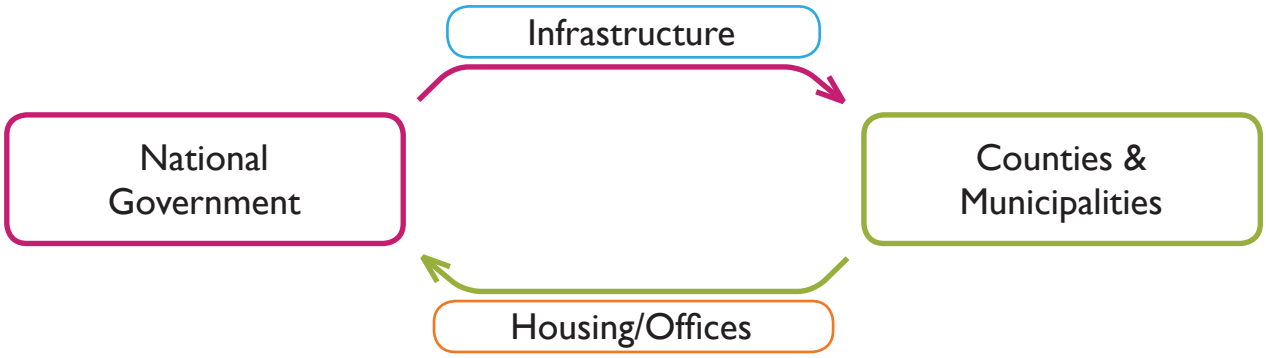
The **Swedish Municipalities** (*26 municipalities in the county of Stockholm*) manages the cities through its municpal agencies, administartions and companies. Although legally a municipality with the official proper name *Stockholms Kommun*, the municipal assembly (*Kommunfullmäktige*) has decided to use the name **Stockholms stad** (*City of Stockholm*) whenever possible. This is purely nominal and has no effect on the legal status of the municipality.
The municipality of Stockholm is subdivided into 14 **City Districts**. They are no legal entities, but committees of the municipality itself. Their main responsibilities are regarding **primary school**, **social**, **leisure** and **cultural services** and **local health care** within their respective areas.

Regarding the three challenges of my graduation project, the responsibilities are divided between the four administrative levels. Agencies from the Swedish National Government, regulates and controls that everything is done according by the law.


National Government
County
Municipality City Districts
Urban Development
Buildings and public space
- Stadsbyggnadskontoret
- Svenska Bostäder
- Boverket
Housing, offices, public spaces,
Public Services
- Polismyndigheten
- Högskoleverket
- Statens Kulturråd
- Folkhälsoinstitutet
Higher education, safety, justice
Health care, public transport
Education, social, cultural & sport services, individual, family and elderly care
Infrastructure
Airports
- Luftfartsverket
Sthlm Arlanda
Sthlm Bromma
Harbours
- Sjöfartsverket
Sthlms Hamn
Södertäljes Hamn
Nynäshamn
Public Transport
- Trafikverket
National and Regional trains
Commuter trains, Subways, Tram, Bus
Roads
- Trafikverket
National Roads
Regional Roads
City Streets
Bicycle Network
Environment
Climate goals & Parks
- Naturvårdsverket
- Havs- och vattenmyndigheten
- Boverket
- Jordbruksverket
- Kemikalieinspektionen
- Skogsstyrelsen
- Strålsäkerhetsmyndigheten
- Sveriges geologiska undersökning
National Climate Goals
Regional Climate Goals
Local Climate Goals
National Parks
City Parks

The Swedish Negotiations

The Swedish Negotiations is appointed by the Swedish national government. The goal of these negotiations is to find solutions for co-financing of projects in Sweden. Counties, municipalities and businesses participates in these hearings. The focus is on how regions and cities can benefit from various infrastructure projects, such as increased housing construction and an improved labor market. These negotiations will clarify which projects has priority, which should lead to greater efficiency and a faster completion of the projects.



Together with all the stakeholders, the mission of the Swedish Negotiations is to enable a quick implementation of the projects and to develop proposals for funding, solutions and expansion strategies. Another important mission is to increase the public transport, improve accessibility and increase housing construction in the three major cities: Stockholm, Gothenburg and Malmö.

The first Swedish Negotiation started in 2012 and back then it was actually called the 'Stockholm Negotiations', because the main focus laid on implementing projects in Stockholm. During a period of two years different projects were discussed, with stakeholders from the National Government, the County and several municipalities. End of 2013, an agreement was made. The national government will co-finance expansion of three subway lines in Stockholm and in return 78.000 new dwellings will be built by 2030. In April 2014 the agreement got approved.

2012 Negotiations starts. Stakeholders:
- Swedish National Government
  - *Trafikverket*
- County of Stockholm
  - *Stockholms Lokaltrafik*
- Municipalities
  - *Stockholm kommun*
  - *Nacka kommun*
  - *Järfälla kommun*
  - *Solna kommun*

2013 Agreement. Extension of 3 subway-lines, with 9 new stations. In return 78.000 dwellings has to be build by 2030.

2014 Approval by the government.

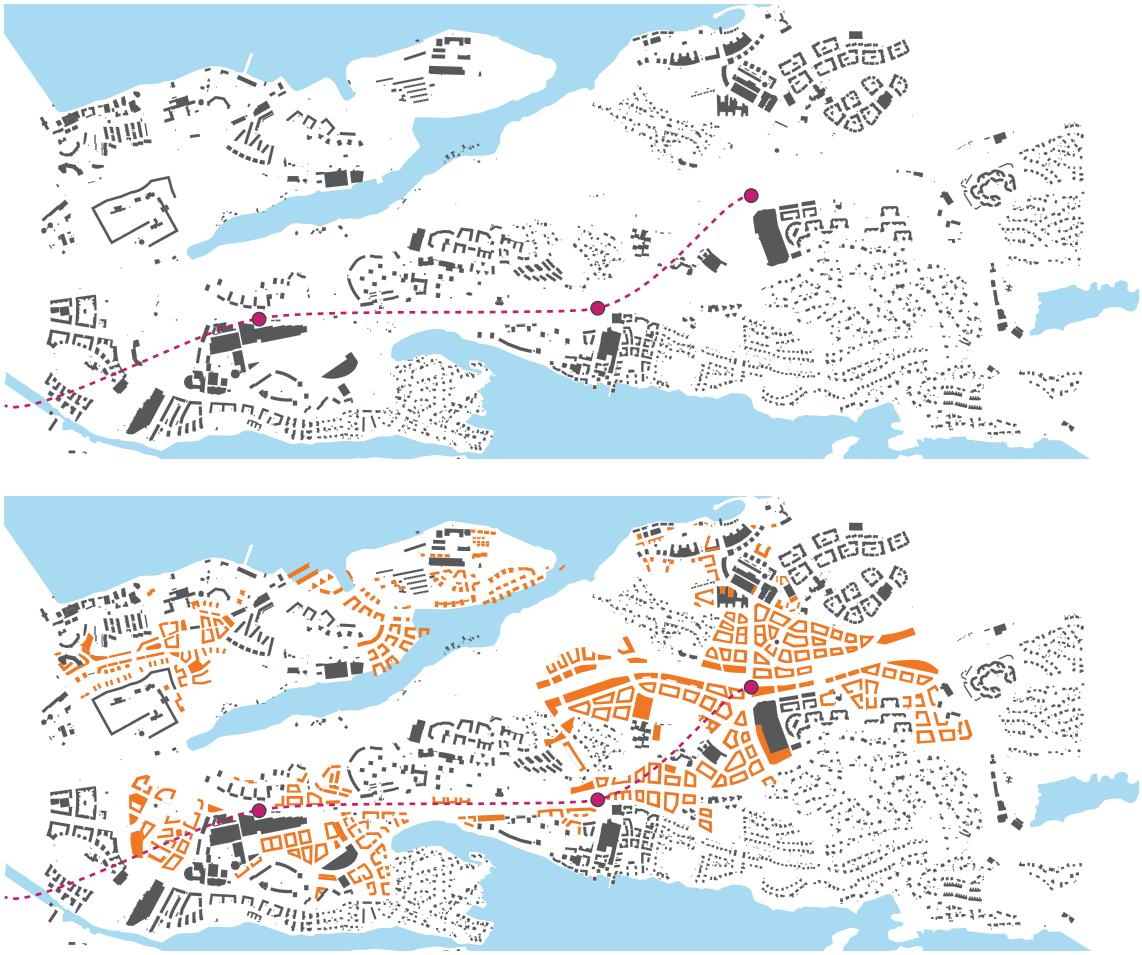
2016 Start construction dwellings.

2018 Start construction subways.

2028 Completion subways.

2030 Completion dwellings.

One of the municipalities that took part in the Stockholm Negotiations was the municipality of Nacka, to the east from Stockholm. In the agreement, one of the subway lines will be expanded from the city centre of Stockholm towards Nacka with three new stations, and in return Nacka will build 28.000 new dwellings. In the drawings below is shown what the implications are for this area. Top drawing (Nacka 2015) and bottom drawing (Nacka 2030). (*Drawings made by the author*)



In 2014 the second Swedish Negotiations started and this time other regions and cities in Sweden can participate as well. By the end of 2017 an agreement has to be made between the different stakeholders for new projects around the country. Beginning of 2018 the national government then can approve it. Because of the success of the first negotiation (and at the moment the second one is going quite well) a proposal has been made to the national government to implement this process every five years. I will use this in my graduation project as a base for my time plan.

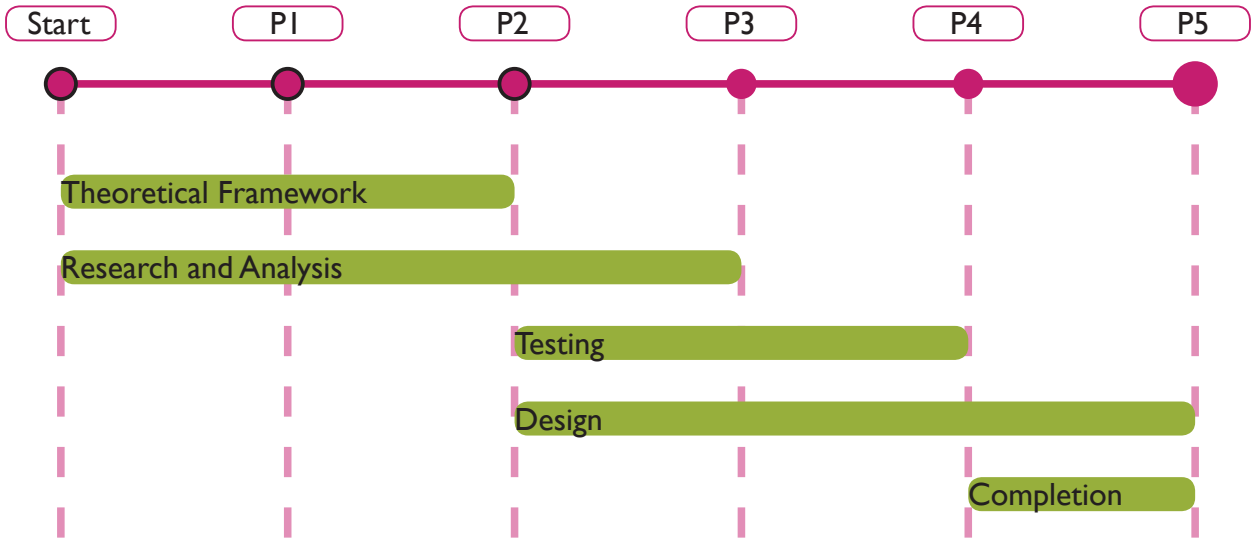
- Stockholmsförhandlingen **2013**
- Sverigeförhandlingen **2018**
- Sverigeförhandlingen **2023**
- Sverigeförhandlingen **2028**
- Sverigeförhandlingen **2033**
- Sverigeförhandlingen **2038**
- Sverigeförhandlingen **2043**
- Sverigeförhandlingen **2048**
- Stockholm **2050**

10. SOCIETAL AND SCIENTIFIC RELEVANCE

From a societal point of view, the region needs a strong vision for the future. Not only because of the development of the region, but for the people living in it and the future population. An accessible region where citizens, live in an integrated, fair and inclusive society, have access to an affordable and diverse housing market and have access to a labour market that is prosperous and innovative. A connected region where an extensive and robust network of public transport is the main mean of transportation, a compact region with regional centres that are walkable and cyclable. A sustainable region that is resilient to future environmental threats and sets an example to other regions in the world, on how climate goals can be achieved.

From a scientific point of view, this research is relevant because it investigates the cooperation between different governmental divisions, regional and local businesses and citizens, where they work together to come to agreements on how and in which direction the country should develop. The Swedish Negotiations has just taken its first steps and but has already been applauded for its success by everyone involved. Now it is interesting to investigate how this could become a permanent feature in the development of the country and how it can become a guideline for future cooperation's.

11. TIME WORKING SCHEDULE



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