The Cars’ Role in New Urban Development Projects: implications and considerations when planning away from car dependencies.

A comparative study of Stationsstaden and Brunnshög

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Abstract

Due to cars’ negative impact on our cities and the strain cars put on the environment, more and more cities strive towards sustainable mobility and a reduction of car dependencies. This thesis will examine how two new contemporary planning projects view the car and what implications follow an eventual decrease of car dependent planning. The two projects are Brunnshög in Lund and Stationsstaden in Kävlinge, located in the South-West of Sweden, in the southern county of Skåne. Our study is based on research questions aiming to find out if these two projects are planning to reduce cars and how they will do it, as well as looking at the impacts that follow this kind of planning and consequences it can have on less mobile groups in society.

The study is conducted by first gathering research surrounding the history of the car, its impacts on cities as well as current measures to reduce automobile dependencies. Following this, official planning documents and policies for both projects were analysed and interviews were conducted with relevant actors to gain a deeper understanding of the projects and work as a complement to the planning documents. With five theories acting as our framework the material was analysed and discussed from different concepts point of view, to gain a deeper understanding of the complex question that reducing cars in cities constitutes.

Through the study we concluded that the two projects work with reducing car dependencies to different degrees, Brunnshög more so than Stationsstaden. Identified reasons for their differences are due to challenges which include, political support, customer demand, time frames and surrounding infrastructure among other things. We also concluded that more consideration for the effects on certain groups in society is needed, as a reduction of cars might come with great effects that can cause injustices towards certain vulnerable groups.

Keywords: Car planning, Car dependencies, Sustainable mobility, Accessibility, Transport justice, Brunnshög, Stationsstaden
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1. Disposition

This study consists of three parts:

PART ONE

Here we present our introduction, research problem, aim and research question and methodology.

PART TWO

In this part we account for the background and previous research. This focuses on previously researched measures to reduce car dependencies, car-centric development and our theories.

PART THREE

This part consists of some context around the cases Brunnshög and Stationsstaden. It is followed by a document review and analysis for each project and then concludes off with a comparing discussion, followed by a concluding discussion.
PART ONE

2. Introduction

The United Nations sustainable development goals (n.d) state that 60 percent of the world's population is predicted to live in cities by 2030. Currently, our cities only occupy around three percent of the landmasses on earth but despite this small percentage they account for approximately 75 percent of all carbon emissions and 60-80 percent of energy consumption. Many of the resources we depend on for our urban lifestyles come from non-renewable resources such as fossil fuels and these are being consumed faster than they can be replenished. The consumption of fossil fuel releases large greenhouse gases which trap the sun’s heat and causes a rise in global temperatures. The consequences of climate change can, among other things, lead to water scarcity, rising sea levels, intense droughts, catastrophic storms and declined biodiversity (United nations, n.d). To prevent this from happening, yet still cater for the urban population rise, many countries have created environmental sustainability goals which influence how our cities are being developed. One way to develop more sustainable cities is to not plan for cars, and instead focus on other, more sustainable, transport modes such as walking, cycling and public transport. This is because the transport sector accounts for a large portion of greenhouse gases. In Europe the current transportation system accounts for a quarter of EU’s greenhouse gas emissions with a goal being set to reduce the emissions by 90 percent by 2050 (European Commission, n.d).

According to Cervero et al. (2018, p.8) cities that are planned around and depend on cars consume a greater amount of land, fossil fuels and produce more greenhouse gases and pollutants. But it is not just climate effects, Gössling et al. (2020, p.443) add more negative effects in the form of fatalities, severe injuries, congestion, urban heat effects and noise. Other negative effects are infrastructure costs, mobility barriers, mobility exclusion, human health impacts, community interaction and livability (Newman & Kenworthy, 1999, p.41-42). When striving towards sustainable mobility one way to achieve a balanced transport sector is to use Newman et al. (2016, p.429-458) theory of urban fabrics which gives planners an overview of how different transport modes are established in the urban environment. This makes it
possible to analyse which transport mode currently dominates so that the cities can develop towards more sustainable transport modes.

However, planning and developing cities is a complicated task where many uses, components and actors need to cooperate to create a functional, livable, sustainable city. With the current climate crisis and all the negative impacts of the cars a new way of developing is needed, especially with development on newly exploited land. On the other hand, this new planning also needs to carefully consider the potential consequences as some groups, such as disabled, children and elderly, might experience negative impacts when cities strive towards sustainable transportation. If a city and its infrastructure, including the transport system, does not take into consideration all of its various groups of citizens it can create unjust cities and lead to a lack of accessibility and social exclusion. If planners and politicians want to plan for the future and follow the sustainable development goals, they need to dare to build and develop for a new way of transport, one that moves away from car dependencies but does not lead to transport injustices for any groups in society.

2.1 Research problem

Many cities of today strive towards creating sustainable urban environments that reduce the strain and impacts human intervention has on the planet. As cars, and car-dependent cities have many negative impacts on our climate, one measure to become more sustainable is to reduce the usage and space the cars have in cities.

Many cities still plan for the car but Cervero, et al. (2017, p.7-8) argue that planning around cars is a way of the past because of all the negative impacts car dominated planning leads to. Instead of planning in accordance with the twentieth-century modernism paradigm, with its fast movement, disconnected tower blocks and segregated land uses, cities should be planned around the concept of accessibility. This planning leads to the creation of communities that are walkable, healthier, safer, and would promote sustainable transport modes with equitable access for all individuals. However, this can become problematic because as Hrelja (2018, p.7) points out, there are many challenges planners face when trying to reduce car dependency. Some measures taken against cars can upset car owners, are considered controversial and as cars are considered the norm, to challenge that is to question a historical and culturally established order with deep roots in our societies. Furthermore, this kind of new, non-car dependent planning has many positive outcomes such as a more inclusive, just city, but it could also lead to some less-desirable outcomes. If extra consideration isn’t taken for certain groups in society, who are less-mobile, depend more on and are affected by car
usage, they could end up being excluded from society. These groups, amongst others, include the elderly, disabled and children. New developments which move away from the car thus need to have a different focus on how these groups in society can be included so that injustices do not occur.

The sustainable movement with reducing car dependency therefore stands before us as a great, complicated task: how do planners in contemporary planning projects plan to reduce the usage and dependency of cars when it is such a delicate question? Are cars being reduced or do we still build to accommodate more of them? And what implications can such planning have on vulnerable, less mobile groups in society?

2.2 Aim and research questions

Our study aims to investigate how a part of the sustainable planning paradigm unfolds in today's city planning. This is achieved by looking at sustainable transportation, a reduction of car dependencies and its implications in new city district developments in Skåne, a region in southern Sweden, that claims to be aiming for a more sustainable city. The study has narrowed the selection down to two new development projects that market themselves as sustainable: the city district Brunnskölen in Lund and the city district Stationsstaden in Kävlinge. They are also chosen because it gives us an insight into their different prerequisites and what effect this might have on trying to increase sustainable transportation. Brunnskölen is a city district development that belongs to a more central, bigger city in Sweden which has a long history of working with sustainable transportation whereas Stationsstaden belongs to a smaller, more rural city, located in the countryside where the car is the norm.

By examining these two projects we aim to understand how they work to increase sustainable transportation and reduce car dependency based on their different prerequisites, which also allows us to put concepts and measures into a modern perspective. We also look at these projects to see which considerations have been taken to groups in society which could face challenges when a district is developed away from car usage. Through this we have also examined if there are any similarities or differences between the project’s plans and if there are any contradictions that seem to increase automobile use. To do this, our study will be based on the following research questions:
Through planning documents can it be understood that Brunnshög and Stationsstaden are trying to reduce car dependencies? How have planners worked to do this?

What are the perceived challenges when trying to reduce car dependencies and achieve sustainable mobility?

What possible implications can be seen for less mobile groups following a reduction in car planning?

3. Methodology

3.1 Study type

Our study is both a descriptive and explanatory, qualitative evaluation study. Qualitative studies use qualitative methods and empirical data, these methods focus on the how and why and on understanding the data which is commonly in forms of documents and observations (Rienecker & Jörgensen, 2018, p. 174, 239). An evaluation study is used to assess the worth or success of something such as a programme, policy or project. These studies typically study and measure the change of social inputs, outputs and processes (Payne & Payne, 2004, p.2). This study choice is relevant to us as we have assessed the planning documents, and analysed their potential outcomes based on our theories as well as being able to study the change that has occurred from car-centric planning to planning of today.

Descriptive studies are described by Grønmo (2019, p.436) as studies that “identify and investigate actual conditions or phenomena in society.” There are different methods of making descriptions analytical, which is key for social science studies. One of our methods is to discuss our data in relation to previous research on the topics, in this case car-dependency reduction, sustainability and transport injustice. Another method includes discussing it with references to the norms or standards expected, in our case, what sustainable development and sustainable mobility should entail. Finally, comparison is a method that we employ and that ensures that descriptive studies are analytical (Grønmo, 2019, p.436).

Our study has elements of explanatory studies, which Grønmo (2019, p.440) describes as studies which discuss the results in light of the previous research and can include reflections and speculations about the explanations of the findings. In social science these studies often look to understand relationships between two or more social phenomena.
3.1.1 Comparative Case study

The thesis goes in depth into the two cases: Brunnshög and Stationsstaden. Case studies as described by Grønmo (2019, p.172), are used to develop a comprehensive or holistic understanding of the unit being studied, in this case sustainable transportation in Brunnshög and Kävlinge. These cases are then used to compare with one another to see which measures are used to reduce car dependencies and achieve sustainable mobility and the implication of them.

3.2 Data collection method

3.2.1 Choice of data

To begin our background research, search engines such as google scholar, lib search and libris were used and terms relevant to our subject such as car dependencies, sustainable transportation, sustainable urban planning, car cities, transport injustice etc. were used. In the books and articles that appeared, the reference lists were searched to identify the commonly cited and referenced researchers/authors from the field. Once this list was identified the commonly cited works were studied to gain an understanding of the relevant content so a background analysis could be written. This was an ongoing process, in the beginning as many new sources kept appearing but we maintained a source-critical assessment which focused on the availability, relevance, authenticity and credibility of the sources (Grønmo, 2019, p.221).

Our empirical data, defined by Grønmo (2019, p.45) as the empirical evidence, which is systematically collected and recorded and then analysed, consisted of the planning and traffic documents from the two projects and the interview responses. The documents were gathered through a method Essaïsson et al. (2017, p.220) calls “search wide” where we searched online, in the stakeholders’ own websites, through search engines and also by emailing the respective municipalities and requesting all public documents related to the projects. The documents we chose to analyse from the gathered ones were the ones that came from official sources like the municipalities, governmental agencies and consultants in the projects. They were also narrowed down related to their content, we chose ones that had relevant information surrounding development, the projects and topics of sustainability, transport, accessibility and cars. Many of the documents only contained a small section of information on these topics so we chose to analyse several documents for each case so we would not miss any important information. All these documents we came across were produced at different years as the
projects have developed over a long time span, but as they were official planning documents from the municipalities and authorities we decided they were all equally valid. For documents where there have been several versions such as municipal traffic strategies and general plans, the most up-to-date versions were chosen. These chosen documents all related to the geographical location of the development sites, or ones from the whole municipality, we did not look at documents that come from a geographical scale larger than the municipality, e.g. regional level. The list of analysed documents, 13 for Brunnsåg and 11 for Atatinsstaden, can be found in the appendix, (See attachment A).

3.2.2 Reliability and validity

According to Grønmo (2019, p.285) two important aspects when conducting a study are those of reliability and validity which ensures a high level of accuracy in the study. To ensure that the collected data is accurate and trustworthy the aspect of reliability is applied which means the study should be able to be repeated several times through the same design and method and still produce identical data. High reliability is desirable, but it is not always possible to get identical results even though the methods and design are the same. For instance, when we study social phenomena one problem might be that it is an often-changing factor which might be hard to replicate. Our study contains methods where some can be seen as highly reliable such as the document analysis, whilst others methods such as the interviews might be harder to replicate as it is dependent on social situations and interactions. (Grønmo, 2019, p.285).

Validity concerns the relationship between the research questions, the studied phenomena, the relevance and adequacy of the study’s chosen data. To have a study with high validity it is important that the research design and collection of data produces relevant material which can answer the research question in a satisfactory way. The basic definition of validity lays a set of foundational guidelines that keeps researchers on track regardless of which data they use or how they conduct the study (Grønmo, 2019, p.285-286). To further ensure a high level of validity we remained neutral throughout the study, however kept a critical attitude towards the planning documents and planners’ responses as there were many inconsistencies we wanted to research.

3.2.3 Choice of interviewees

For our interviews we searched for planners with good knowledge about our projects. We wanted someone with good competence and expertise so that we could get relevant answers. Our interviewees consist of:
April 21, 2022: Traffic planner at Lunds municipality working with Brunshög’s development
April 25, 2022: Traffic planner at Kävlinge municipality
April 25, 2022: Street engineer at Kävlinge municipality
April 27, 2022: Granitor’s property development manager

We initially wanted to interview one municipal planner from each project. For Brunshög we quickly came in contact with a traffic planner from Lunds kommun with extensive knowledge about the traffic-related planning in Brunshög and Lund. He also seemed interested and engaged in our work and provided us with useful material for our research. After asking about his qualifications and project knowledge we concluded that he would be a suitable interviewee for our study. For Stationsstaden, on the other hand, we had a much harder time finding someone to interview. We tried to contact planners at the municipality several times and got recommendations for people who might have the knowledge we were looking for, but each of them declined our interview requests or failed to respond. Finally, we got in contact with a traffic planner for Kävlinge who had good knowledge about traffic related questions in the municipality, however has not had a major role in Stationsstadens development. Because we were not sure how much he knew about the traffic planning in Stationsstaden, we also contacted Granitor’s development department for a complementary interview. Granitor was chosen as they have a major role in Stationsstadens development, being both the main landowner and co-developer. The Manager for Granitor’s Land Development who we came in contact with had worked with Stationsstaden since the beginning of the project.

Our interview with Kävlinge’s traffic planner got extended with an extra person we did not know about in advance, a street engineer for Kävlinge municipality. His attendance gave us a greater insight into the project and more material to analyse. Kävlinge’s traffic planner and street engineer lacked some knowledge about certain aspects of Stationsstaden and they therefore recommended that we contact Kävlinge’s technical manager and Kävlinge’s strategic planning manager by email to get some better answers. Unfortunately we only got a reply from Kävlinge’s technical manager, but the answers were of no use as this person simply wrote short yes and no answers to our questions. Due to the difficulties of finding someone to interview about Stationsstaden and time limitations we could not be selective about who we interviewed so ended up interviewing three people instead of one for this project.
We are pleased that we found planners to interview for both projects, however one also has to be critical, although these people have a lot of knowledge, they might also be skilled at avoiding certain questions which could misguide our research.

3.2.4 Interview method

Semi-structured interviews were used as a method to gain further insight into the projects and to understand more about topics that were silenced or not well elaborated on in the planning documents. Semi-structured interviews, as described by Grønmo (2019, p.131) are conversations between the interviewers and respondents, which allows a certain flexibility for different topics to be discussed. One of the tools used for semi-structured interviews are interview guides. Our interview guides (attachments B, C and D) were conducted after we had read through and analysed the corresponding planning documents, this allowed us to have a broad understanding of the projects and we could identify which knowledge gaps we wanted to fill. These knowledge gaps focused on plans that we identified as contradictions to promoting sustainable transportation, but also omissions in the documents which are sections that we felt were missing, not elaborated on or explained well, such as accessibility for mobile disabled groups.

Our goal was to conduct the interviews in person but because of the covid-pandemic we asked our interviewees what they preferred. Lund’s traffic planner and Granitors Land developer agreed to meet in person but Kävlinge’s traffic planner preferred an online meeting. We do not believe that the online meeting affected our collection of data in any way, with the current online meeting software we could still perceive different nuances and have a good conversation. We minimised the use of quotes when connecting our interview from Granitor’s property development manager with the result and analysis part due to his wish. We did not want to risk losing his consent.

Our intention was to conduct the interviews in English but since we did not know which previous knowledge our interviewees had in English, we asked them which language they preferred to do the interviews in. All our interviewees chose Swedish. The translations of planning documents and interview responses were done by us and as we are both fluent in English and Swedish, we did not see the need to use official translators for citations.
3.2.5 Ethical considerations

According to Grønmo (2019) there is a set of ethical norms in social research meant to protect the rights of a study's participants (p.71-72). Sometimes researchers require a special permission to be able to conduct the interview from some sort of agency or authorities (p.208). Our interviews did not require an ethical vetting application as we interviewed the planners as officials and not as private individuals, hence we did not gather personal or sensitive information about the interviewees, only information concerning their work. However, the ethical norms Grønmo (2019, p. 71-72) argues for still has a set of guidelines we needed to follow to ensure that we protected our participants rights. Our interviewees needed to be informed about our study’s purpose, implementation and design. Another aspect we have followed is the regulation of GDPR which according to Grønmo (2019, p. 76) is a very important collection of rules that works as a protection for individuals when processing personal data. GDPR also puts a restriction on the movement of personal data. We had to get the interviewees consent to be able to conduct our interviews. We informed them about the confidential storage of the gathered information and notified our interviewees that we will store the information until the study is complete.

3.2.6 Document analysis method

To analyse our chosen documents, we used what Grønmo (2019, p. 218-220) calls qualitative content analysis. This kind of method lets us review the documents systematically to further categorise, interpret and analyse the content. We divided the documents into two groups, shorter documents consisting of less than 40 pages which were entirely read through and longer documents, over 40 pages, which we used a keyword search. We did this method, because when we initially looked at the longer documents many of them contained information that was irrelevant for our study, therefore the search helped us find what was relevant. For the keyword search we used the following swedish equivalent key words: 
*car, traffic, bicycle, walk, public transport, parking, path, sidewalk, commuting, road/street, mobility, accessibility, aged and disabled.*

To ensure that we did not miss any information we both went through all the documents, this ensured that they were read and searched through twice. To gather and process the information found in the planning documents we used coding which helped simplify and summarise the documents (Grønmo, 2019, p.310). The codes we used were word/phrases based on our 3 major topics: *accessibility* which helped us study the transport justices for different societal groups, *contradictions* to identify if they are planning to encourage the car,
and car reducing measures to help identify how car dependencies are being worked with. As
the section of car reducing measures were divided into 4 topics, we had four codes for these;
limiting car mobility, car reducing policies, making other modes more attractive and land use
planning and planning policies, this then created a total of 6 codes, 4 measures plus
accessibility and contradictions.

PART TWO

4. The car’s historical impact on cities and current solutions to fix it

4.1 Car development in Sweden

The first car was invented in 1886 and Sweden imported its first car in 1891 (Elsässer, 2006,
p.9-10). However, it was not until after World War One that cars’ popularity grew in Sweden
due to a growing interest in the American lifestyle (Elsässer, 1995, p.9-14). In 1923 Sweden
had around 50 000 cars registered which continually increased until the 1930’s, but then
declined during the Depression. The industry recovered following the Depression and by
1939 the cars in Sweden amounted to around 250 000 vehicles. During World War Two the
number of cars sank once again but just as before it recovered and continued its development.
The 1950’s became a golden decade for cars in Sweden and it did not take long before
Sweden became the most car-dense country in Europe (Elsässer, 1995, p.14-15) and with the
goal that Swedish society would be motorised, it was every man's right to own a car. Even the
election propaganda from the Social Democrats in the 1950’s promoted every resident's right
to own a car (Wahl & Jonsson, 2008 p.18).

The increase in cars and the poor quality of Sweden's roads led to the creation of interest
groups like the Swedish Road Society and the Royal Automobile Club who fought for a
modernisation of the roads in the country. Their struggle led to nationalisation of the road
administration in 1942 which bit by bit improved the Swedish roads. With the refurbished
roads and the continuous development of the road networks, cars restructured Swedish
communities and became a dominating part of planning and as motoring was synonymous
with welfare, cars were heavily supported by the government (Wahl & Jonsson, 2008 p.18-22).

4.2 The car’s impact on urban development

According to Wahl and Jonsson (2008) car-centred city planning began in the late 1800s. City planning changed from being based on aesthetic aspects to traffic-related ones. In the beginning of the 1900s, city plans heavily started to cater to the demands of car users, straightening and widening important streets to better accommodate cars and reduce traffic problems (p.31).

The ending of World War One initiated the real start of the car era and cars soon became the most important means of transport in cities. Streets did not have the capacity to handle many vehicles which led to congestion. To solve the problems and inspire new rational planning ideas, competitions were announced and the winners were most often centred around the car's needs and conditions. In addition to the traffic problems, cities after World War One also struggled with housing shortage. The solution to the housing problems was considered tightly connected to the solution for traffic problems, leading to the emergence of urban sprawl, land zoning and traffic separation (Wahl and Jonsson, 2008, p. 31-35).

Even though Sweden at this time had not come as far as the USA had, the car as a concept was acknowledged as an important part of future cities, leading to adjustments to accommodate cars. Among other things, some researchers considered pedestrians and cyclists irrational, demanding a separation between them and the more reliable car. After World War Two, when cars became even more popular in Sweden, their needs were the dominant factor in Swedish city planning. Swedish planning in the 1960s was dominated by the idea of giving the traffic environment more priority than living environments. To achieve this, parts of cities were demolished, sometimes whole blocks could be torn down to give more space for cars. By the 1970s the number of cars had reached its peak in Sweden and even though cars still were the priority in planning, an awareness for sustainability started to change the ideology behind planning (Wahl and Jonsson, 2008 p. 35-39). It is also noted that from a global perspective of the world's developed cities, the number of cars are also not rising as they used to, and their peak car growth was reached between 2004-2009 (Newman & Kenworthy, 2015, p.5).
4.3 Planning for and against the car

4.3.1 From planning paradigm one: Business as usual to planning paradigm two: Sustainable transportation.

According to Schiller, et al. (2010, p.1-17) there are two different transport planning paradigms that exist today; The first paradigm, which is the conventional one, is named *Business As Usual* (BAU). This type of planning focuses on mobility and quantity where transports should be very mobile and fast, which most often results in a single-mode, car-centric, mobility. When planning according to BAU, planners use *predict and provide*, where the planning and building is done through a forecast of the likely demand. This leads to expansion and more development of roads, mainly to relieve traffic congestion. But what really happens is that more road expansion feeds more car usage and, consequently, congestion. Planning according to BAU leads to more car dependent developments, which creates urban sprawl, longer trips, more driving as well as other previously outlined social and economic negative impacts of car areas outlined in section 2 (Schiller, et al., 2010, p.1-17).

The problematic outcomes of BAU have led to the rise of a new, more sustainable planning paradigm here called *Sustainable transport* (ST) which mainly emerged from the rising concern for sustainability. To define an ST-system is a complex task but some major points to define it are basic access needs for everyone, affordable and efficient travel, minimising land use, limiting carbon emissions and air pollution, limiting waste, and having a focus on reusing and recycling. In comparison with BAU, ST works in a complete opposite way. Instead of BAU’s predict and provide, ST uses *deliberate and decide* where the preferred visions guide the outcome. ST also favours accessibility and quality instead of BAU’s mobility and quantity, and multi- and intramodality instead of uni-modality (Schiller et al., 2010, p.1-21, 217-255).

According to Schiller et al. (2010, p.1-21) to shift from BAU to ST is a complex task, even if both planning paradigms currently exist in planning projects, ST should be the desired planning process. To achieve ST there are many measures that have been tried and tested in cities around the world to reduce car dependencies, promote sustainable transportation and give the space, used up by cars, back to people. Reducing car dependencies is not just about providing alternative transportations to the car but also managing the cars that are already there and the space they conventionally use.
Based on the theory of change, Newman and Kenworthy (2015) identify three factors needed to reduce car dependencies: industry which includes markets and new products, government which includes infrastructure and regulation, and civil society which includes visions and values. The integration and combination of these three factors can trigger the necessary transformations to create sustainable change and end car dependencies (p.209). In a similar vein, Buehler et al. (2017, p.12) highlight that to create a successful shift from the car to walking, cycling and public transport, a coordinated set of measures needs to be put in place and not isolated measures.

4.4 Reducing car dependencies and promoting sustainable transportation

Automobile reducing measures can be grouped into four categories which are introduced in the sections below.

4.4.1 Limiting car mobility

Limiting car mobility reduces car usage by making it inconvenient for drivers and is commonly achieved through traffic calming schemes. Partial street redesigning techniques to calm traffic include street narrowing, alternating on-street parking to either side, painting the street, speed humps, speed tables, diverters or chicanes. Calming measures can also be done in conjunction with beautification of the streets and here added greenery, pocket parks and street furniture beautifies the streets (Buehler et al., 2017, p.14: Schiller & Kenworthy, 2017, p.282-271). Shared streets where pedestrians and cyclists can use the entire width of the street also slows traffic (Buehler et al., 2017, p.21). Another measure for limiting car mobility is by completely restricting car accessibility, this can be achieved by creating dead ends for cars (Buehler et al., 2017, p.21) or creating car-free zones which can occur on a permanent, temporary or seasonal basis (Schiller & Kenworthy, 2017, p.270).

4.4.2 Policies reducing car use

If cities implement parking policies which make parking more costly and inconvenient it can deter people from using their cars. Parking measures outlined by Hrelja (2018, p.17) include time limitations, removing free parking, creating zone pricing, progressive prices (based on time parked), implementing fees for employee parking and increasing parking controls. Parking spaces can also be removed entirely and transformed into other urban spaces. Parking spaces should be utilised efficiently by sharing spaces rather than restricting parking to single uses. In general, it is stated that in city centres parking spaces should be expensive, have strict time limits and costly fines for exceeding parking times (Buehler et al., 2017, p.22).
Economic means can also create disincentives to use the car, this can include road pricing measures such as congestion taxes, carbon pricing initiatives, infrastructural charges or schemes to limit car ownership. Another policy to reduce car usage is through car-sharing and car-pooling schemes which creates an alternative to people having to use or own private cars (Newman and Kenworthy, 2015, p.234).

4.4.3 Making other modes more attractive

Automobile usage and dependencies will decrease if the alternatives modes, walking, cycling and public transport become more attractive and are encouraged.

Walking is the most natural form of mobility, it is free, great for human health and in the right environment, highly enjoyable. Unfortunately, urban regions can be uncomfortable or even difficult to walk through as many urban environments are designed for cars and not for humans. With the right measures and designs, cities can become attractive, walkable places where people will want to walk to transport themselves. To improve the quality of the sidewalk environment measures include, increasing street furniture such as seating and human-scale lighting, installation of greenery and landscaping improvements, widening sidewalks, improving pavements and removing barriers to make it accessible for everyone including mobility disabled people and people with strollers. As crossings can feel unsafe they can also be improved by visible zebra crossings, better lighting, refuge islands, curb extensions to shorten the crossing length, raised crossings to slow cars down and by giving pedestrians priority over cars with pedestrian-activated crossing lights and signals, decreased waiting times and increased crossing times (Buehler et al., 2017, p.14; Hrelja, 2018, p.14).

Cycling is a very inexpensive mode of transportation, has no negative environmentalal impacts and is great for human health and wellbeing. To increase the attractiveness of cycling the concepts are the same as walking, bicycle infrastructure must be safe and convenient for its users. This can be improved through the addition of shared streets, car-free zones, wider sidewalks with dedicated cycle paths and on road bike lanes protected from traffic (Schiller & Kenworthy, 2017, p.92). Additionally, it is important to have increased bike parking and facilities such as pumping stations, clear signage, priority at crossings and integration with public transport (Buehler et al., 2017, p.15; Hrelja, 2018, p.14). Bike sharing schemes also encourage bike usage and make bicycles more convenient and accessible for everyone (Newman & Kenworthy, 2015, p.234). The key importance to maximise cycling is to make a well-connected network and not have it broken up into isolated stretches.
A successful public transport system that can compete with cars, needs to be connected, reliable, affordable and comfortable. According to Schiller and Kenworthy (2017, p.96) it is essential that public transport systems have a good right of way. The vehicle designs need to transport a high capacity of passengers to maximise its efficiency and improve quality of service (p.99). Transit systems also need to have other attractive infrastructures such as highly accessible entrance and exits, shelters, updated clear information and system maps as well as fair ticketing systems especially for regular users (Buehler et al., 2017, p.19; Newman & Kenworthy, 2015). As with cycling it is highly important that the transit system is seen as a functioning network that is well connected to other lines so that quality of service is maximised.

Multimodal mobility management (MMM) involves integrating all the modes to create a whole system of sustainable transportation. It requires a lot of innovation and research in understanding people’s travel behaviour and can involve some form of card (or alternatively an app) which could be used across various modes including bike sharing, public transport and even car-sharing schemes. MMM could also reward users for making more sustainable travel choices (Newman & Kenworthy, 2015 p.232). Another aspect of integrating different modes that Buehler et al. (2017, p.15) identifies is integrating cycling with transportation, where cyclists can take their bicycles on public transportation to make travelling long distances or difficult terrains easier to manage.

4.4.4 Land use planning and planning policies

Land-use planning can have a major role in changing people's travel behaviours as when planned successfully, travel distances and trips will be dramatically reduced thus decreasing the need for private cars. Dense, mixed-use land development is important, and when this is concentrated around transit stations these developments are known as Transit Oriented Development (TOD). TOD is a way of planning that combines land-use planning, transport planning and urban design and can be conceptualised through five Ds: density, diversity, design, distance to transit and destination accessibility (Hrelja et al., 2020, p.12).

Block size and street design is also an important factor for car reductions, smaller block sizes, less cul de sacs, narrower streets, and minimal building setbacks decreases car use (Schiller & Kenworthy, 2017, p.211-224).
Newman and Kenworthy (2015) highlight the importance of proactive bureaucrats as well as close collaboration within the government, public and private sectors (p.213). Development projects that plan to reduce car dependencies can be seen by many as radical, alternative visions, but these planning visions are what is needed to help build momentum (p.159). These new planning visions are stronger when civil society and/or academics put pressure on decision makers (p.219). Demonstration or pilot projects can also be an important aspect to encourage change (p.213).

5. Theoretical framework

Rienecker and Stray Sörensen (2018) define theories as a collection of assumptions or doctrines which establish a frame that helps the researcher explain, describe and predict their studied phenomena (p. 202). In this chapter we account for our theoretical framework as a tool, which is based on our subject of reducing car dependency and implications of this. Our framework consists of five sub-chapters which provides us with different lenses to explain, question, describe and understand our chosen subject.

5.1 Sustainable development

The widespread concept of sustainable development originates from the publishing of the Brundtland Report, published in 1987, which defines sustainable development as: “a development that satisfies today's needs without compromising the ability of future generations to meet their needs” (Boverket, 2020. Own translation). According to Boström (2012, p.3) the spreading of the concept of sustainable development through the Brundtland Report has marked the concept as a guide for those who strive to become more sustainable. Boström (2012, p.3) argues that there is no final definition of the concept which makes it vague and open for many different interpretations. However, he also states that a very usual way of characterising the concept is by dividing it into three sustainability-pillars: ecologic, economic and social. According to the Swedish research council FORMAS (2011, p.19) these three pillars are of great importance for cities that strive to become more sustainable. This is also supported by Andrews and Granath in FN-Fakta, a United Nations factual document, (n.d, p.1-4) who claim that all three pillars need to be considered for development to be considered sustainable. Although dividing the concept into three pillars defines sustainable development to some extent, there is still a lot of complexity and ambiguity to the concept because each pillar consists of many different sub-dimensions (Broström, 2012, p.3).
FORMAS (2011, p.19) for instance points out the fact that the three pillars need to be specified and put in relation to certain situations for context, otherwise they become unusable and reduced to meaningless catch phrases.

It is argued that the increasing urbanisation causes greater strains on our environment and to handle these effects, cities need to become more sustainable. The sustainable transformation applies to both physical planning, transport systems and access to green areas among other things (Sveriges miljömål, n.d). The Swedish Delegation for sustainable cities, which was a special operation established by the Swedish government between 2008-2012, furthermore points to the fact that sustainable development often lacks anchorage and integration in multiple areas of politics. This is something that complicates the integrated approach and collective national commitment needed for sustainable urban development (Boverket, 2019).

Another problem that surrounds sustainability are challenges to measure it. Parris and Kates (2003, p.561) explain that there have been hundreds of efforts to create qualitative indicators to measure sustainable development. One of the major roles of indicators is to show the progress towards or away from sustainable development (p.571), this means employing scales which makes it hard to definitively claim if something is sustainable or not, instead developments can be evaluated on a spectrum and seen as something that is either more- or less sustainable.

Sustainable development can be strongly tied to the urban environment and transportation system. According to the United Nations Sustainable Development Goals (n.d) our cities account for 60-80 percent of energy consumption. Moreover, 31.6 percent (2016) of the world’s final energy consumption is used for transport (Holden et al., 2020, p.2). Apart from the obvious use of resources to build the infrastructure, urban planning also creates different prerequisites that affect future travel choices and those uses of resources as different modes have different resource requirements. If planners are to develop cities that are sustainable, they should not rely on car usage as this development often takes away valuable land and relies on fossil fuel. Automobile cities also produce large amounts of greenhouse gases which contribute to photochemical smog which has detrimental effects on our planet and ecosystems (Schiller & Kenworthy, 2017, p.21).

Sustainable development is looked at in our projects as we are living in an era where sustainability is in focus due to the immense pressure put on our planet and the foreseeable
consequences. By using the concept of sustainable development as a lens, we can examine and establish how the planners in Brunnhög and Stationsstaden see sustainability in relation to cars and what role cars have in a sustainable city. Thinking through sustainability allows us to examine if planners consider a city or an area within the city sustainable in relation to transport planning, given that within a new development project, cities cannot claim sustainability if they are planning for car dependent transport. We thus use the notion of sustainability not to reach conclusions on whether the projects are sustainable or not, but to help us compare and understand how the municipalities and developers work to integrate sustainability in their planning.

5.1.1 Sustainable mobility

Within transport research there are three distinctions to be made: transport, accessibility and mobility. Transport is simply the movement of something or someone from one point to another. Mobility is a broad concept and can include, amongst other things, the ability one has to travel. For example, persons owning and being able to drive a car could be seen as highly mobile as they are not significantly limited in their mobility patterns (Sherry & Urry, 2005, p.212). Accessibility on the other hand is the access people have not only to transportation options but also to essential urban opportunities.

When the notion of sustainability is applied to the transport sector, the concept sustainable mobility is used which can be defined as “the ability to meet the needs of society to move freely, gain access, communicate, trade, and establish relationships without sacrificing other essential human or ecological values today or in the future” (Nykvist & Whitmarsh, 2008, p. 1373). Sustainable mobility can be seen as a paradigm, a new way of looking at mobility that stands in contrast with the increasingly outdated focus on hypermobility through cars (Schiller & Kenworthy, 2017, p.13).

Holden, et al. (2020, p.2) highlight the importance of sustainable mobility to include the imperatives of sustainable development, which when connected to mobility are “providing accessibility to basic transport (needs), ensuring equal access to transport services (justice), and ensuring that impacts of transport activities do not threaten environmental sustainability (limits)”. Like sustainable development, sustainable mobility aspects can be grouped into the three pillars of sustainability: social, economic and environmental (Nykvist & Whitmarsh, 2008, p. 1374).
Sustainable mobility provides an alternative paradigm to the unsustainable mobility modes of motorised mobiles. But, sustainable mobility is not just about the mode of transport itself, rather, according to Banister (2008, p.73) sustainable mobility looks at the linkage between land use and transport to form sustainable transportation developments. Cities must provide homes to most of the world's population and Banister (2008, p.73) states that to create sustainable cities requires a population of over 25,000 with mixed-use, dense planning and a prioritisation of development around transport nodes and transport corridors. These urban forms lead to a decrease in average trip lengths, increase more sustainable modal choices, encourage transport system efficiencies and decrease the need to travel whilst increasing accessibility (Banister, 2008, p.73-74).

The concept of sustainable mobility is tightly linked with the concept of sustainable development as urbanisation creates an array of problems to which transport and infrastructure are major contributors (Schiller & Kenworthy, 2008, p.14). By looking at our cases through this concept, and similar to our employment of sustainable development, we aim to create an understanding about what sustainable mobility is and how it is applied in our chosen projects. The concept of sustainable mobility also helps us to analyse/discuss to what extent the municipalities try to plan towards the ST paradigm and away from the BAU paradigm.

5.2 Urban Fabrics

The theory of urban fabrics is a theory created by transport researchers Newman, Kosonen and Kenworthy (2015) and describes how our cities have different transport priorities which can form the physical environment and fall into the categories of walking, transit or automobile fabrics. These three fabrics are used to explain how cities' different forms, shapes and infrastructure and thus urban fabrics can be planned and work together symbiotically to promote sustainable transportation (Newman & Kenworthy, 2015, p.106).

Newman et al. (2016) describes how each of the different fabrics have distinct differences in terms of their fabric area, elements, functions and qualities. These include, amongst other things, street widths, block scale, building setbacks, building parking, consumer services, use mixes and densities (p.447-450). Walking urban fabrics are catered to the pedestrians and citizens moving around by foot, this means that these areas are denser with mixed uses, have narrower roads and covered a smaller area (p.433). The development of trains and trams allowed transit fabrics to extend outwards, with dense nodes forming around each station and
mixed land use corridors formed along denser tram lines (p.434). With the development of the car, longer transport distances were no longer limited to tracks, cities had the ability to spread out in all directions due to the car's flexibility, along with zoning development the automobile fabric became very large with low densities. It is shown that with the rise of the car, the walking and occasionally the transit fabric was destroyed, but there is a possibility to develop the urban environment so that a symbiotic relationship can occur between the urban fabrics (p.438). An example of this is if people with a car from automobile fabrics can visit a transit or walking fabric without interrupting or dominating them, the infrastructure then allows for all transport modes without cars taking over (p.438).

Newman et al., (2016) explain that the theory of urban fabrics can be applied to cities to help understand how cities can have combinations of different fabrics and how their urban fabrics can interact or dominate the city's spatial dimension (p.439). The theory of urban fabrics can be used in urban planning to see the city and all its various elements, rather than the traditional post-war planning of seeing the city and transport as one unit and not taking consideration of its different fabric types. Once these types are recognised and taken into consideration the land use and transportation planning can be optimised. Without this kind of analysis of the urban environment there is the possibility that a single urban fabric, commonly the automobile fabric, can take over, which will promote car dependencies (p.445-446) and hinder sustainable transport modes from being promoted and optimised. If consideration is taken into account for spatial relationships, typology of buildings and land-use patterns to create walking and transit fabrics, car usage and dominance can be managed to create sustainable, healthy, living environments (p.431).

We use the notion of urban fabrics in our analysis to identify how the projects are divided into different fabrics and how these conceived fabrics relate to each other. It allows us to examine if the unsustainable automobile fabric is being developed and, if so, if there is a risk for it to dominate the urban environment and compromise sustainable transportation, or if it is being layered to function symbiotically with other layers. The concept of urban fabrics also helps us to analyse whether considerations to these different types of fabrics has been given, which according to Newman et al. (2016, p. 445-446) is important to avoid planning that will promote car-dependency.
5.3 Transport justice

Just cities are cities where all residents have the equal right to the city and its spaces, but it goes beyond just accessing the city as it is also about having an equal distribution of city resources and opportunities to all citizens. When looking at justice in relation to transport, Gössling (2016, p.2) links it closely to welfare and resource equality, explaining that transport justice is connected to fairness between traffic participants in relation to burden, risks, access or asset valuation. Thus transport justice is the “achievement of greater equality or the abolishment of injustices” (Gössling, 2016, p.2). Transport justice needs to be a key focus and consideration when planning as it has been shown that previous transport planning has been focused on specific interests (often industry), as well as the cars, which has led to many physical limits and barriers in our urban environment leading to unequal access to urban opportunities and services, in turn, producing social exclusion. This hinders citizens from being able to participate in normal societal activities, affecting the quality of life for individuals as well as the cohesion of society (Lucas, 2012, p.106).

According to Lucas (2012, p.108), there are seven categorised features of the transport system which contributes to social exclusion, these are; 1) physical exclusion, including vehicle design, lack of disabled facilities and service information, 2) geographical exclusion, where ones location limits their access to services, 3) facility locations, which can limit ones access, 4) travel costs which form economic exclusion, 5) time-based exclusion, where various other activities limit the ability to travel, 6) fear-based, where exclusion comes from one's safety fear associated with transport and 7) space exclusion, which is where security or management prevents access, such as gated communities, or first-class waiting rooms at stations.

Just transport planning moves away from the traditional mobility perspective which focuses on transport provision and instead employs a people and needs-based social perspective which considers equal opportunities to access key services rather than just the outputs. Creating just transport systems is not just dependent on the individual or local level. Transport related justice can be influenced from interactions at the individual, local/national and global level. At the individual level these include age, disability, gender and race, locally and nationally it can include the actual infrastructure of the transport system, its service and supply and globally it is looking at the economy and the impacts these have on labour markets, migrations and legislation frameworks (Lucas, 2012. p.106).
5.3.1 The Perspective of the Elderly

Another aspect to consider in relation to transport justice and new developments is how reducing cars will affect those that are less mobile but not to that extent to be granted a disability permit, for example elderly people. According to Fatima et al. (2020) an ageing society does not see reducing cars as something positive (p.4). Many senior residents prefer to age in the same dwelling or community where they lived throughout their adult life. Remaining in the same home, rather than a care facility, then often needs to be supported by various measures like homecare or meal support. It might also cause social isolation, therefore regular trips are recommended to maintain social interactions (p.3). Fatima et al. (2020) argues that for many older people, who are still capable of driving, driving is the preferred transport mode (p.4) and due to several barriers in the society, walking or public transport is not always suitable for them to have as their primary mode of transport. Several of the sustainable transport modes might be too complicated for the elderly to use, it is both a question about them being able to walk to the stations, as it is for them to be able to find seating or orient themselves in case of changes in schedules or digitalization (p.5). Public transport must also be well thought through, connecting the places elderly people want to travel to in a way that does not require long walking or cycling distances. Cycling above all requires a healthy body, body control and energy that many elderly might not have (Pereira et al., 2017, p.176).

The notion of transport justice, including the perspective and needs of the elderly, is a lens we need to assess to understand how the two projects account for accessibility. Reducing cars is a difficult transition for society. Some groups might be more exposed than others when cities promote walking, cycling or public transport instead of driving, although reducing cars also will have positive effects on groups that are being excluded due to cars. Transport justice makes it possible for us to examine these sometimes-contradicting issues connected to social justice and assess how planners take them into consideration. Transport injustices can affect more groups than just disabled, children and elderly, however as we focus on physical obstacles of reducing cars we have chosen not to involve these other groups such as people with social or economic disadvantages.
5.4 Summary

Our theoretical framework consists of five theories that touch upon different perspectives of sustainability as well as the design of the physical environment and justice for different groups. By choosing this framework we look at how planners have incorporated the notion of sustainable development and mobility as well as how the new city districts relate walking, transit and cars to each other and what consideration to justices has been taken for those more dependent on cars. The concept of sustainable development touches upon subjects like defining the vague term sustainability, the lack of anchorage it has in areas of politics and the role it has in developing sustainable cities. Sustainable mobility accounts for the relationship between sustainability and transport, changing from hypermobility to sustainable transport modes. Urban fabrics give an insight into the design of cities, how the physical environment gets shaped differently due to different prioritisations in the transport system and how different modes of transport can work together. Finally, transport justice and the perspective of the elderly accounts for the risk of developing a city towards more sustainable modes of transport without considering the effects reducing cars might have on vulnerable groups.
PART THREE

6. Brunnshög

6.1 Brunnshög’s history and development: from rural countryside to urban city

Brunnshög is a new developing mixed-use district, which has developed as an expansion of the Swedish city of Lund in the southwest of Skåne county, Sweden’s southernmost region (see fig 1, 2 & 3). Lund, like most other major urban areas in Sweden, has followed the trend of an increasing population with a total population of 127 376 in 2021 (SCB, 2021). The land which is being developed has historically been agricultural land (Lunds kommun, 2020A, p.12) and the idea for the Brunnshög project first appeared in Lund’s 2010 comprehensive plan. In May 2009 it was decided that Lund would be the host city for the new International Spallation Source Facility (ESS), an international modern research facility for studying materials where approximately 450 employees will work with 3000 visiting researchers annually, and this was to be built in Brunnshög. Shortly after this decision it was decided that MAX IV, a national electron accelerator laboratory for research with 270 jobs would be built next to ESS. MAX IV opened in 2016 and ESS is planned to open in 2023 (Lunds kommun, 2020A, p.30, 33; Lund University 2022). Brunnshög is highly accessible as the western side is framed by the European route E22 which is a major European motorway that extends through Europe from Great Britain to Russia (Trafikverket, 2011, p.12).
6.2 Aim and visions

Across a range of informational websites as well as promotional sources, the development of Brunnshög has been marketed as highly sustainable (See fig.4). This development project aims to combine the latest technologies in sustainable development and create a harmony between life, research and innovation in conjunction with a balance of urban and rural lifestyles and landscapes. The area is planned with people in focus and building for the human scale where social interaction can occur between buildings. It is anticipated that 40,000 people will live and work in Brunnshög when the project is finished. The three major visions they have for creating a highly sustainable district involve: heating, waste management and transportation (Lunds kommun, 2020B).

For Brunnshög’s transportation the municipality has developed the ‘one thirds goal’ where they aim for a minimum of one third of transportation to and from Brunnshög to be done by public transport, minimum one third by cycling/walking and maximum one third by cars (See fig.6) (Lunds kommun, n.d, p.1). Brunnshög has a sustainable transport connection to Lund through the newly built tram line which extends from Lund Central Station to ESS and was inaugurated on the 13th of December 2020 (Skånetrafik, n.d).
Lund has a long history of working with sustainable mobility with the establishment of their first traffic strategy plan, **LUNDAMATS**, in 1999 which was a development based on previous transport plans originating from 1969. Since then, **LUNDAMATS** has been updated twice and has been a guide to ensure the development towards sustainable transportation in Lund (Lunds kommun, 2014A, p.5).

The current usage of cars in Lund municipality varies greatly as it is made up of so many smaller built-up areas. In the entire municipality the 2021 transport analysis showed that there were 64,171 privately registered cars and 238 buses (Trafik analys, 2021), equating to roughly 50 percent of residents owning cars. According to Lunds municipality (2014A, p.7) their statistic shows that in 2007 the modal transport distribution in Lund city was: walking 23 percent, cycling 43 percent, public transport 8 percent and car 25 percent. A 2018 survey done by Region Skåne showed that in the Lund urban area 27 percent of trips use cars, compared to the rural towns and dwellings of the municipality where they are used by 67 percent (Region Skåne, 2018, p.41). This shows that although Lund has a long history of working with sustainable transport, there is still a large portion of the population that own and use their own cars.
6.3 Document review: Identifying planning- and policy aspects in Brunnshög

This chapter will present the results from our document analysis of our empirical material as well as a selection of material from the interview with Lund’s traffic planner (April 21, 2022) to create a better understanding of certain aspects that occurred in the planning documents. The presentation of results is done in order to understand and account for the measures, challenges, and contradictions we found within the planning documents. The material from this review will be analysed further down in the next chapter guided by our five theories.

6.3.1 Traffic planning within and around Brunnshög

The planners in Brunnshög have set an ambitious goal to reduce car usage in the area. According to Lund’s traffic planner regarding why cars need to be reduced, the municipality saw

“a great need considering the peripheral location outside the city that the district has, close to E22 so it is highly accessible by car. Then they realised that here we need to plan really hard to keep the car usage down” and that “except for the infrastructure, for it to function with this estimated population growth in Brunnshög, it is the climate that is the main reason” (Personal communication, April 21, 2022).

Lund municipality (2012A) acknowledges that car dependency is hard to work against, especially when planners are trying to combine a system of car-availability but on human terms. Due to Brunnshög’s geographical location and its heavy car-orientation the municipality sees difficulties creating an urban traffic system, in human scale, in an unexploited environment with these preconditions (p.8). This is also validated by Lund’s traffic planner who says that the geographical location next to E22 is the reason the municipality plans to such an extent to reduce future car usage in the area, thereby creating several goals and measures which we will account for later in this chapter.

The municipality also has plans to widen a section of the E22 motorway, which runs along one side of Brunnshög and divides it from the rest of Lund. Between the junctions Gastelyckan and the junction Lund Norra (See fig 5.), E22 shall be widened from two lanes to three in each direction (Lunds kommun, 2017, p.19-21). Brunnshög’s development will lead to extensive new traffic that needs to be absorbed by Lund’s infrastructure. To manage this, the
municipality and The Swedish Transport Administration (Trafikverket) accordingly want to build a new departure- and entry ramp between Gastelyckan and Lund Norra to shift the traffic from the current junction, Lund Norra, which is heavily loaded during rush hours (p.21, 36) (See fig.5). By relieving the traffic at this junction the municipality wants to use the junction Lund Norra to serve southern Brunnshög instead. There are also plans for another junction close to the ESS facility to serve northern Brunnshög (Lunds kommun, 2012B, p.35). This would give Brunnshög two entrances and exits to E22 and the added lanes between Gastelyckan and Lund Norra will increase traffic efficiency. Lund municipality (2012A) does, however, see a risk that the expansion of the road network might affect the possibility to achieve their goal of only a maximum of one third car usage to and from the area (p.16-17).

The municipality faces a great dilemma concerning the development in Brunnshög and the motorway E22. Due to today's already heavy traffic on E22 the main reason for Lund municipality to widen the motorway seems to be to manage traffic safety, if the capacity hits zero the risk of accidents is extremely high. Therefore, according to Lund’s traffic planner the planned new junctions should only be built if capacity is down to zero as “there is always a challenge in developing more infrastructure, there is a risk that it will generate more traffic” (personal communication, April 21, 2022). The municipality also must come to an agreement with Trafikverket, since Trafikverket has other goals with the roads that might interfere with the municipality's visions. This is due to Trafikverkets’s goal of having roads with good trafficability and little disturbance (personal communication, April 21, 2022). The municipality is thereby torn between the vision of planning for a more sustainable transport and the will of Trafikverket.
Lund municipality (2013A p. 36) also has plans for a possible connection from Brunnshög to the nearby neighbourhood Norra Fäladen on the other side of E22, after 2030. This passage shall go over E22 and accommodate both cars as well as cyclists and pedestrians to connect Brunnshög better with its nearby areas for smoother access (p. 36).

6.3.2 The one third goal

To reduce car use in Brunnshög, Lund municipality created something they call the one third goal which aims to only have one third of all transport to, from and within the area to occur by car (see fig 6). The other two thirds will consist of travels by public transport and walking or cycling (Lunds kommun, 2013B, p.9). According to Lunds traffic planner this goal has been very important for Brunnshög due the area’s challenge with its geographical location, “Something that is good with the one third goal is that everyone can understand it and it is easy to grasp. We have been able to push this out to developers and actors, it has been very successful” (Personal communication, April 21, 2022).

A new extensive planning document was produced at an early phase of the development to ensure that the municipality was planning for more sustainable modes of transportation instead of cars. This document replaced the old plans where cars had a more central role and helped establish the one-third goal (Lunds kommun, 2014B, p.4). Extra resources also allowed the municipality to conduct deeper, more elaborate traffic and walking-city analyses to further work towards sustainable transportation modes (Lunds kommun, 2014B, p.2).

To achieve the one third goal Brunnshög’s road infrastructure is planned in stages, as developing the full road network capacity first, could prevent sustainable modes from being established, and it should only be built out when there is unacceptable traffic in the system (p.17). The car infrastructure system is based on the traffic volumes that are based on the one third goal (Lunds kommun, 2013A, p.36) and not the current transport trends.
6.3.3 Making sustainable transport modes attractive

Walking
To reduce car usage, the municipality has focused on making the urban environment attractive for pedestrians. Here cars have limited mobility and focus, and the planning focuses on pedestrian zoning where pedestrians are prioritised followed successively by cyclists, public transit and the least prioritised is the car (Lunds kommun, 2015, p.44). Brunnhög's central areas will consist of local streets that are designed as shared streets for pedestrians, cyclists and in some cases cars (See fig.7), in these areas speed limits will be lowered. Other streets in the area will have separated pedestrian and bicycle paths with narrow streets, which allows the car to access areas but not at the costs of the pedestrians and cyclists. Pedestrian prioritised centres will be formed in Brunnhög by having wide sidewalks, raised crossings, and regulated zones with walking streets or pedestrian zoning speeds (Lunds kommun, 2018B, p.52). There will also be greening of the streets and variation in the street environment (Lunds kommun, 2013A, p.25, 39).

Cycling
Biking infrastructure in Brunnhög is planned to be attractive and encourage people to use their bike and thus encourage sustainable mobility. This is planned by creating an extensive, top-quality bike network, with prioritisation at crossings, winter road maintenance and ground covering. This bike network (see fig.8) is planned to be well connected with the rest of Lund and good crossings are going to be established over major roads (Lunds kommun, 2012A, p.11-12; Lunds kommun, 2013A, p.35). Bike paths for safe, high-speed cycling will be designed along the roads which directly connect to the city’s cycle network (Lunds kommun, 2012B, p.47). There are also plans to establish new bike rental stations in the area which are connected to Lund's current bike rental system, Lundahoj, which will help with multi-modal trips in the area (Lunds kommun, 2012B, p.45). To further encourage residents to bike, plans

Figure 7. Map over Brunnhög’s road network, showing the main streets, Local streets and possible future car-free connections (Lunds Kommun, 2012A, p.18).
for high quality bike parking is important which includes easily accessible parking with a placement of maximum 25 metres from building entrances, weather protection, secure bike stands, and easy access for indoor parking (Lunds kommun, 2013C, p.18) as well as plenty of bike services (Lunds kommun, 2012B, p.45). However, there is also a challenge concerning Brunnsrögs location and cycling as Brunnsrög is located at the border between a rural area outside Lund and the urban area of Lund, which makes it exposed to windy conditions. Lund municipality (2013A) has identified this as an aggravating condition, which might affect people's choice of transport, making cycling within Brunnsrög and to nearby city districts in windy conditions less desirable (p.68).

Public transport
To compete with cars, the municipality has invested extensively to ensure that they have a good public transport system by establishing a tram which runs from Lund central to ESS (see fig. 9) (Lunds kommun, 2013A, p.29). It was important that the tram was developed early to establish sustainable transport habits in Brunnsrög (Lunds kommun, 2012A, p.15). To ensure the tram does not affect pedestrians, extra studies and evaluations have been conducted that looked at the speeds, platforms and crossings of the tram to find the best solutions (Lunds kommun, 2014B, p.8). By the square located in central Brunnsrög the tram will drive at reduced speeds, as to not compromise its pedestrian friendly zone.

Figure 8. Map over Brunnsrögs bicycle network plans
(Lunds Kommun, 2012A, p.13).

Figure 9. Maps showing Brunnsrögs public transport system with Bus lines and stops (Buss & H) as well as tramline and stops (Spårvagn) (Lunds Kommun, 2012A, p.15)
(Lunds kommun, 2012B, p.58). Except for the tram, regional bus-lines also supply the area; these lines head towards Malmö and are seen as a complement to the tram services (Lunds kommun, 2019, p.19). However, according to Lund municipality (2017, p.13) the buses between Lund and Malmö often get delayed in rush hour on E22 because they get stuck in the same lanes as all other traffic.

The tram stations became a central focus in Brunnshög, and the municipality has designed the area with the planning concept Hrelja et al. (2020, p.12) describes as Transit Oriented Development (TOD), as they have planned for mixed-use development close to the public transport stops, here boutiques, services and amenities are prioritised (Lunds kommun, 2012A, p.14; Lunds kommun, 2015, p.16). The municipality (2012B) has also identified a challenge which concerns the vision to establish commercial businesses in Brunnshög. The vision is to make the street around the tram vibrant by adding businesses and activities that make people want to frequent the area. Due to previous difficulties in establishing commercial districts in outer areas where cars are not allowed, the tram street will allow cars, this is to make the commercial activities possible. Accordingly, the whole tram street will include space for cars, but it will have narrow lanes, low speed and restricted access. In the future it is possible that some part of the street might develop into a car-free zone, but this is dependent on the establishment of the businesses (p.38).

6.3.4 Physical and softer measures

Beyond the one third goal and the attractiveness of walking, cycling and public transport, Lund municipality has worked with other physical and softer measures to reduce car usage. For instance, the municipality has worked with mobility management (MM), which are softer measures above physical and technical measures, that focus on changing people's travel behaviour and attitudes, towards sustainable modes, before the trip has even occurred. These measures can include information, communication and marketing. In Brunnshög, MM measures occur as a financial and long-term collaborative effort between involved actors such as the municipality, developers, employers and the local public transport authority (Skånetrafiken) (Lunds kommun, 2012A, p.8-9). Lund municipality has also worked extensively with promoting and encouraging carpooling possibilities together with the developers by offering a flexible parking standard (Lunds Kommun, 2013U, p.17). Parking Standards are a way for municipalities to regulate the number of parking spaces by having the overall responsibility for parking plans, thereby deciding which parking demand developers
and property owners will need to cater for (Lunds kommun, 2018C, p.3). If the developers follow the requirements for the carpool, parking standards can be reduced by up to 30 percent. Some of the requirements to get these reduced parking standards are that carpool membership must be guaranteed in the dwellings rental contract for a minimum of five years, that 75 percent of parking spaces must be in the parking garages to maximise shared parking spaces and that developers must strongly promote carpooling schemes before residents move in (Lunds kommun, 2014B, p.16).

Several times throughout the interview, Lund’s traffic planner highlighted the importance of parking regulations as a measure to reduce cars. He further pointed out that the municipality has the added benefit of owning most of the land in Brunnshög so they can create good conditions for transport and set strict parking requirements. The municipality has worked extensively with parking and the major parking garages will be placed on the outskirts of Brunnshög, is for several reasons:

- Making the car garages easily accessible by car but limiting car mobility in the rest of the developing area (Lunds kommun, 2015, p.46)
- Making public transport stops closer than the car (Lunds kommun, 2012B, p.37)
- Making them more utilisable as they can be used by offices and residents (Lunds kommun, 2012B, p.46).

Other requirements for the garages are:
- To develop good habits, temporary car parking during the development of the area should only take place where parking garages are already planned (Lunds kommun, 2012A, p.13).
- The parking garages should be designed so they are attractively integrated into the surroundings to improve the urban environment for pedestrians (Lunds kommun, 2012B, p.47).

Brunnshög’s long term parking goal is to make the parking prices represent the actual costs of the parking (Lunds kommun, 2012B, p.37) this compared to the current norm where they are subsidised by the property rentals. By implementing different measures, developers can get reduced parking standards by up to 90-95 percent, for instance by establishing carpool, bikepool or green travel plans (Lunds kommun, 2014B, p.16-17). However, Brunnshög faces some challenges concerning their planning around parking, especially around the research facility ESS where higher parking standards might have to be given due to the many guest
researchers who will temporarily work at ESS (Lunds kommun, 2013C, p.8-9). This means that comparatively more parking spaces might be built at ESS than in other areas of Brunnshög. On the other hand, the municipality plans to periodically evaluate the need of parking in other areas in Brunnshög to see if additional parking needs to be developed (Lunds Kommun, 2016, p.19).

6.3.5 Access to, from and within Brunnshög

When reducing car dependencies, it is important to take accessibility into consideration. We took an interest in what considerations the municipality has given to less mobile groups in society that might be more reliant on their cars.

In the planning documents it is stated that planners must follow certain rules that regulate the rights of disabled individuals, for instance the Planning and Building act (PBA) and the National Board of Housing, Building and Planning act (BPA). Lund municipality (2018C) writes that according to BBR there must be possibilities for disabled individuals to stay and park within 25 metres of a disabled adapted entrance for services, activities and housing (p.7). The statutory demands for accessibility for disabled individuals are recurring throughout the planning documents, for instance Lund municipality (2016) states that the municipality shall follow the statutory demand for disabled accessibility in accordance with chapter 8, Section 4 and chapter 8, section 9 in PBL (p.28-29). It is also stated by the municipality (2013A) that the accessibility in Brunnshög for disabled, elderly and children will be adequate due to the norms and statutory demands required in new developments (p.68) and people with disabilities must be given possibilities to access essential urban opportunities in Brunnshög by building disabled parking spaces in places where parking is not usually allowed (Lunds kommun, 2015, p.47).

Apart from the disabled there are also other groups in society that might experience a disadvantage when cities try to reduce cars. One such group are the elderly who are not much or only vaguely mentioned in Brunnshög's planning documents, such as:

“In Lund NE/Brunnshög one shall feel welcomed and experience that the environment answers to one's needs of spaces for meetings, play, activities and tranquillity. The area's design will make it easy to meet no matter the age or eventual disability” (Lunds kommun, 2013A p.18) or “The new structural plan has as a goal to prioritise pedestrians’ needs to create conditions for a populated and lively public
space. People with disabilities and elderly are important here” (Lunds kommun, 2012B p.72).

In contrast to the elderly, children are better accounted for in the documents for Brunnshög. The municipality (2013A) declares that in intersections with mixed-used traffic, children will be prioritised due to planners carefully considering the traffic safety to give children good possibilities to walk or cycle to school (p.30). The vision for Brunnshög is to offer children paths with no barriers which are pedestrian safe by road-separation and speed regulations in intersections. To improve connectivity to the rest of Lund for children and youth, plans for safe paths to and from public transport stops shall enable more travels to the other parts of the city (Lunds kommun, 2012B, p.72). However, there is an inherent conflict between making room and accessibility for cars and public transport, within the same areas where children are supposed to move freely, which is also acknowledged by Lund municipality (2015, p.37). The garages and the future location of them will therefore play a big part in counteracting this because it is foreseen that they will draw most of the traffic to the outskirts of Brunnshög and leave the inner areas with a lighter traffic load. The streets in the inner areas will be designed to make it natural for motor driven vehicles to go slow which is an important factor in making the city district safer for children (Lunds kommun, 2015, p.37). To enhance the possibility for a more sustainable choice of transport in relation to school-related travels the schools in Brunnshög for older students will be placed in central locations. This makes it possible for the schools to share facilities like libraries or sport centres and it increases public transport travel opportunities to school. To make it easier for parents to pick up and drop off younger children, the municipality wants to shorten the distances to the preschools and elementary schools by spreading them throughout Brunnshög (Lunds kommun, 2013A, p.30).

6.3.6 Summary document review Brunnshög

From the planning documents and the interview it appears that the planners in Brunnshög early identified car usage as a problem and created measures that will decrease usage of cars in the area. A clear goal to reduce cars and at the same time increase walking, cycling and the use of public transport has been created in form of the one third goal that both the municipality and the developers incorporate in their work. The new tram seems to be of big importance as well, to give Brunnshög a good sustainable travel connection to the rest of Lund for easy sustainable commuting. This together with making it more attractive to walk or cycle by offering a safe appealing environment and prioritisation over cars shall encourage the citizens to travel more sustainably. To decrease car usage even more, Brunnshög is
proposed to also have a heavily regulated parking standard where parking will be directed to the outskirts of the area, leaving the inner districts to pedestrians, cyclists and commuters. However, according to the planning documents, cars shall be allowed to drive and shortly stop in the inner districts, there shall also be parking for the disabled here.

Within Brunnshög the aim to travel sustainable seems to be high but the documents also account for contradictory planning measures due to the consequences of developing such a sizable new city district. Due to the development, the number of cars in the area are predicted to increase, leading to the need for infrastructure improvements with several new connections to the adjacent motorway E22. The motorway is already under a lot of pressure today, whereby a widening of the lanes also is planned for. Another new infrastructural connection is the proposed passage from Brunnshög to nearby Norra fäladen which besides pedestrians and cyclists will also accommodate cars.

When reducing cars, their accessibility is diminished and the accessibility for unprotected road users are hopefully increased. The documents account for how accessibility for the disabled will be catered for by following the statutory demands of PBL and the policies in BBR that regulate rights for this group. The planning documents also clearly states how children's perspective will be accounted for by creating safe paths, good connections, closeness to schools and prioritisation over motor-driven traffic. With the aim of reducing cars, in the planning documents there is however almost no consideration or reflection for what effects this will have on other vulnerable groups in society that might be dependent on their cars, like elderly people.

6.4. Analysis of Brunnshög

In this chapter we will present our analysis which relates the empirical data collected from our document study and interviews towards our theoretical frame as well as previous research. The analysis is organised in four subchapters which are guided by our theoretical framework.

6.4.1 Developing Brunnshög sustainably

In the light of sustainable development, Brunnshög can be seen as a great example of a development in transition towards a sustainable city. Although sustainable development can be vague, by looking at all the measures taken to reduce car dependencies, a notion of sustainable development can be analysed as sustainable development is heavily connected to
the transportation system. By building and planning for a system that is not car dependent, the project could signify important progress towards sustainability.

The Brunnshög project entails the ambitious one-third goal. By planning for sustainable transportation, an element of all three sustainability pillars can be achieved when compared to areas that develop with car dependencies as car centric-planning impacts environmental, social and economical sustainability. Brunnshög’s planning for mixed-use and dense development around transit and catering the urban environment for pedestrians and cyclists has the potential of greatly reducing the need for the car. They have also taken many measures to reduce the need for private cars both within and to the area, and as Buehler et al. (2017) explains by having a combination of many measures a reduction of car dependencies can be achieved, thus a sustainable development is occurring.

However, identifying whether this project is planning for sustainability or not is a difficult task, as sustainable development in itself is an ambiguous concept and hard to measure. The Brunnshög development has many sustainable transport planning considerations which could put it as highly sustainable in the scale of sustainability. But there are some dilemmas to the project and when defining it as a sustainable development, we have discovered parts that contradict a sustainable development, namely development that could stimulate car usage. For one, there is the dilemma around the widening of E22 which challenges the sustainable development agenda due to the contradiction that between building an area in the name of sustainability and then having to widen a motorway to handle the traffic from said sustainable area which according to Schiller and Kenwrothy (2017, p.52) promotes car traffic.

Another inconsistency is the potential passage between Brunnshög and Norra Fäladen that would cater to cars, pedestrians and cyclists simultaneously. The contradictory part is not the passage itself but the fact that the municipality plans to give cars a short cut there, instead of just allowing cyclists and pedestrians, which would have made it an incentive to walk or cycle instead of driving the longer way. As Holden (2020, p.2) has highlighted, for sustainable mobility, which Brunnshög claims to be aiming for, all aspects of sustainable development must be considered. The municipality, by allowing car use in this passage, risks counteracting their work towards more sustainable mobility by planning for a development that still to some extent caters to the needs of cars. Lund’s traffic planner agreed with us about the contradiction around this passage but also said that this development is just a suggestion at this point in time. From his point of view the passage could just as well be for cyclists and pedestrians only (personal communication, April 21, 2022). However, as our review of the results has
shown, while car reducing measures and environmental aims have been key in the planning around Brunnshög, car-friendly measures still emerge, prompting the question whether this project can be marketed as sustainable.

6.4.2 Brunnshög: two-thirds sustainable mobility and one third not?

Brunnshög has planned for many measures that fit into the frame of sustainable mobility. Everything from the one third goal to car-pooling are measures taken towards sustainable mobility to reduce privatised car usage. Sustainable mobility implicates a new form of mobility that, through different measures, departs from what Schiller and Kenworthy (2017, p.13) call the hypermobility typically provided by cars. For Brunnshög the risk of an elevated car usage is high, due to the area’s close location to E22. With the two new exits and entrances that the plans foresee, and with the widened lanes on E22, the municipality faces the risk of facilitating hypermobility instead of diminishing it, something which does not line up with the notion of sustainable mobility.

According to Lund’s traffic planner, one aspect to widen E22 is because it will otherwise create dangerous situations. At the same time the municipality is torn between their own visions of more sustainable transport modes in line with sustainable mobility and the will of Trafikverket

“One should not develop more infrastructure until it is really, really necessary in order to avoid accidents, then it becomes a question about traffic safety and not passability. Here it might be that we at the municipality see it differently than Trafikverket who have the assignment to keep their roads passable” (personal communication, April 21, 2022).

Here it seems like Lund municipality might have another vision for E22 and possibly other roads as well, a vision that might strive more towards sustainable mobility and less car usage which collides with the vision of Trafikverket who aims for passable roads. The different wills between these two organisations, and probably between other municipalities and Trafikverket as well, might be a hurdle in trying to achieve a more sustainable mobility in places where The Swedish Transport Administration sees a road that needs efficiency improvements.

Aside from this dilemma, the question of widening E22 still remains. With the aspect of traffic safety, it is not hard to understand why there are plans of widening E22, even if it
seems contradictory. At first, we viewed this plan as very contradictory, something that changed partly after the interview and conversation we had with Lund’s traffic planner about traffic safety. The widening of E22 does however still seem partly contradictory and it does not follow the sustainable ideal for Brunnhög. One thing that could have made it more forgiving in relation to sustainable mobility would have been if the widening was done to some extent to promote bus-driven traffic, in line with what Hrelja (2018) calls making modes like walking, biking and public transport more attractive (p.13-14). The widening instead could have planned to give buses their own separate lanes which would exclude them from congestion. If this was planned instead it would show Trafikverkets and the municipality's desire to encourage and promote sustainability mobility. It would then be in line with what Holden et al. (2017, p.2) describe for sustainable development as it caters transport needs, transport justices and environmental transport limits. It would also push Brunnhög towards a more sustainable mobility for commuters, making it easier and more attractive for the residents to travel between Malmö and Lund by bus. When asked about separate bus lanes in the interview, Lund’s traffic planner said that there were no such plans for E22 that he knew of (personal communication, April 21, 2022) and nor could we find any in the planning documents or online.

6.4.3 Urban fabrics: a symbiosis of city features?

To get a better understanding of how Brunnhög is planned concerning transport, we looked at the different transport modes and city-features of Brunnhög based on Newman and Kenworthys (2015, p.106) concept of urban fabrics. Through this we can establish that the inner-city area of Brunnhög consists of walking and transit fabrics but with some allowance for an automobile fabric. The walking fabric can be identified for example through plans that will build in a pedestrian, promoting way which includes for example the dense, attractive environment, with narrow streets and street furniture.

Planning with a combination of pedestrians and cars does not have to have negative impacts, transport modes can work in symbiosis and the fabrics can overlap if it does not occur at the cost of the pedestrian urban fabric (Newman et al., 2016, p.438), which seems to be the aim for Brunnhög. This is achieved because in Brunnhög the car is discouraged from being in the central areas, and is instead ‘banished’ to the outskirts of the district, encouraged through parking garages and clear connections to the surrounding road networks. The allowance of the car along the commerce street in the pedestrian fabric could cause risk for domination, but documents show plans for limited parking spaces, slow speeds and narrow roads which can
instead lead to a symbiosis between the different layers so that sustainable modes can be maintained.

However, there are risks with Brunnshög and car dominance. When looking at the arterial roads surrounding Brunnshög, which will cater to the traffic in the area, together with the widening of E22, it creates an automobile fabric which risks overpowering the other two fabrics. Because all cars in the area are directed to the arterial roads, Brunnshög then risks being confined and surrounded by a heavily trafficked automobile fabric. If the plans change and give way for more cars in central locations, car usage will be encouraged and transit and walking fabrics risk being overtaken. Maybe this will not be the case as Brunnshög has planned for many different measures to increase walking, cycling and transit in the area and hopefully these are strong enough that enough people continue to use these modes despite what fabric is developed in the surrounding area.

6.4.4 Transport justice for whom?

As described by Lucas (2012) in the theoretical framework, previous transport planning has been the cause of unequal access and social exclusion. Due to this, transport justice must be of great importance when planning new developments to assure that new barriers and limits do not occur for various groups (p.106). When examining the planning documents for Brunnshög and as presented in our section about accessibility, disabled people seem to be well thought of in line with the demands in PBA and BPA acts. The documents account for various measures that will be taken to provide disabled with access to homes, amenities and other important service points in areas where the municipality has restricted parking for other citizens (Lunds kommun, 2013A, p. 68; Lunds kommun, 2015, p.47; Lunds kommun 2016, p.28-29). The planners are of course obliged by the demands in PBA and BPA to provide the possibilities for the disabled to stay or park within reasonable distances, which ensures that this group of people do not become socially excluded due to unjust transport planning (Lucas, 2012, p.108). Both PBA and BPA regulate to which extent municipalities must cater to the needs of disabled people, making it harder to exclude them intentionally or accidentally from various planning aspects (Boverket, 2021).

Lunds municipality also seems to make an effort to cater the needs of children in Brunnshög. By taking children's travel-perspective into consideration, the municipality gives children equal rights to the city-space, ensuring access and transport related inclusion without the children being dependent on their family’s possibilities to own a car. This is in line with Gösslings (2016) definition of what transport justice is: “achievement of greater equality or
the abolishment of injustices” (p.2). Children’s mobility is proposed to be given prioritisation over cars, ensuring them safe accessibility to and from various activities and good possibilities to ride the tram, ensuring their connection with activities or friends in other parts of the city (Lunds kommun, 2013A, p.30; Lunds kommun, 2012B, p.72). Lucas (2012, p.108) mentions different features that contribute to social exclusion and that need to be overcome when creating just transportation possibilities. The municipality, by taking these actions towards prioritising mobility of children, seems to be putting in effort to avoid exclusionary features, to the extent that is possible for them. For instance, the municipality would overcome ‘geographical exclusion’ and ‘fear-based exclusion’ if they were to follow their proposed measures. On the other hand, travel cost exclusion might be harder for the municipality to avoid since it is mainly Skånetrafiken that decides the ticket-prices and not the municipality (Skånetrafiken, n.d). However the municipality might be able to affect the ticket prices to some extent, for example citizens registered to live in Lund who are over the age of 75 nowadays get free public transport within the municipality after a decision made by the city council (Lunds kommun, 2022).

Another group that might get affected by reducing cars are the elderly but this group does not seem to have been given much extra thought. As presented in the accessibility results, the planning documents just vaguely discuss how the elderly will be catered for in Brunnshög and they do not declare much about how the shift from cars to sustainable modes of transport will affect this group. We used the interview to discover more about this phenomenon by asking Lund’s traffic planner if planning for more sustainable transport and less cars could be a factor that limits opportunities for less mobile groups.

“It can definitely be a risk, there is a risk when one should reduce cars that these groups will be affected but we can also enable temporary stays and parking next to urban services, together with an adequate street environment and such things” (personal communication, April 21, 2022).

However, in the interview he also mentions how the only statutory parking the municipality is required to build in close quarters to entries and services are for people with disability permits, the rest of the residents are referred to the parking garages in the outskirts of Brunnshög. Due to this, less mobile elderly people without a disability permit can only use these enabling measures to temporarily stay but not park in the inner-city area, hence they need to be able to walk longer distances.
To sort out if Lund municipality had given less mobile groups, like the elderly, any deeper thought we also asked Lund’s traffic planner if there had been any extra analysis of the planning proposals done on less mobile groups behalf. This could have given the municipality the point of view from groups with a harder time adapting to sustainable transport, something that seems important in reassuring transport justice for everyone.

“No not what I know actually, we probably have not done that, but I know there is a council for disabled which are very active and review plans occasionally [...] but to my knowledge we have not made any analysis on our own" (Personal communication, April 21, 2022).

However, once again, this external analysis only applies to the disabled points of view, thus no extra consideration for the elderly has been done.

When promoting sustainable mobility by switching from cars to walking, cycling or public transport the issue with transport justice must also be looked at in a reversed way, what happens to those in great need of cars with bodies that do not fit the functional body norm. For instance, all sustainable modes of transport are not suitable for elderly due to barriers and many complicated elements to keep track of (Fatima et al., 2020, p.5). It is also a question of bodily function as Pereira et al. (2020, p. 176) discusses that if people want to use cycling as a daily transport mode it requires a certain level of health-standard which everybody does not have. By switching to sustainable transport modes to get rid of what Lucas (2012, p.106) calls unequal access to amenities, services and opportunities a new kind of unequal access and exclusion might be created where less mobile citizens get excluded due to cities reducing cars, thus making it harder for these groups to travel.

6.4.5 Summary analysis Brunnshög

The material from our document review together with the interview has been analysed from our five theories point of view. Looked at from a notion of sustainability, the planners seem to have worked hard to make Brunnshög a district where sustainability is the norm. By having a highly set goal to build an area not dependent on cars and work extensively with promoting more sustainable modes of transport, Brunnshög goes to great lengths in their effort to develop a more sustainable city. However, despite these great efforts to achieve sustainability there are also inconsistencies that emerged from the planning documents. For one thing there are plans to widen the nearby motorway E22 to handle the traffic from Brunnshög, there are also plans of building more exits and entries to E22 whereof Brunnshög would get two,
something that creates easy access by car. Another inconsistency is that when planning new connections to nearby neighbourhoods these could also accommodate cars instead of just pedestrians and cyclists, something that seems contradictory and not in line with a sustainable development or sustainable mobility.

Looked at from an urban fabrics point of view, Brunnhög has created a city district with a high focus on the walking and transit urban fabric which is mostly concentrated to the areas inner sections where the goal is to minimise car usage. However, there is also the risk of Brunnhög being confined by an automobile fabric with larger arterial roads as it is cut off from the rest of Lund by E22 and the traffic and parking in Brunnhög is referred to main roads in the outskirts of the area, creating a ambient barrier of large roads.

The planning document paints a clear picture of the measures done to include people with a disability in Brunnhög. By ensuring this group parking and access to homes and important services the municipality avoids social exclusion for residents who will have a much harder time to travel by sustainable modes of transport. Children's perspective is also well catered for in Brunnhög with good, safe access to schools, activities and the tram. Their movement is also not dependent on cars or parents due to the well connected network of walking- and cycling paths throughout the area which gives the children equal right to the city-space and decreases the risk of being socially excluded. For the elderly on the other hand there is a risk of exclusion and unjust transport as this group and the effects reducing cars can have on them seems to have been given very little thought in the planning. Due to the elderly maybe having a harder time adapting to sustainable mobility, some consideration for their dependence on cars would be good but this does not seem to have been done. A switch from cars to sustainable mobility is a big change and this is a group that risks being excluded as they might not have the bodily function or ability to use more sustainable modes of transport.

7. Stationsstaden

7.1 Stationsstaden’s history and development: from industry to soft city

In the rural town of Kävlinge, the development of Stationsstaden is in full swing. Kävlinge is a small town, located in the eastern region of Skåne, Sweden (see fig. 1). The municipality of Kävlinge consists of ten urban areas, of which the urban area Kävlinge is the largest with
close to 10,000 inhabitants. The whole municipality has a total of 32,341 inhabitants. (Kävlinge kommun, 2021; Kävlinge kommun, 2022A)

Stationsstaden is located in the centre of Kävlinge and was previously a slaughterhouse which closed down in 2008 (see fig. 10 & 11). The property was bought by the private building company Granitor in 2006 and in April 2008, the decision to create Stationstaden was made, and planning began (Schlyter, 2008, p. 6-10; Kävlinge kommun, n.d).

![Map of Kävlinge urban area and Stationstaden](image)

Figure 10. Map showing the urban area Kävlinge and the location of Stationstaden. Created by Louise Andersson

Figure 11. Detailed map of Stationstaden (Kävlinge kommun, 2010-2015, p.5)

### 7.2 Aim and visions

Stationsstaden is seen as an opportunity for Kävlinge municipality to develop the city through densification. This is also one of the municipality’s future goals because reusing already established ground protects the fertile agricultural land from exploitation. By concentrating the development to the city-core, the new city district develops and increases community service, which is suggested to benefit all inhabitants (Kävlinge kommun, 2010, p. 31, 127).

Kävlinge municipality and Granitor are the main developers of Stationstaden. Stationstaden is a development that has been promoted and marketed as a sustainable development (See
The new city district aims to become an area where the focus lies on life between the buildings. Stationsstaden shall become an attractive and inviting new city district with activities, meeting places and other unique qualities to promote residents' quality of life. The planning work is based on principles and visions from the research consultancy and urban design company *Gehl Architects*. Part of this vision is a concept named soft cities, which focuses on soft values like greenery and smooth transitions between in and outside and how these values can increase well-being. Stationsstaden will be permeated by the concept through a regard to environment, humans and relationships, which will create a green city district with architecture that is based on life, space and houses. (Kävlinge kommun, 2022B; Granitor, n.d-A; Granitor n.d-B)

![Collage showing sustainable marketing claims from various actors in Stationsstaden.](image)

*Figure 12. Collage showing sustainable marketing claims from various actors in Stationsstaden.*

*This makes this project interesting, to see how they account for the car wälst still trying to be sustainable. Created by Louise Andersson. References: see section 9.*

Even though it is Kävlinge municipality and *Granitor* that are the main developers, they have opened up for a more versatile housing supply by selling building rights to other companies which lead to many different forms of housing in the area (Granitor, n.d-A). About 3200 people will be able to live in Stationsstaden when the planned 1300 homes are finished. With
its proximity to the railway, the city of Kävlinge is well connected by train to other larger cities such as Lund, Malmö, Copenhagen, Helsingborg and Landskrona. This makes for an excellent train-commuting possibility, not only for the residents in Kävlinge but also the residents in Stationsstaden (Kävlinge kommun, 2022B). The development of the area is done in stages and is expected to be completed around 2028 (Granitor n.d-A).

Kävlinge municipality is quite car dependent. According to Gehl architects (2008, p. 30, 32) many of the municipality’s residents have a car dependent lifestyle and due to car-accessible suburban commercial districts and insufficient public transport the car dependency is expected to continue, especially in the rural areas. Despite the work in the current comprehensive plan 2010-2025, which guides the long-term development of municipalities physical environment, to decrease car dependency, the new 2040 comprehensive plan (Kävlinge kommun, 2022C, p.44-45) states that the municipality’s high car dependency will not be changed by the year 2040. This is mostly due to extensive development with a sharp increase in population. Today, 68 percent of Kävlinge residents' journeys are made by cars, for comparison with Skåne county where the number is 53 percent. The municipality also has a lower proportion of trips made by walking or cycling compared with the whole of Skåne County: 15 percent for Kävlinge compared to 25.5 percent for Skåne (Kävlinge kommun, 2022C, p. 8). As the car is such a norm in Kävlinge, the municipality has a long road ahead of them if they are wanting to change this.

7.3 Document Review: Identifying planning- and policy aspects in Stationsstaden

This chapter will present the results from our document analysis of our empirical material as well as a selection of material from the interview with Kävlinge’s traffic planner, a street engineer (April 25, 2022) and Granitor’s property development manager (April, 27, 2022) to create a better understanding of certain aspects that occurred in the planning documents. The presentation of results is done to understand and account for the measures, challenges, and contradictions we found within the planning documents. The material from this review will be analysed further down in the next chapter guided by our five theories.

7.3.1 Traffic planning within and around Stationsstaden

In the planning around Stationsstaden, Gehl Architects (2011, p.9) who have drawn up the main guidelines for the development, claim to promote the development towards sustainable transport solutions. Every connection in Stationsstaden will be designed as mixed streets which allows for cars. Gehl Architects (2008, p.92) argues that the amount of traffic in
Stationsstaden will not be high to the extent that it creates disturbance, instead they see it as a positive feature in the city environment. The speed and conditions for the motor driven traffic will be regulated by working with different types of street-connections and environments; this shall protect the unprotected road-users at the same time as it offers multiple movement opportunities, options and variation. In almost the whole area of Stationsstaden the planned speed will be set to around 30 km/h (Gehl Architects, 2008, p.92).

The area around Karl-Johans Road (see fig. 13) will be surrounded by activities like commerce, workplaces and functions which will cause motor driven traffic and are in need of various kinds of delivery. This road is also the main supply road for traffic headed towards neighbourhoods in northern parts of Kävlinge. Due to these two facts, this road will be designed to be the natural choice for car users, as to prevent them from driving through the rest of Stationsstaden. Thereby this road will be catered to the needs of car users, however the relationship to pedestrians and cyclists are still important, thus these aspects need to be considered to not create a barrier (Gehl Architects, 2011, p.22). The entrance to the north of Västra Långgatan, is also to be made as accessible as possible for cars to prevent them from driving through the inner areas of Stationsstaden (Gehl Architects, 2011, p.20). To tie Stationsstaden in a good way with the rest of Kävlinge, continuous main connections should be built throughout the area which together with the other fine meshed road network shall create cohesion. All traffic modes shall have passability on streets and roads, for the most part on unprotected road users' behalf (Gehl Architects, 2008, p.56).
The property that will become the new citizens' house in the middle of Stationsstaden, which will contain the city library and municipal employees' offices among other things, will be easily accessible by cars through several new local streets as well as two new connections to larger roads in the outskirts of Stationsstaden. The detailed development plan for the citizens' house has replaced a part of the original detailed development plan that applies to the rest of Stationsstaden. In this current plan for the citizens' house, it is estimated that more traffic will occur of both freight and passenger type compared with the suggestion in the original plan (Kävlinge kommun, 2018A, p. 4-15).

7.3.2 Making sustainable modes of transport attractive

**Walking**

Despite the quite extensive planning for cars, Stationsstaden also encourages sustainable transport modes. People shall be encouraged to walk and cycle to create possibilities for social interactions and life in the area; this is achieved through shorter distances and a network of safe, attractive paths (Gehl Architects, 2011, p.8). Streets outside of Stationsstaden shall have good connections to the area and prioritise pedestrians and cyclists, as well as containing points of interest to invite people in (Gehl Architects, 2011, p.16; Gehl Architects, 2008, p.58).

The street network will have a hierarchical system where the majority of the streets are local streets, here pedestrians are prioritised. There will also be some main streets, collector roads and small alleys (See fig.14) (Gehl Architects, 2011, p.16).

To attract pedestrians, as the human horizontal view extends further than the vertical view, extra focus should be placed on the building-facades, they should contain variation, and be lively (Gehl Architects, 2008, p.90). To cater the needs of unprotected road users, walking
zones will also be developed, here cars drive at walking speeds and have possibilities to stop shortly if needed. The street structure and design will also keep the speed down (Gehl Architects, 2011, p.28).

Cycling
To promote cycling, good access to bicycle lanes is suggested to be developed together with easily accessible bicycle parking which shall be stable, accommodate for different bike forms and be placed close to key activities without affecting pedestrian views and mobility (Gehl Architects, 2011, p.16, 19, 60). Around the train station square, 200 bike parking spots should be available and with the possibility to build 100 more to cater the needs of commuters. Bike parking will also be planned in direct connection to employment spaces, shops, services, and other points of interest (Gehl Architects, 2011, p.60, 62, 64-65).

Public transport
The majority of the planned area will be within a five-minute walk from the train station, and located close to the station are businesses, culture and services. The station and its proximity are intended to promote sustainable travel both locally and regionally (Gehl Architects, 2008, p.40) which together with short distances in combination with a mixture of activities, will decrease travel needs (Gehl Architects, 2008, p.46). Stationsstaden will contain mixed activities that will encourage cycling and walking, and the area will also contain a mixture of different functions, housing forms and types according to the planning concept of Transit Oriented Development (TOD) (Hrelja et al., 2020, p.12; Gehl architects, 2011, p.70).

7.3.3 Physical and softer measures
Stationsstaden has worked quite extensively with parking, the planning documents contain ideas of both curb and street parking, underground parking, parking garages, smaller parking lots, parking for commerce, commuter parking and single-family homes private property parking (Kävlinge kommun, 2008B, p.5; Gehl Architects, 2011, p.64-65; Kävlinge kommun, 2010-2015, p.12). The major guideline seems to be that when planning for and building parking, the developers’ solutions must not dominate the local’s residential urban environment (Kävlinge kommun, 2008B, p.5). For instance, if street parking occurs it should be intertwined with vegetation and other activities to further reduce this visual dominance (Kävlinge kommun, 2008B, p.5). The planned street parking will also have different material from the street, to keep a visually narrow street to minimise speeds (Gehl Architects, 2011, p.19). In the question of underground parking, Kävlinge municipality does not plan to build
any due to the cost, instead they consider parking garages as a good alternative which will maintain a dense development where the car does not dominate the area (Kävlinge kommun, 2008B, p.5).

The housing design will result in the building of three big blocks (See fig.15) that each will consist of smaller housing blocks tied together with streets and open spaces. Each big block shall manage their own parking needs, so they do not overload other parking areas (Gehl Architects, 2008, p.94) The garages shall be placed in the edge of every large block (Gehl Architects, 2008, p.96), with entries and exits that shall does not disrupt sidewalks and ensure priority to pedestrians (Gehl Architects, 2011, p.91; Gehl Architects, 2008, p.96). Carpools, bike parking and bike rentals should also be incorporated here (Gehl Architects, 2011, p.91).

Gehl architects (2011, p.64) states that Stationsstaden must provide enough parking for the car users in the area to not put strain on the parking in the rest of Kävlinge’s districts.

At the same time, the parking in Stationsstaden shall not be used as a solution to solve any parking issues in Kävlinge’s other districts. A recent study from the district west of Kävlinge train station discusses the needs of parking fees due to the extensive building in Stationsstaden. The study recommends that parking in this district should contain a parking fee and the reason for this is to prevent residents of Stationsstaden to use these spaces rather than them having to park in parking garages and pay the cost there (Iversen & Hörnquist, 2021, p2). This should not be an unexpected request as around Stationsstaden there is a lot of free parking.

In Stationsstaden the vision for parking is to create a balanced situation by creating enough parking to make the area attractive and accessible but also create limitations to not waste the advantage of having the train station so close by. The train station features one of the biggest
qualities in Stationsstaden with a great possibility to offer sustainable transport modes as opposed to cars. To ensure attractive parking for train-commuters, it has been estimated that 175 parking spaces are needed on Stationsstaden’s side of the train station (Gehl architects, 2008, p.112). According to Granitor’s Property development manager, good and extensive commuter parking was very important for the municipality in the negotiations with Granitor about the land distribution (Personal communication, April 27, 2022).

In the detailed development plan (Kävlinge kommun, 2010-2015, p.9) for almost all of Stationsstaden there is a maximum walking distance stated from parking spaces to different activities.
- From parking spaces to dwellings: 200 metres. This is for both residents and visitors.
- For visitors to functions: 100-200 metres
- For commuters: 400 metres.
This also comes with regulations for parking at various functions in Stationsstaden which allow for more parking in commerce areas as well as offices and sport centres (Kävlinge kommun, 2010-2015, p.9).

7.3.4 Access to, from and within Stationsstaden

The planning documentation around Stationsstaden does not mention accessibility extensively. We found only little pieces and standard phrases, such as how the streets and alleys should be available in accordance with statutory demands for people with disabilities and how accessibility elements should be well integrated in the design of the new district and that the ground cover needs to be in accordance with the law (Gehl architects, 2011, p.18,48). However, the east-western path will be designed with everyone's accessibility in focus and certain consideration for the needs of children and elderly will be taken (Kävlinge kommun, 2008, p.10). Children’s needs are also stated to come first, thus future traffic is allowed but on children's terms (Gehl architects, 2008, p.68). Special bicycle lanes will be built along Stationsstaden’s main roads to ensure a safe passage for children cycling to school. The rest of the bicycle traffic will be referred to the ordinary streets where it will be integrated with motor driven traffic (Gehl Architects, 2011, p.16). The main roads will also be designed to create safe crossovers, drop off- and pick-up zones (Gehl Architects, 2011, p.20).

To regulate the parking and ensure that less mobile people will have good access to the city, the municipality has decided that not just one percent, but rather two to three percent, of all the municipalities parking spaces shall be adapted to suit people with disabilities. These
spaces shall be in close quarters with entrances and the distance between the parking space and an entry shall be less than 25m and without obstacles. These spaces shall also be reserved for people with a disability permission (Kävlinge kommun, 2014, p.11).

7.3.5 Summary document review Stationsstaden

For Stationsstaden the planning documents and interviews paint a picture of a somewhat scattered new development in terms of reducing cars and striving towards sustainable mobility. Measures to increase walking, cycling and public transport seem to be taken by making the street environment more attractive, lowering the speed of cars, offering good bicycle parking and connections for easy walking and cycling. At the same time the planning also to some extent caters to the needs of car users by making the roads mixed-use and letting cars have access everywhere there is passability. Some roads are also suggested to be more catered to cars than pedestrians and cyclists as these roads act as thoroughfares to other parts of Kävlinge, one of these roads also coincides with Stationsstadens trade area making it easy for citizens to use their cars for a shopping trip. Parking is mostly referred to parking garages but the documents also account for other various suggestions like street parking, small parking lots and private parking as well as bigger parking lots for the commerce in the trade-area. Parking seems to be allowed as long as it is aesthetically pleasing, it shall be mixed in with vegetation and not overpower the streets. The planning documents also state a maximum distance from parking to various functions like housing, commerce, offices, commuting etc, where the shortest distance is 100 metres and the longest 400 metres.

The planning documentation does not extensively account for the accessibility aspect, it is stated that statutory demands for the disabled will be followed to make streets available, reserved disability parking within 25 metres of entries shall be created and accessibility elements need to be well integrated. For children some consideration is taken, specially to create good paths for cycling to school. When it comes to other vulnerable groups that might experience negative effects of reducing cars in cities, like the elderly, not much is mentioned in the documents and no special reflection seems to have been made concerning how these citizens will be affected by a switch from cars to sustainable modes of transport.
7.4 Analysis of Stationsstaden

7.4.1 Developing Stationsstaden sustainably

Throughout the documents, cars do not seem to be given a negative light in terms of its environmental effects, and it is these environmental effects that directly link car planning with (un)sustainable development. Rather, the car in the planning documents is described adversely in terms of the visual and barrier effects the car infrastructure has on the urban environment. The car traffic itself, as stated by Gehl Architects (2008 p.92), “will not be so much [...] and can be seen as a positive addition to the urban environment”. To limit the visual impression of the car infrastructure Kävlinge municipality (2008B) outlined that when planning for parking, the developer’s solutions must not dominate the local’s residential urban environment, thus street-parking and large parking areas should be avoided to avoid visual dominance. If these parkings are needed they need to be intertwined with vegetation and there is a maximum of two street parkings in a row allowed. Furthermore, the parking garages and facades must not impact the urban environment and the entrances and exits also need extra consideration (p.5).

There are several contradictory planning measures we established that encourage car usage and lead to a less sustainable development: All the local roads in the area are mixed streets allowing for cars, the car accessibility of Karl Johans road and catering for large car numbers throughout the area, with parking garages and on street parking. One can then consider that the car is well catered for, rather than restricted, but only as long as its infrastructure is aesthetically pleasing. Through our analysis one can see this as contradictory in terms of sustainable development, however, sustainable development contains three pillars. Although we did not analyse the cases from a social sustainability aspect, this aspect is strongly tied to the urban environment. Granitor’s Property development manager states that “Gehl Architects […] has this [social sustainability] as one of their foundations in their work, putting the human in focus in urban developments as humans are the ones that will live and work in our properties” (Personal communication, April 27, 2022). One could then argue that if a pedestrian friendly infrastructure is developed, even if it remains accessible by car, it can be seen as a form of sustainable development, as it is built in a way that promotes and satisfies requirements of the social sustainability pillar.

But this is not the sustainable development aspect our study aims to analyse in these cases, we like Granitor’s Property development manager also see the car as a “the villain” in sustainable urban development (Personal communication, April 27, 2022). There were two identified
challenges Stationsstadens development has faced when trying to plan for a reduction of cars. The first, which we became aware of in the interview with Kävlinge’s municipal planners, is the politicians. Kävlinge’s traffic planner explains how politicians are one of the major challenges they have had within the municipality when trying to promote sustainable transportation measures. The planners want to do more than the politicians allow and as they said, “if the politicians do not want it, then it’s not worth planning. It is the politicians that decide and that’s how it is”. They elaborated on an example for this where they wanted to change the parking standards and parking prices, but the politicians rejected this (Personal communication, April 25, 2022). This is nothing new to Sweden, according to Boverket (2019) sustainable development often lacks anchorage and integration in multiple areas of politics. Another major challenge, as identified by Granitor’s Property development manager, are the customers. Being a private company, for them it is important that the development is economically feasible which involves what will sell. He explained that there is a dilemma within developments, between a vision of wanting to develop more sustainably but the customers wanting their cars to be accommodated for. According to Granitor, they would have preferred to develop apartments without parking, but people are not willing to pay for apartments if there is not the possibility for car parking. This affects everyone in the city as everyone finances the parking spots as parking fees alone do not cover all the costs of parking (Personal communication, April 27, 2022).

At the same time however maybe they could have pushed the boundaries and dared to do more, when asked about if Kävlinge’s rural, car dependent location was a challenge for Stationsstaden Kävlinge’s traffic planner answered “No. Kävlinge is a car municipality, but the ones who move to Stationsstaden could be others, not just Kävlinge-dwellers” but yet again they followed this with the need for having the politicians behind them because, otherwise it is not worth planning such developments (Personal communication, April 25, 2022). Maybe a more sustainable development is just a matter of time, Granitor’s Property development manager explains, in relation to Karl-Johans road, that maybe if the plans were developed now they would have dared to do things differently, that what was planned as sustainable then is not as sustainable as it could be now. But now it is difficult to change all the plans. Kävlinge’s street engineer also stated that “the car has a smaller role now [in sustainable cities] than it did ten years ago” (Personal communication, April 25, 2022).
7.4.2 An attempt to achieve sustainable mobility: A small step for Stationsstaden, a giant leap for Kävlinge

Stationsstadens planning for sustainable mobility can be analysed from the perspectives of their efforts to try to promote and encourage sustainable transportation modes over motorised vehicle choices. When analysing all the transport plans there are strong measures to increase other modes, however the car is still well catered for in the development.

The planners have worked well with keeping sustainable mobility within the area; by developing a mixed-use, dense development it will encourage residents to walk and cycle throughout the area to access different urban activities. Building good infrastructure for these modes, giving them priority in the area and making it attractive for them further encourages this, as the Kävlinge Street engineer said “if you give cycling possibilities then cyclists will automatically increase, it should be easy. It is so easy to plan for the car but if you think differently, you would get significantly more people using the bike” (Personal communication, April 25, 2022). However, there is a contradictory part here regarding the extensive car infrastructure which is planned throughout the area. Kävlinge traffic planner and street engineer stated that in regards to sustainable transports for the whole municipality

“we think it [sustainable transport] should have been done more, put in more money and time on pedestrian- and bicycle paths than we do today” and for Stationsstaden “Even in the Stationarea, if one is to look at that, there is barely a single bike path, there is like one path that goes through but otherwise it is hard, like in the alleys and such it is not meant to be. But when the detailed development plan and such was made, it has been many years since then, and one did not have that kind of thinking either, it is easy for us to sit now and think about this, but it is hard to change now in retrospect.” (Personal communications, April 25, 2022).

An explanation to the car friendly planning might be found in the interview with Granitor’s Property development manager who argues that in Kävlinge, cars are the norm, residents expect free parking in close quarters to amenities and to have two cars on your driveway goes without saying. (Personal communication, April 27, 2022). Due to the cars deep roots in Kävlinge, planning in accordance with sustainability might just not be a priority, hence even in developments like Stationsstaden which claims to be aiming for more sustainable mobility misses can be made due to a too slow process of changing the norm from cars to sustainable mobility. Banister (2008, p.73) argues that when achieving sustainable mobility, one must
regard the links between transport and land-use, so a sustainable transportation is a part in the development, something that does not seem to have been done to full extent in this project. *Granitor’s* property development manager pointed out during the interview that Kävlinge has a long way to go when it comes to reducing cars (Personal communication, April 27, 2022).

On the other hand, Kävlinges municipality needs to start somewhere in their work towards sustainable mobility, people’s mobility choices are hard to change overnight. As Newman and Kenworthy (2015, p.213) point out, having something to display as a pilot project is an important factor in change. For Kävlinge, Stationsstaden might be the start of a sustainable mobility, a new kind of planning that will hit bumps here and there but will lead to knowledge for future planning in the municipality. For instance, according to *Granitor’s* property development manager, one of the most effective measures to reduce cars is building within proximity to public transport stations, which is both promoting sustainable mobility and is appreciated by people. By planning around a public transport station, Kävlinge municipality also is planning according to the concept of Transit Oriented Development (TOD) where the closeness to the train together with dense, mixed-use development constitutes the basic foundation for a TOD (Hrelja et al., 2020, p.12). This station proximity has also been a major unique selling point (USP) for the dwellings that *Granitor* develops in the area (Personal communication, April 27, 2022).

As a contrast, Kävlinges traffic planner considered one of the most effective measures to be commuter parking, for him this was the number one measure to increase usage of sustainable transport (Personal Communication, April 25, 2022). The commuter parking encourages sustainable mobility for not only residents who live in Stationsstaden but also those from other areas. These commuter parking spots are of high importance, *Granitor’s* property manager explains that there was some conflict with the municipality about this as *Granitor* wanted to build parking for commerce and the municipality wanted commuter parking (Personal communication, April 27, 2022). Even if Stationsstaden caters the needs of cars, which is not sustainable, it could also be seen as first steps towards a more sustainable future since they are trying to encourage sustainable transport choices and focus the development around transit-related factors. Especially as *Granitor’s* states that Kävlinge does not have a history of working with sustainable transport.
7.4.3 Urban fabrics: a symbiosis of city features?

When analysing Stationsstaden from Newman and Kenworthy’s (2015, p.106) concept of urban fabrics several things are distinguishable. The municipality seems to have a rather split focus on different transport modes which results in what seems to be the effort of creating a possible symbiosis between the three urban fabrics: walking, transit and automobile. The planning documents present many features that are consistent with a walking urban fabric such as small alleys, narrow streets and good pedestrian paths, however they also present various measures for car allowance in the area, such as passability for cars everywhere, street parking and a wide street commerce area which is highly accessible by car. By looking at the kind of development done here and the location of Stationsstaden it also has features of the transit fabric.

The vision for symbiosis has its reasons but it also becomes questionable if it has a possibility to succeed. By allowing cars in the whole area instead of just some, how will it be ensured that the automobile fabric does not take over? Pedestrians are declared to be prioritised on the mixed streets but according to Kävlinges traffic planner and the street engineer, there are currently no physical measures planned that will hinder cars from driving too fast or take over the space:

“If problems occur [cars taking over the space] then we will have to work with physical measures but as it is today, the speed is not that high [...] it will not be possible, it is so narrow and there will come things in the environment as well [...] when people have moved in and the bikes start to appear I do not think someone wants to drive there.” (Personal communication, April 25, 2022).

Based on this, some of the streets seem to be able to maintain a symbiosis between the three urban fabrics as the people moving around on the streets by foot or bicycle might make driving unattractive and can thus maintain a strong pedestrian and transit fabric. At the same time Kävlinge’s traffic planner and street engineer also discussed how today's different accommodation for cars creates problems for planners because even if all modes of traffic are supposed to co-exist, it is difficult to make it work in reality. “On paper it is easy but in real life it works differently” (Personal communication, April 25. 2022). This dilemma is also mentioned by Newman et al. (2016) who argue that a symbiosis between fabrics is possible, only as long as the pedestrian fabric is not overpowered. A symbiosis between the three
fabrics can be seen in the relationship between them, how they co-exist side by side without one destroying the others (p.438).

Another problematic part to increase sustainable transportation is that some parts of Stationsstaden will act like thoroughfares to other parts of Kävlinge, thus these roads need to be more catered to cars, thereby creating an adamant automobile fabric. For instance, Karl Johans road is such a thoroughfare and it also fits the description of an automobile fabric with large parking, free standing buildings, building setbacks, and large roads among other things. This is problematic as allowing certain parts of the area to be automobile fabric designed creates a risk that car usage will remain high and dominate in other parts. Moreover, the maximum walking distance demand, set by the planners, which is a maximum of 200 metres from the parking spaces to housing also encourages car-usage, since it makes it pretty simple to reach your car. A way to have planned to discourage car use and strengthen the walking fabric would have been to have a large minimum distance to your car, thus establishing far distances to one's car which creates inconveniences. This decreases the risk that the walking and transit fabrics could be overtaken.

7.4.4 Transport justice for whom?

When analysing the planning around Stationstaden, very little is said about accessibility for less mobile groups. From the little pieces we found, most of what is accounted for touches upon the policy or statutory demands from BBA or PBA, something the municipality cannot avoid. Most accounted for is parking for the disabled, an important feature to ensure access to housing and other urban services in society. However, this is not something the municipality accounts for in any deeper way, nor do they account for in the planning documents, how the streets and alleys shall be adapted for the disabled. During the discussion around accessibility for less mobile groups in the interview, Granitor’s property development manager agreed there could be an inherent conflict with negative effects for less mobile groups when reducing cars. At the same time he argued that it is not these users that are critical to get rid of. It is the people that drive just for their own convenience that need to be targeted. For Granitor’s Property development manager it is also a question about how the policies and statutory demands can become aggravating in a development, it is all a question about balance. For the disabled for instance, the demand for reserved parking can create difficulties in planning, especially when apartment buildings get built without underground parking garages and the parking gets directed to external parking. Then the demand for parking within 25 metres of an entrance creates multiple reserved parking spots within 25 metres of every entrance and
depending on the area, many of them are often not being used. In this regard the law and demands become aggravating and create dilemmas in every detailed development plan (Personal communication, April 27, 2022). This can be seen as a challenge in the development of sustainable cities as more ground for parking is seized which then is not used, something that diminishes space for walking and cycle lanes, greenery, bike parking etc. In here lies an inherent dilemma, the right to accessible parking versus the actual usage and the value of the space for other functions. At the same time, these demands and requirements from a transport justice point of view are extremely important, and as Granitor’s property development manager himself explains, the traffic and parking from the disabled is not the one that is targeted when cities are trying to reduce cars. Thus from this perspective, sustainable cities can both reduce cars and still offer great accessibility for disabled people with a disability permit in line with the rules in PBA and BPA. As the accessibility requirements for disabled parking is not possible to ignore, it thereby makes the needs of disabled catered for in an unwavering way with continued access to cars for transport possibilities. For Stationsstaden this means that even if someone would want to reduce parking for the disabled they could not, thus avoiding what Lucas calls (2012) physical exclusion by lack of disabled facilities (p.108) and ensuring rights to the city and just transport for this group.

Parking aside, there is another interesting factor concerning accessibility and Stationsstaden; the factor of adapted streets and alleys. As presented in the results most of the streets shall be mixed streets with passability for all modes of transport, something that could complicate the access for the disabled trying to move around without a car. Regardless of if someone is trying to move around in a wheelchair or walker, it takes up space and moves with low speed, a factor that might not be great in an environment with narrow streets and cars wanting to come through. This could lead to the mixed streets being seen as what Lucas (2012, p.106) calls, barriers in urban environments, thus creating unequal access and hinder disabled people from being a part of daily life in society.

As little as the disabled are accounted for in the documents, the elderly are mentioned even less. Except for some paths with extra accessibility and consideration for the elderly, no extra thought seems to have been given to these groups. When examining this aspect, we tried to get an answer through our interviews to see if there had been any extra analysis done as to how groups like the elderly or disabled would be affected in this development, but according to Granitor’s property development manager, to what he knew, no such analysis had been done (Personal communication, April 27, 2022). On one hand, this could be due to the fact
that Stationsstaden seems to be pretty well accessible by car, the consideration for less mobile elderly maybe just was not needed. On the other hand, this is also debatable depending if the residential parking is strictly referred to parking garages, thus, to park here one has to be able to walk to some extent. From the documents it is not completely clear on how the parking situation for housing is going to be managed, we have found suggestions for parking garages as well as curb-parking and parking on private development district land. From our interview with Granitor’s Property development manager it seems like the long term parking will be referred to the parking garages (Personal communication, April 27, 2022), thus transport justice for elderly might be harder to achieve. This is because, in line with what Fatima et al. (2020, p.4-5) states, that the sustainable transport modes possibly create physical limits for this group. On the other hand, Kävlinges street engineer said, “To get people to stay in a place there has to be like parks and the right conditions, like when your old mother comes to visit there has to be a parking space for this person” (personal communication, April 25, 2022) which indicates some thoughts within the municipality that the planned parking situation with garages is not completely thought through.

From the perspective of the elderly there might also become problems with the mixed streets where all traffic shall co-exist. In a mixed road environment, there might be a lot going on at the same time, aspects to keep track of when moving around. To walk, but above all to use a bicycle in this environment, demands not only balance and bodily fitness (Pereira et al., 2017, p.176) but also a possibility to simultaneously handle rapidly changing factors which might not be the easiest thing to do for elderly people. Instead of mixed streets, a focus on more separate walking and biking lanes could have added better accessibility, for elderly as well as all other groups of society, to avoid fear-based exclusion due to the feeling of unsafe traffic environment (Lucas, 2012, p.108). In such lanes, sustainable transport modes could be used in a safer way, increasing possibilities for inclusion and travel related justice.

Children in Stationsstaden have been given some thought, mainly their safety. As presented in the results section a certain focus on safe bicycle lanes and access to schools are important in the planning but much more than that has not been accounted for regarding traffic related aspects. To ensure transport related justice for children, a higher focus on their ways of transport could have been accounted for, for instance Gössling (2016, p.2) argues that transport justice is tightly connected with fairness between the different participants in relation to the different burdens of risks one is exposed to. Most of the streets in Stationsstaden shall be mixed streets with passability for all traffic, so even cars. When
looking at the risk for children on these kinds of streets an argument of transport injustice can be made as children, due to erratic behaviour, are a lot more exposed to traffic, even in areas with low speed. By making cars allowed where there is passability, there will be fewer safe passages for children that would create opportunities to move freely. Lucas (2012, p.106) argues that if transport justice is not a key focus in planning, the planning instead gets focused around certain aspects, like cars, thus leading to the creation of barriers and physical limits.

7.4.5 Summary analysis Stationsstaden

The analysis of Stationsstaden has been conducted from the perspective of our five chosen theories. From a sustainable point of view it seems like cars’ deep roots in Kävlinge prevents the planners from taking really strong actions against cars, as the planning in Stationsstaden seems to cater the needs of the cars as long as it creates an aesthetically pretty picture. One reason for this that emerged from our interviews is the politicians in the municipality, even if the planners want to strive more towards sustainability and sustainable mobility they cannot if they do not have the political arena with them. Another reason is that the customers, who will live in such developments as Stationsstaden, require accommodation for their cars, thus the developers adapt themselves to this even if they would have preferred to develop their districts more sustainable.

Stationsstaden seems to be a scattered mix of different visions, when applying the concept of urban fabrics a pattern of mixed fabrics appear, where the planning tries to encourage sustainable transport modes like walking, cycling and public transport by developing mixed streets with low speed and building close to the train but at the same time cater for the car with passability everywhere, large parkings and highly accessible commerce by car. It can be possible to create a balanced relationship between these different fabrics but there is also the risk of the car fabric overpowering the others, leading to another car-centred city district. One problem seems to be that the planning for this area was made approximately ten years ago and the detailed development plan has locked in the notion of what sustainability was at the time in the municipality, and this is hard to change now in retrospect even if the municipality would want to.

In terms of accessibility and justice the Stationsstaden development does not exclude the disabled when it comes to parking, as the policy in BPA regulates how and where parking for the disabled shall be developed. Traffic from the disabled is also not the targeted goal when trying to reduce cars, thus there is no conflict between reducing cars in cities and at the same time providing sufficient parking for the disabled. Therefore this part creates inclusion instead
of exclusion for the disabled as they have possibilities to drive and park close to necessary amenities. The mixed streets on the other hand is a possible problem as these might become a barrier for less mobile people to try to move around in an environment with many components to keep track of as for the most part all travellers in Stationsstaden will share the streets regardless of their choice of transport. Here lies some risk for exclusion as this environment might be experienced as too risky to travel in.

For the elderly very little consideration seems to have been taken. Here we have a group who might be very dependent on their cars, lack fundamental bodily function needed for sustainable transport modes and who might experience barriers in the environment when cars or parking are being reduced but who cannot utilise the benefit of a disability permit to park. The question of how developing a new city district with more sustainable mobility and less cars or parking will affect such groups as the elderly does not seem to be given any extra consideration in the planning, thus the risk of exclusion is high.

8. Discussion and conclusion

8.1 Comparative discussion: Brunnshög and Stationsstaden

8.1.1 Tying back to the study’s aim

This study has been conducted to examine car dependencies and its implications in two new urban developments that claim to be sustainable, Brunnshög in Lund and Stationsstaden in Kävlinge. As car-centred planning brings negative consequences for both our environment and livability a shift and planning towards sustainable mobility is necessary. However, it also has to be done with caution and reflection as this transformation might cause negative effects for vulnerable groups, thus enabling and promoting, instead of solving, transport injustice. To examine the aspects of how cars have been incorporated into the two chosen projects, three questions were formulated that let us examine if and how the planners in the projects worked to reduce cars, if there were any challenges or inconsistencies, which implications occurred and what considerations this was given. Through this we could critically examine how planners handle and see cars in new developments. It also gave us insights into various aspects that have to be considered when planners try to transform a development from car dependent to sustainable.
8.1.2 Sustainability

Our study of Brunnshög and Stationsstaden has revealed many different perspectives. Comparing their efforts from a sustainable development point of view, we identified that their overarching measures to create a sustainable district differ, but mainly due to differences in their preconditions and support. Due to the ambiguity of defining and measuring sustainable development, we can not state a definable answer how sustainable the projects are. However, in Brunnshög we can see that they have worked more extensively with trying to create a sustainable district. Comparatively, Stationsstaden’s planners have not taken as drastic measures towards the reduction of car use. Brunnshög’s planners have taken a very clear stand against cars, they will not allow parking within the inner area, instead cars are ‘banished’ to the outskirts in parking garages. Stationsstaden on the other hand, has catered more to the needs of car users by planning the streets to be more accessible with mixed roads, street parking and a commerce area with car dominance.

There seem to be various reasons for the planners' different view and incorporation of the car in the projects, these reasons also constitute major challenges planners have to overcome if other future developments shall strive towards reducing cars. One reason is political support and how important it is when trying to develop more sustainably. This is also supported by The Delegation for Sustainable Cities, who claim that there is a lack of anchorage and integration of sustainable development in areas of swedish politics (Boverket, 2019). As for Brunnshög the political support has been high, enabling them to set higher goals, whereas for Kåvlinge municipality and Stationsstaden there has been more political obstruction, hindering the planners to strive towards sustainable modes of transportation. Here we can see the problems stated by Hrelja (2018. p7) that reducing cars is controversial and challenging due to cars' deep societal roots. This is something that in smaller, car dependent societies like Kåvlinge, might make it harder to plan in accordance with sustainability. However, Stationsstaden is not alone in being affected by lack of integration as Brunnshög has planned for a more extensive sustainable development but there are also contradictory parts that create inconsistencies with the sustainability goal. The plans for widening the E22 and the new entries and exits connecting to Brunnshög shows a lack of the collective national commitment, this time between municipalities and Trafikverket. Again, something that The Swedish Delegation for sustainable cities argues is needed to achieve sustainable urban development (Boverket, 2019).
Another challenge that stands out from the planning around Stationsstaden is un-flexible detailed development plans. As pointed out by Granitor’s property development manager, the planners might not have had the same sustainable consideration back then as they would have had now (Personal communication, April 27, 2022). At the same time Kävlinges traffic planner and street engineer said that the detailed development plan was made many years ago and that it is hard to change things in retrospect (Personal communication, April 25, 2022). Here is probably also the vagueness of the concept of sustainable development playing a part, as Boström (2012) argues that due to the concept's inherent vagueness it is easy to interpret it in different ways (s.3), thus everybody might make their own definition of what is considered sustainable. However, sustainable development norms evolve rapidly and as we see in Stationsstaden, an un-flexible plan might affect the development in a negative way in such fields that concerns sustainability. This shows that even if a development strives towards reducing cars and becoming more sustainable there are so many other factors to account for to make this happen.

The project's different view of the car has also created differences in how they account for sustainable mobility. Brunnshög has had a whole other perspective on sustainability which has helped the planners mobilise plans which work towards creating an environment that promotes, supports, and fosters sustainable mobility. At the same time, this goal of sustainable mobility seems to only partly apply within Brunnshög and not be applicable for E22 as the planning here does not promote more efficient public transport with separate bus lanes despite the planned widening. Stationsstaden has also worked well with sustainable mobility but not to the same daring degree Brunnshög has. A limitation here has been that Kävlinge municipality lacks a long history of working towards sustainable mobility like Lund municipality has. This creates a dominating norm in society that the car is widely accepted, and needed and can thus be more challenging to change behaviours and can be met with strong resistance from a car-cultured society like Kävlinge.

8.1.3 Mixing walking and transit with cars

Both the developing projects have been developed around transit stations, this along with the mixed-use, dense development surrounding the transit nodes creates, what Newman et al. ’s (2016) theory of urban fabrics, defines as a transit urban fabric (p.433-435). By analysing the documents we found that both projects have similar measures to also build a strong walking urban fabric, by prioritising the pedestrian, designing narrow roads, street furniture, small blocks and good pedestrian paths. But their stance towards the car is different.
Stationsstaden’s development has not planned to limit the cars movement, or space allowance to the same extent as Brunshög, and with the rural car culture this can lead to a challenge to prevent the automobile fabric from dominating. Brunshög, with a widening of E22, can also create a surrounding automobile fabric. But both of the projects have still, comparatively to the rest of their respective municipalities, strived for more sustainable mobility patterns which can hopefully develop an urban fabric that works symbiotically between the three modes and does not create a car dominance.

8.1.4 Justice

When it comes to the factor of accessibility and planning for less mobile groups who are not protected by legislation and acts there is a risk that planning for sustainable transportation can create more injustices to these groups. Both projects seem to take some consideration to disabled groups, however with the backing and demands put in place by PBA and BPA. Through the documents it appears that Brunshög has placed more consideration towards children’s safety and accessibility than Stationsstaden, Brunshög is a larger district with more schools than Stationsstaden, so this could be a contributing factor. What is also consistent for both projects is the (non-)consideration they have paid to one group that might have a very hard time readjusting to a society with lesser cars. As Fatima el at. (2020, p.4) states, many elderly people prefer driving above other modes of transport and a switch towards sustainable mobility is not always suitable and can create many barriers for elderly to overcome. Therefore, it is quite peculiar that neither Brunshög or Stationsstaden has given these groups extra transportation considerations. This is a consequence which requires acknowledgment which planners need to reflect on when trying to reduce cars in cities, as some less mobile groups that stand outside of the demands stated by PBA and BPA risk being excluded from society as their possibility to travel is diminished. Lucas (2012, p.106) argues that due to transport injustice, citizens might be hindered to take part in societal activities which will affect their quality of life. To ensure that this does not happen in either of the two projects some concern towards the difficulties reducing cars would have been desirable, this would have also shown a self-reflection and a wish to include everyone. Lucas (2012) also states that for just transport planning to happen, planners must focus on a people and needs-based perspective (p.6), thus even in developments that aim for sustainable mobility, some consideration for residents that is missing the functional body norm should be taken. Otherwise, one has not fulfilled all of the sustainability pillars anyway, as some peoples social sustainability is not considered.
With that said, this is not an easy task because consideration here could have affected the project's sustainability ambitions. The question about accessibility and transport justice with sustainable development is thus a tricky, hard to solve question with many aspects to consider. What we are most critical to is that here, the transport perspective for the elderly has not been fully accounted for from what we can see, it is almost as if the prestige of being sustainable could have gone before the right to fair transport for everyone.

8.2 Concluding discussion:

The study has shown that both Brunshög and Stationsstaden have some kind of endeavour to become more sustainable, although this is played out in different ways. Both projects market themselves as sustainable and seem to have sustainability as one of their main goals, however, their view of the car's role in a sustainable city varies extensively which also leads to different approaches in how to plan away from car dependencies and towards sustainable mobility. Connected to our first research question, it can be understood, through analysing the planning documents and with the complementing interviews that both projects are working to reduce car dependencies, relatively compared to what the respective norm of car usage is in the municipality. While both projects plan for similar measures to reduce car usage, like increasing the use and attractiveness of walking, cycling and public transport, making it more inconvenient and expensive to park and creating an interesting livable city environment, they view and treat the car differently. Due to their underlying differences, including history and political support, Brunshög has planned for a greater reduction of car usage and seems to treat the car a lot more like a problem than Stationsstaden, despite efforts to increase attractiveness for other transport modes as it does not automatically equate to a reduction in cars.

Reducing cars is a complex and complicated issue and by studying our second research question we identified many challenges and contradictory aspects when trying to achieve this. As shown there are many factors to consider, for instance political support, flexibility in the planning, customer demands, a national commitment with extensive integration, definition of what sustainability is and a justice perspective that needs to be accounted for. As the study has shown from Stationsstaden, without support from the political arena a sustainable development is much harder to implement. But it is these differences and challenges, of political support and previous work that is needed for sustainable development. City development is a collaboration of many actors in which everyone needs to be on board in order to successfully achieve visionary goals. In order to develop more sustainably, maybe the
continual education of planners and politicians is needed to keep everyone up to date with the current development goals. If the knowledge, will and endeavour is not integrated in the authorities, how could one ever expect ordinary citizens to do their part? Additionally, a more flexible approach to urban development is needed, as the un-flexible detailed development plans have been an aggravating factor in the development in Stationsstaden. Therefore, a change in Swedish planning protocol might be needed or at least an oversight in the detailed development planning in order to make it easier to change plans in retrospect to become more sustainable. This could benefit developments all over Sweden in their goals to achieve sustainable mobility, as Stationsstaden is probably not the only development that took a long time from the legal acceptance of the detailed plans to the actual development. During this time a lot can impact sustainable development and the planning for sustainable mobility.

As if this was not enough it is also important to not let the vision and prestige of creating something that is sustainable exclude other important perspectives like fair transport options for all citizens. This aspect has been studied through our third research question. Consequently, through the plans the planners have accounted for measures to create accessibility for the disabled, a group hard to ignore due to policies and demands in PBA and BPA. The perspective of children is also accounted for, a group that mostly seem to benefit from a car free society if the development produces safe paths, short distances and possibilities for easy commuting by public transport. Most groups seem to benefit from the transition from cars to sustainable mobility but there are also groups, like the elderly, that might experience disadvantages as some kind of bodily function is required to use sustainable transport modes. To be old is also not equal to being given a disability permit, thus this group falls in between the measures taken to create accessibility for disabled and the measures taken to reduce cars and thereby risk being excluded from society due to transport injustice. This creates a dilemma in the planning for more sustainable cities that aim for a discouraged car usage but also need to offer fair transport for all citizens. Thus, in the hunt to reduce cars for those who drive for their own convenience, some consideration has to be taken to those who really depend on cars but who do not qualify for the protection from accessibility requirements and legislation acts.

After concluding our study and reflecting over what aspects we have researched, further research to complement our findings would have been interesting. These topics could have been for example, looking more in-depth into what the politicians role has been in the projects and exactly how much they were able to influence the projects plus their view on car
dependencies, sustainability and accessibility. Another interesting research part would be to examine how humanity can build and develop sustainably when we live in a commercial capitalistic world, thus companies form their developments and build what the customers want. Is it even possible to develop a sustainable city on these preconditions?
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Figure References

Figure 3. Lunds kommun. (2022). Informationsmaterial om Brunnshög.

Figure 6,7,8, & 9. Lunds kommun. (2012A). Trafikstrategi för Lund NE / Brunnshög

Figure 11. Kävlinge kommun. (2010-2015). 1261-P291 - Detaljplan för Exporten 15 m fl i Kävlinge tätort

Figure 14 & 15. Gehl Architects. (2011). Kvalitets Program kvarteret exporten m.fl.

Collage figure references
Figure 4. Brunnshög collage


Figure 12. Stationsstaden collage


Appendix

Appendix A: List of analysed planning documents

**Plan and traffic document for Brunnshög:**
Lunds kommun (2012) Lund NE Brunnshög visioner och mål
Lunds kommun (2012) Trafikstrategi för Lund NE / Brunnshög
Lunds kommun (2013) Brunnshögskontraktet 2013
Lunds kommun (2013) Plan 128 I K-P49
Lunds kommun (2013) Fördjupning av översiktsplanen För Lund NE/Brunnshög
Lunds kommun (2014) LUNDAMATS III Strategi för ett hållbart transportsystem i Lunds kommun
Lunds kommun (2015) Centrala Brunnshög
Lunds kommun (2016) Plan 1281 K-P171
Lunds kommun (2018) Parkeringssnorm för cykel och bil i Lunds kommun
Lunds kommun (2018) Lunds kommuns översiktsplan - Del 1 Planstrategi
Lunds kommun (2018) Lunds kommuns översiktsplan Del 2 Markanvändning Och Hänsyn
Lunds kommun (2019) Lunds kommun Brunnshögskontaktet
Lunds kommun (2014) Brunnshög - en ny stadsdel i Lund - slutrapport
Lunds kommun (2017) Detaljplan för del av Östra Torn 27:2 m.fl. (Trafikplats Ideon) i Lund

**Plan and traffic document for Stationsstaden**
Gehl Architects (2011) Kvalitets Program kvarteret exporten m.fl.
Iversen & Hörnquist (2021) Mobilitetsutredning Kvarteret Sten 16
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Kävlinge kommun (2010-2015) 1261-P291 - Detaljplan för Exporten 15 m fl i Kävlinge tätort
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Kävlinge kommun (2014) Parkeringstal för bil och cykel i Kävlinge kommun
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Kävlinge kommun (2018) 1261-P2018-3 - Detaljplan för Exporten 44 i Kävlinge
Kävlinge kommun (2020) 1261-P2021-1 - Detaljplan för del av Exporten 15 m fl i Kävlinge
Appendix B: Interview with Lunds traffic planner, April 21, 2022

Intro
- Berätta lite om dig själv, dina kunskaper och tidigare jobberfarenheter
- Vilken roll har du haft i Brunnshög projektet?

Sustainability
- Vad innebär hållbarhet/ hållbara städer för dig?
- Vilken roll har resande/transport i en hållbar stad?
- Tror du att Brunnshög kommer bli så hållbart som marknadsföringen kring stadsdelen antyder? (greenwashing)

Car dependencies
- Vilken roll har bilen haft i planeringen kring Brunnshög? Hur har planerarna sett på bilen? ½ målet.
- Vilka anledningar till att reducera bilanvändandet i Brunnshög har varit viktigast? Vad är målet med minskningen av bilar/bilism?
- Vilka (fysiska?) åtgärder har man arbetat med i Brunnshög i försöket att uppnå det ambitiösa tredjedelsmålet?
- Vilka bil-reducerande åtgärder har prioriterats i Brunnshög?
- Vilka utmaningar har ni stött på i försöket att reducera bilismen i Brunnshög och uppnå tredjedelsmålet?

-Följdfåga: Har det uppstått problem från ex invånare eller politiker? Har det funnits några utmaningar?
- Kan du ge några exempel på varför har dessa utmaningar uppstått?
- Hur planerar ni för att överkomma dessa utmaningar?
- Vilka åtgärder gör störst nytta för att reducera bilismen; de fysiska/infrastruktur åtgärderna eller mjukare åtgärder?
- Vilken typ av planering anser du främjar bilismen mest? Finns det några särskilda typer av planering eller planeringsåtgärder som får bilismen i en stad att öka?

-(Ser ni någon risk att de som bor i Brunnshög inte vill betala parkeringsavgift i mobilitets hubbarna och därför kommer parkera på fria parkeringar (om sådana finns) i närliggande områden vilket trängar ut de som redan bor där?
- Hur hårt/starkt ställningarstagande anser du att ni har tagit mot bilen genom den här typen av bil-reducerande planering?
- Bil-reducerande planering är en känslig och kontroversiell fråga, har det någonstans i planeringsprocessen funnits planer på "hårdare" tag mot bilen som sen har fjärr stå tillbaka just för att bil har varit normen?)

Other sustainable modes
- Har Lund upptäckt några nyckelåtgärder som med ett lyckat resultat påverkat människors val av transport till att bli mer hållbara?

Accessibility
- Kan hållbar transportplanering vara en faktor som begränsar mobilitet och tillgänglighet för rörelsehindrade/ mindre mobila grupper som handikappade, äldre och barnvagns användare.
- Kan du ge några exempel på hur ni har inkluderat/planerat för dessa mer utsatta grupper i Brunnshög?

Contradictions
- Planerar ni utifrån predict and provide eller debate and decide?
- Hur kommer en breddning av E22 påverka Brunnshög? Kan breddningen hjälpa till att främja hållbara transportsätt?
- Ser du några motstridigheter med planerna att bredda E22 samtidigt som man vill främla mer hållbara transportslag i Brunnshög?
- Finns det några planer på separata bussfiler i planerna på att bredda E22?
- I planerings dokumentet Förbjupning av översiktsplanen För Lund NE/BRUNNSHÖG konstateras ‘. På lika lång sikt, efter 2030, redovisas också möjligheter att koppla stadsdelen Brunnshög bättre mot Norra Fäladen genom en ny väg-, gång- och cykelförbindelse över väg E22’. Varför väljer man att inkludera bilen här istället för endast en förbindelse för gång och cykel?
Appendix C: Interview with Kävlinge’s traffic planner and street engineer, April 25, 2022

Intro

-Berätta lite om dig själv, dina kunskaper och tidigare jobberfarenheter…
-Har du haft en roll någonstans i projektet kring Stationsstaden? Om du har haft det, kan du berätta lite om vad du har arbetat med inom projektet?
-Vet du någonting om relationen mellan Granitor och Kävlinge kommun gällande utvecklingen av Stationsstaden?
-Vet du hur fördelningen av arbetet sett ut mellan Kävlinge kommun, Granitor och Gehl Architects?

Sustainability
-Vad innebär hållbarhet/ hållbara städer för dig?
-Vilken roll har resande/transport i en hållbar stad?
-Vilken roll tycker du att bilen har i en hållbar stad?
-Tror du att Stationsstaden kommer bli så hållbart som marknadsföringen kring stadsdelen antyder? (greenwashing)

Car dependencies
-Vilken roll har bilen haft i planeringen kring Stationsstaden? Hur har planerarna sett på bilen?
-Försöker Kävlinge kommun aktivt minska bilismen i Stationsstaden genom någon typ av bil-reducerande planering? (Jämför med resten av kävlinge…?)
-Vilka anledningar till att reducera bilanvändandet i Stationsstaden har varit viktigast? Vad är målet med minskningen av bil/bilism?
-Vilka (fysiska?) åtgärder har man arbetat med i Stationsstaden i försöket att minska bilismen? Är där några åtgärder som prioriterats mer än andra?
-Har det varit svårt att försöka planera för minskad bilism i Stationsstaden och med Kävlinges placering ute på landsbygden och det beroende av bil som många av kommunens invånare har?
-Har ni stött på några utmaningar i försöket att reducera bilismen i Stationsstaden?
-Följfråga: Har det uppstått problem från ex invånare eller politiker? Har det funnits några utmaningar i arbetet med de olika involverade aktörerna?
-Med Granitor som markägare till stor del, har där uppstått några konflikter eller utmaningar angående bilismen i projektet med tanke på att Granitor är ett vinstdrivande företag och kommunen är mer samhällsansvarstagande?
-Kan du ge några exempel på varför har dessa utmaningar uppstått?
-Hur planerar ni för att överkomma dessa utmaningar?

-Vilka åtgärder anser du gör störst nytta för att reducera bilismen; de fysiska/infrastruktur åtgärderna eller mjukare åtgärder?

Other sustainable modes
-Har ni på Kävlinge kommun upptäckt några nyckelåtgärder som med ett lyckat resultat påverkat människors val av transport till att bli mer hållbara?
-Har ni arbetat för att främja andra transportsätt än bilen?
-Har ni försökt styra den hållbara utvecklingen på något sätt genom att lägga in krav för att byggloven ska bli godkända? Ex byggherrarna måste tillhandahålla stor cykelparkering, bilpool eller dylikt?

Accessibility
- Kan hållbar transportplanering vara en faktor som begränsar mobilitet och tillgänglighet för rörelsehindrade/- mindre mobila grupper som handikappade, äldre och barnvagns användare.
- Kan du ge några exempel på hur ni har inkluderat/planerat för dessa mer utsatta grupper i Stationsstaden?
- Har det inom arbetet med Stationsstaden gjorts någon extra analys angående hur minskad bilism och/eller mer gång/cykel kommer påverka tillgängligheten för mindre mobila grupper?

Contradictions

- Stationsstaden marknadsförs som väldigt hållbar samtidigt som bilar och bilism ändå verkar vara tillåtet överallt fast på gåendes villkor. Det verkar också planeras för många parkeringar, både gatuparkering och i parkeringshus. Ser ni någon motstridighet i att vara så tillåtande till bil men ändå marknadsföra sig som hållbart?
- Hur ska ni se till att hastigheten hålls på gåendes villkor? Kommer ni arbeta något med fysiska åtgärder i gatrummen för att se till att bil inte kör för fort?
- Hur tänker ni kring utvecklingen av handelsområde runt Karl-Johans väg som framstår som väldigt lättillgängligt med bil? Är denna del tänkt att också främja hållbara transporter? Hur går det ihop med den generösa mängden parkeringar?
Appendix D: Interview with Granitor property development manager, April 27, 2022

Intro
- Berätta lite om dig själv, dina kunskaper och tidigare jobberfarenheter…
- Vilken roll har du haft i projektet kring Stationsstaden?
- Vet du någonting om relationen mellan Granitor och Kävlinge kommun gällande utvecklingen av Stationsstaden? Hur blev det här samarbetet till? Hur mycket har Granitor deltagit i hela utvecklingen av Stationsstaden? Hur mycket inflytande har ni haft?
- Vet du hur fördelningen av arbetet sett ut mellan Kävlinge kommun, Granitor och Gehl Architects?
- Vet du varit ansvarig för gatumiljön i planeringen? Är det Gehl architects som har dragit upp alla riktlinjer här också?
- Vad vi har förstått så har/är Granitor ägare till en stor del av marken i Stationsstaden, har det gjort att ni kunnat styra utvecklingen i någon särskild riktning?

Sustainability
- Vad innebär hållbarhet/ hållbara städer för dig?
- Har du någon tanke om vilken roll resande/transport har i en hållbar stad?
- Vilken roll anser du att bilen har i en hållbar stad?
- Tror du att Stationsstaden kommer bli så hållbart som marknadsföringen kring stadsdelen antyder? (greenwashing)

Car dependencies
- Från er sida, vilken roll tycker ni att bilen har i planeringen kring Stationsstaden? Hur ser ni på bilen?
- I den delen av planeringen som ni har medverkat i, har ni någonstans velat/försökt minska bilismen i Stationsstaden genom någon typ av bil-reducerande planering? Till exempel I det filmkippo som ligger på Granitors hemsida säger David Sim att bilarna ska hållas lite tillbaka i stadsdelen. hur har ni arbetat för att genomföra detta?
- Anser du att det är viktigt att försöka minska bilismen i utvecklingen av nya stadsdelar såsom Stationsstaden?
- Vet du om det finns några särskilda bil-reducerande åtgärder som har prioriterats i Stationsstaden?
- Har ni stött på några utmaningar i er del av utvecklingen av Stationsstaden som rör aspekter kring exempelvis bilar, parkering, eller transport över lag?
- Följfråga: Har det uppstått problem från ex invånare eller politiker? Har det funnits några utmaningar i arbetet mellan er och Kävlinge kommun med tanke på att Granitor är ett vinstdrivande företag och kommunen hålls ansvarig av sina invånare?
- Kan du ge några exempel på varför har dessa utmaningar uppstått?
- Hur planerar ni för att överkomma dessa utmaningar?
- Har du/granitor några tankar kring effektiva åtgärder för att minska bilism? exempelvis ser ni några åtgärder som extra effektiva?
- Utifrån kommunens dokument om Stationsstaden verkar en hel del av anläggningen av parkeringar ha lagts på de olika byggbolagen som utvecklar bostäder i Stationsstaden. Hur har ni arbetat kring bilen i era egna bostadsområden i Stationsstaden? Vad har ni haft för syn på parkering i era egna projekt i området?

Other sustainable modes
- Har ni upptäckt några nyckelåtgärder som med ett lyckat resultat påverkat människors val av transport till att bli mer hållbara?
- Har ni jobbat med åtgärder i era egna projekt i Stationsstaden som ska främja användandet av mer hållbara transportsätt? exempelvis bilpool, cykelpool, elbilsladdare, cykelparkering eller dylikt?

Accessibility
- Ser ni hållbar transportplanering som en faktor som kan riskera att begränsa mobilitet och tillgänglighet för rörelsehindrade/ mindre mobila grupper som handikappade, äldre och barnvagns användare.
- Kan du ge några exempel på hur ni har inkluderat/planerat för dessa mer utsatta grupper i Stationsstaden?
-Har ni gjort någon extra tillgänglighetsanalys för hur mindre mobila grupper kommer påverkas i Stationsstaden om det blir svårare att parkera/köra bil och planeringen främjar mer gång/cykel?

Contradictions

-Stationsstaden marknadsförs som väldigt hållbar samtidigt som bilar och bilism ändå verkar vara tillåtet överallt fast på gåendes villkor. Det verkar också planeras för många parkeringar, både gatuparkering och i parkeringshus. Ser ni någon motstridighet i att vara så tillåtande till bilar men ändå marknadsföra sig som hållbart?

-Av planerna att döma kommer det finnas ett flertal gatuparkeringar. Varför bygga så pass "många" gatuparkeringar när det finns p-hus? Blir inte det lite motstridigt om man samtidigt vill försöka minska bilismen?

-Har ni haft någon del i arbetet kring gatuutformning eller dylikt? vi tänker mer specifikt på om ni har haft några tankar på/arbetat med hur hastigheten på gatorna ska hållas på gåendes villkor? Kommer det finnas några fysiska åtgärder i gaturummen för att se till att bilar inte kör för fort?

-Hur går era tankar kring utvecklingen av handelsområde runt Karl-Johans väg som framstår som väldigt lättillgängligt med bil? Är denna del tänkt att också främja hållbara transporter? Hur går det ihop med den generösa mängden parkeringar?

-Anser du att det finns några andra motstridigheter i planeringen kring bilen och hållbarhetstemat i Stationsstaden?