Improving accessibility of peripheral retail centres for reduced car dependency in Swedish cities

A multiple case study of three peripheral retail centres

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Abstract
Many have probably visit a shopping centre of a large scale, with additional large parking lot and a car traffic oriented location. This type of shopping centres has been discovered and debated for its car dependency and contribution to unsustainable daily travel habits (Leyden, 2003). Some say that peripheral retail centres are socioeconomically effective with the advantage of low prices. Positive effects can for example be economic gain for the municipality, another positive effect is lower prices on both parking and products. However, others say that these establishments result in increased traffic amount, increased environmental impact, exclusion of consumer groups and impoverished city cores (Ljungberg, et al., 2004). Patterns of commerce have during the second half of 20th century gone through a massive transformation (Forasmk, 2001). This study aims to explore potentials for sustainable urban planning of three Swedish peripheral retail centres.

This project is a case study research of three peripheral retail centres located in Swedish cities smaller than a population of 150 000 inhabitants. One identified general challenge for peripheral retail centres is the traffic separated system often results in unattractive and unsafe pedestrian tunnels and bridges. A proposed solution is the redesigning of bridges and tunnels, as a reference project presented by Ranum et al. (2018).

Sammanfattning

Handelsstrukturen har i Sverige gått igenom stora förändringar under 1900-talet (Forasmk, 2001). Denna studie syftar till att utforska möjligheterna för en hållbar stadsplanering av tre olika externa köpcentrum i Sverige.

Denna studie utforskar tre fall av externa köpcentrum i städer med en population mindre 150 000 invånare. En identifierad generell utmaning för externa köpcentrum är det funktionsseparerade trafiksystemet vilket ofta resulterar i oattraktiva och ottrygga gång- och cykeltunnlar och broar. Ett förslag till lösning för denna typ av utmaning är inspiration från Urban Insight-rapporten Redesigning of bridges and tunnels som visar exempel på hur tryggheten och attraktiviteten av exempelvis gångtunnlar kan förbättras.
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1. Introduction

1.1. Problem identification

Many have probably visit a shopping centre of large scale, with additional large parking lot and a car traffic oriented location. This type of shopping centres has been discovered and debated for its car dependency and contribution to unsustainable daily travel habits (Leyden, 2003). Normally, external retail establishments are localised in the fringe of cities with a physical structure mainly designed for cars. It can therefore be argued that there is a poor accessibility for people without a car.

The transport sector is one of the main contributor to carbon dioxide emissions and transport amounts are currently increasing in a faster rate than technical development decreasing emissions (Viklund et al., 2007). Since the 1960s the amount of transport (the total distance of all vehicle transports in Sweden) nearly been doubled (Västerås stad, 2017). The Intergovernmental Panel on Climate Change are by its fourth report striking about the current climate change which is a result from one of the main causes, fossil fuel (Riksdagen, 2010). Many of the coming traffic system problems comes from a historical planning of high mobility instead of focusing on high accessibility. Moreover, it comes from a planning for land use that stimulate long trips with private vehicles.

The globalisation in the 20th and 21st centuries has resulted in new urban patterns (Toft and Rönn, 2017). The transformation has gone from small stores in city centre location to large stores in external and car traffic oriented locations (Ljungberg et al., 2004). This change has come with consequences on accessibility, environment impact, trade pattern and increased car dependency. A continued development of peripheral retail centres is predicted to contradict targets for sustainable development by the Swedish government.

The existence of external retail establishments has been a discussed and debated subject for a long time (Ljungberg et al., 2004). Some economists argue that external retail is socioeconomic effective in an economic aspect. Their arguments are the wins of lower land use costs, lower parking costs, lower prices which can lead to higher competition and greater economic wins. However, external retail establishments also come with negative consequences as increased car traffic amounts, social injustice of excluding of consumers and costumers with a low accessibility and outcompeted city centres. With these aspects in mind, peripheral retail centres can be argued to be socioeconomic ineffective. Of all made shopping trips to peripheral retail centres, around 80% to 90% are done by the car vehicle (Wärnhjelm, 2015.; Vägverket 2006).

It is stated that external centres affect the amount of traffic as well as emissions (Viklund et al., 2007). One possible reason for this is the car dependent spatial structure and low accessibility of sustainable transport modes. However, these consequences and impacts are rarely included in investigations and decision-making of plans. A study of planning work from twelve Swedish municipalities where seven of these have made a traffic investigation of external establishments. None of these municipalities showed an increase of traffic amount from establishment and two municipalities even predicted a decrease of traffic amount.

Sweden is one of few countries in west Europe with no regulations of establishment of external retail (Ljungberg et al., 2004). Swedish municipalities have currently planning monopoly which mean that municipalities decide all planning and make all land use decisions for its own municipality (Boverket, 2016). Every municipality have own responsibility to reach sustainable development. Therefore, it can be argued that municipalities possibly struggle from a central perspective implement regulations or and prohibition of for instance trading or steering of trading localisation within municipalities (Ljungberg et al., 2004). The capitalistic society and trade market society have in Sweden been a strong actuator in urban planning (Bergman, 2008).
In a long-term perspective, it is possible by urban planning and land use localisation to reduce the carbon dioxide emissions up 20% from the transport sector (Viklund et al., 2007). In these strategies, the role as a Swedish municipality is important where their impact is high. The driving force of expanding establishments are strong and advocates of external centres mean that these establishments are needed for increasing the competition.

1.2. Rational of the Thesis

One starting point for future long term sustainable development is reduced emissions as well as reduced car dependency in society (Ljungberg et al., 2004). However, currently there is a development of peripheral retail centres that possibly contradicts a sustainable development in a long-term perspective.

To reach global climate targets, one main action for citizens is to use the car less as a daily transport mode and instead travel by sustainable transport modes more. However, a sprawl of built environment as residential, stores and working spaces which are common characteristics for peripheral retail centres, is a result of planning where the car is the main mode of transport (Wärnhjelm, 2015). There is a lot of room for improvement of increased travels by sustainable transport modes and less car usage.

1.3. Specific aim

This study aims to explore potentials for sustainable urban planning of three Swedish peripheral retail centres. The study will be done on three cases located in cities smaller than a population number than 150,000 inhabitants. It can be argued that medium or small sized cities are confronted with larger challenges of reducing car dependency in the city. To reach the set-out aim, this study will focus on identifying current planning approach towards external centres of municipalities and furthermore actual conditions for a sustainable development of peripheral retail centres. The research questions are following;

1. What is the identified planning approach of the peripheral retail centres Erikslund, Ingelsta and Marieberg?
2. What are the actual conditions for improved accessibility of sustainable transport modes of external retail centres as Erikslund, Ingelsta and Marieberg?

In this report, sustainable transport modes are referred to walking, cycling and public transportation.

This study creates a qualitative work material for planners and municipalities dealing with this type of questions, especially for municipalities included in this research. In the end of this report, some concluded general challenges and suggested solutions are presented.

By conducting this research, discourses of transport and land use planning is addressed. These two topics are moreover in this study specified to retail land use and sustainable transport planning.

1.4. Outline of study

This study first presents some background information in chapter 2 of this report of peripheral retail centres including definitions, historical information and known effects of external retail establishments. Moreover, a starting point for later discussion and study the Swedish planning system are described in this section.

In chapter 3, the research design is presented and described. Used methods are; Literature review, documentation, qualitative interviews, site observation and SWOT-analysis. Following, the theoretical framework for this study are presented in chapter 4. The framework is delimited to theories of planning of commerce, car dependency and accessibility.
Chapter 5-7 presents the result for all three cases of this study. The result includes background information of case cities, case areas, identified planning approach and actual conditions. These sections are concluded with a conducted SWOT-analysis.

Based on presented results, a comparing analysis are presented in chapter 8 where the cases of this study are compared and analysed. Based on this some generalised challenges will be presented which answer research question 3. Chapter 9 presents some general short-term and long-term proposal that can be used for planning of improved accessibility of sustainable transport modes and reduced car dependency of peripheral retail centres. Chapter 10 includes a final discussion and a recommendation of further research.

2. Background

2.1. Definitions
Peripheral retail centres can be identified with other terms as: suburban retail centres, external retail centre, peripheral shopping centre etc. In this study, the term peripheral retail centres or establishments are mainly used. The phenomena can be divided in to two categories; peripheral retail centres and semi peripheral centres.

Peripheral retail centres
These establishments can be identified by large scale retail localised outside neighbourhoods and city centres. These establishments are characterised by its traffic oriented location, where the natural transport mode to use is the car. Peripheral retail centres can be recognized by terms as large store centre and retail areas (Trivector, 2007). An external retail centre usually includes a wide range of stores of daily shopping (e.g. groceries), durable purchases (e.g. life style products as clothes, interior and electronics) and volume product shopping (e.g. furniture and construction products). Furthermore, peripheral retail centres are an establishment larger than 2000 m² in gross area (Wärnhjelm, 2015).

Some characteristics of an external retail centre are;
- Car oriented location
- Large scale buildings
- Large parking lots
- Poor pedestrian and bicycle network
- Traffic separation
- Homogenous range of functions

Detail retail includes all types of purchases and sales of products and services for mainly private persons (Boverket, 2017). Moreover, stores and different types of commerce located in external or semi external centres can be categorised in to different types of stores and retail. Included in this category there is both daily type of retail (products used on a daily basis) and durable type of retail (products bought more rarely). This study includes retail characteristics as establishment type and product type is include and are because of this defined below. Establishment types:

Big box stores
These are autonomous and large-scale buildings with external circulation. These buildings can be recognised as supermarkets (daily retail stores) or megastores. Examples of supermarkets store can be Ica Maxi, Coop Forum and Willys. However, big box stores can also be stores of lifestyle products as XXL, Stadium outlet or Byggmax. Important to note is that supermarket not is the same as peripheral retail centres, supermarkets are often located in a peripheral retail centre.
Strip mall
This establishment type are buildings where several stores are linked together and with external circulation. Same as big box stores, these can include supermarkets as well as they can be located within a peripheral retail centre.

Shopping mall
Mainly includes in-house mall with internal circulation where different kinds of services and retail are gathered.

Shopping products can furthermore be divided in to different groups;

Groceries
A product group daily needs (daily retail) of shopping where examples of products are food, perfume, tobacco, papers and flowers (Ljungberg et al., 2004).

Non-volume lifestyle purchases
A product group consumed normally more rarely than groceries (durable purchases). These products can be clothes, shoes, books, toys etc (Ljungberg et al., 2004).

Volume durable purchases
Products of large volume as furniture, interior, building and construction tools and products. These products are often more rarely bought for a household (Ljungberg et al., 2004). Within volume durable purchases, bulky goods can be included, which also mean volume products.

Services
Services can be divided to both private and public services. In external retail centres, the most common service is private service. Private services can be shoe repair, hair saloon, dry cleaner, restaurant or car service. Examples pf public service is schools or libraries.

2.2. Historical development of peripheral retail centres
Patterns of commerce have during the second half of 20th century gone through a massive transformation (Forsmark, 2001). The transformation has emerged in a reduced number of centres and a massive migration of retail to external locations. In this section, this transformation of retail structure is in more detail described.

Starting point in America
Peripheral retail centres emerged in the 1930s in the US and has been the leading country of development of this type of centres (Ljungberg, et al., 2004). The expansion increased further during the 1940s and 1950s. By 1950, hundred large retail centres in an external localisation had emerged. By the year 1980 the number of external centres was up to 22 000 and in the end of the 1980s the traditional city centre had in most cases lost meaning (Forsmark, 2001). In line with the expansion of peripheral retail centres, the car dependency emerged in the American society structure with an expansion of car accessibility together with expansion of urban sprawl (Ljungberg et al., 2004). The target planning in this time was to increase the accessibility for external establishments and to decrease congestion on existing roads. The fringe of cities became most attractive and the urban sprawl continued (ibid.). One contributing factor to the increased popularity of external establishments and urban sprawl was at this time the massively growing private car usage as a commercial mode of transport (Wärnhjelm, 2015).

Since the 1980s the concerns over the consequences of urban sprawl in the US metropolitan areas has led to increased advocacy for more traditional and more compact urban development (Song, 2012). Various of planning agencies have initiated efforts to change land development dominated by sprawl.
One initiative in this increased advocacy is Smart growth which emerged in same period of time as other initiatives as New Urbanism, green building, agricultural reform and the Climate Project (Duany et al., 2010). Smart growth is an initiative with arguments for “compact” or “transit-oriented” neighborhoods and its possibilities of decreasing automobile dependency and reduced air pollution (Song, 2012). New urbanism is another American urban design movement which argue for a correction of sprawl, destruction of natural environments, segregation, and deterioration of public realm (Trudeau and Malloy, 2013).

Sweden
The Swedish daily and detail retail has since 1960 gone through large changes (Ljungberg et al., 2004). In the 1960s there was a more distinct division of low price, daily retail and large volume purchases located in the periphery of the city meanwhile more durable shopping, lifestyle and leisure shopping was in the city core (Wärnhjelm, 2015). Today this division is much more abstract where more lifestyle shopping has been added in peripheral retail centres.

Retail in external and semi external centres increasing dramatically in Sweden. From year 2000 until 2005, the retail sale numbers doubled from retail in external centres (Wärnhjelm, 2015). At the same time trading and retail in Sweden going towards larger store spaces where the number of stores are decreasing. Between 2001 and 2006 the number of daily retail shops (food stores) in Sweden decreased from 6564 to 5953 stores. The distance between residentials and daily retail stores are in a result of this increasing.

The development of supermarkets can be argued to be one including factors of development of external centres (Ljungberg et al., 2004). In Sweden there was by year 1980 a number of 40 supermarkets in Sweden and corresponded as 5 % of daily retail. In year 2000, twenty years later, the number of supermarkets had increased to 89 and corresponded to 12 % of the total retail sale. Looking at the development during these years there was a duplication of both the number of stores and the revenue sales. The historical development of trading and peripheral retail centres has resulted in reduced numbers of stores as well as larger area and wider store assortments for the average store. The average area for new built stores for groceries as increased between 1908s to 1990s from 600 square metres to 1500-2000 square metres (ibid.). Shopping trips done by car is one main condition for localisation of retail and the connection between localisation of retail and residentials have been lost in importance of meaning (Wärnhjelm, 2015).

To conclude the historical development of external retail establishments, the retail structure gone through a massive change and is still in this process. E-commerce, different consumption habits, changed value in time etc.

Toft and Rönn (2017) discusses a new phenomenon, cities without limits that has emerged through economic activities concentrated in metropolitan regions which grow far beyond their former peripheries. In these cities, the basis for the traditional understanding of the city as a separate entity has disappeared where traditional city centres today only make up a small part of big cities. Toft an Rönn (2017) argues that “The main part of big cities consists of places that do not relate to the centre in a clear way, places with no clear boundaries between rural areas and urban areas and where urban functions are not integrated” (Rönn, 2017, 7).

2.3. Current Trends
One identified current trend is increased purchase power due to increased incomes which will continue to grow next 10 years. The purchase power is concentrated to smaller amount of communities and stores located in areas with exodus gets worsening conditions which does not affect the total revenue of retail (Wärnhjelm, 2015).
Another trend is identification of an internalization of retail which affect the demand where consumer is attracted to international products to more extent (Wärnhjelm, 2015). An increased international competition and technological development has also created well conditions for specialised and more effective retail which also have resulted in reduced prices and wider range.

Service and distance becomes more important, where the time is more valuable for many households (Wärnhjelm, 2015). In combination with raised incomes, the residential close stores get improved conditions for survival. Services as home delivery of food will increase which is a method that contributes to time effectiveness. Another trend is establishments of residence in retail areas.

Retail centres are in larger municipalities attracting purchase power from adjacent municipalities and the city core retail are affected less if it is taken care of well. In smaller municipalities, the attraction power from adjacent municipalities are not as high as for larger municipalities (Wärnhjelm, 2015). This is because of different conditions and smaller retail establishments. There is also signs of affection of retail in city core due to lack of capacity and environment.

One trend is an expansion of large scale retail establishments are increasing (Wärnhjelm, 2015). There is also a scenario for future development of external retail establishments are a transformation to a polycentric city structure which can result in short distance and reduced amount of traffic. Another trend is the emerge of e-commerce which increase by 15-30 % every year (ibid.). However, the e-commerce has not yet resulted in a decrease of private car traffic.

2.4. Known effects from peripheral retail centres

Establishments in society can impact other environments, establishments or other sectors. These impacts can be both positive and negative (Ljungberg, et al., 2004). Some say that peripheral retail centres are socioeconomically effective with the advantage of low prices. Positive effects can for example be economic gain for the municipality, another positive effect is lower prices on both parking and products. However, others say that these establishments result in increased traffic amount, increased environmental impact, exclusion of consumer groups and impoverished city cores. In this section, some negative consequences of external retail centres are presented. The effects presented in this section are in relation to if no centre would be established.

**Increased traffic amounts**
Studies have shown peripheral retail centres have potential for affecting travel patterns in combination of shopping habits (Ljungberg et al., 2004). A study shows shopping trips done private by car for households has more than doubled due to peripheral retail centres. There has been a large transformation in shopping trips to stores close to residential that now goes to peripheral retail centres (ibid.). It can furthermore be shown that peripheral retail centres result in an increase of total traffic amounts.

**Increased emissions and noise pollution**
As mentioned, a changed private travel pattern has emerged from peripheral retail centres (Ljunberg et al., 2004). This mean that these establishments have in general resulted in longer private travels for shopping. An increased total traffic amount leads to increased emissions as well as noise pollution.
Decreased accessibility
Built environment as land use structure and accessibility can be argued to have a strong connection (Ljungberg et al., 2004). One condition for a decreased car dependency is to increase the accessibility of sustainable transport modes to different activities. An argument for an improved accessibility and decreased car dependency is the need for future long term sustainable development where it is needed to decrease emissions and therefore the car dependency. In 1995 a study showed that of all households not shopping in peripheral retail centres, 40% argued the reason was the lack of accessibility (ibid.). Those respondents argued that they not were able to transfer to the establishment at all or that there is a too long distance to the establishment.

The accessibility mostly affects people groups without a car and therefore have difficulties accessing the centre in an easy way (Ljungberg et al., 2004). The accessibility furthermore affects elderly, disabled and people living in rural areas. In combination of the car dependency of external centres and an uneven distribution of accessibility for consumers, it can be identified as a welfare loss. As mentioned, peripheral retail centres have resulted in an uneven distribution of groups who benefits these places (ibid.). A relatively large group in society do not have access to a car, in this group elderly people is included. With a more ageing population in general, a decreased commerce accessibility development of this kind unsustainable.

Decreased city/centre commerce
There is a risk for local city centre to be out competed when peripheral retail centres are established in the region (Ljungberg et al., 2004). Affection on city centre commerce mainly depend on two factors; first is the attraction to city centre of other services as restaurants, cultural activities and environment. Second factor is how large the purchase power is within the municipality as well as surrounding region. The purchase power determines if the external centre becomes an alternative to city centre commerce or replacement of the centre commerce (ibid.). If the external centre results in the ladder, stores in city centre risks be forces to shut down. A localisation of peripheral retail centres that results in out competed commerce close to residentials leads to a poorer accessibility for many groups in society.

Decreased commerce close to residential
At last, it is shown that peripheral retail centres result in largest impacts on other commerce which for instance can be stores close to residential and suburb centres (Ljungberg et al., 2004).

2.5. Sustainable Development
In the concept of sustainable development there are three defined dimensions; social, environmental and economic (World Commission on Environment and Development, 1987). Sustainable development is moreover in the Brundtland report defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs (ibid., 43). The concept is generally understood as a uniting concept that while protecting the environment it resolves tensions between social and economic development. There is considerable disagreement as to its precise meaning (Metzger and Rader Olsson, 2013).

The concept of sustainable development has for many become one of the most diversely applied concepts when discussing the future by academics and professionals (Metzger and Rader Olsson, 2013). There are with this said, many various ways of operationalizing sustainable development, dependent on what issues are perceived as most important and how the concept are defined. Different sustainability discourses have different perspectives on when the goals of environmental protection and socioeconomic development conflicts. One side of this conflict, there are traditional neoclassical discourses arguing for denial that a fundamental conflict exists between sustainable environmental development and economic growth. Failures in environmental sustainable development occurs due to
market failures which is the cost of nor properly integrated costs of environmental degradation. If costs were internalized, the market would solve the problem of failures in environmental sustainable development.

In September 2015, countries and united nations implemented a new sustainable development agenda. During this meeting targets were set to protect the planet, end poverty and ensure prosperity for all (United Nations, 2015). With prospect until 2030, the targets and goals will stimulate action in areas of critical importance for humanity and the planet. The 2030 agenda for sustainable development includes 17 Sustainable Development Goals with 169 associated targets.

The 17 Sustainable Development Goals are integrated and invisible and balance the three dimensions of sustainable development: the economic, social and environmental (United Nations, 2015). These 17 goals are summarised and illustrated in figure 2.1.

Figure 2.1. The 17 Sustainable Development Goals adopted in 2015 by the General Assembly of United Nations (United Nations, n.d.)

In this study the main focus of all SDGs will be on 3 of all 17 goals; number 11 Sustainable cities and communities, 13 climate action and number 17 partnerships for the goals. An increased accessibility of sustainable transport modes is a tool for reduced car dependency and reduced traffic amounts (Ljungberg et al., 2004). A society towards a reduced car dependency and car usage is one possible aspect of developing more sustainable cities and communities, which is goal number 11.

Improved accessibility of sustainable transport modes and a development towards reduced car dependency and car usage means reduced carbon dioxide emissions which is a development towards the goal of climate action, number 13. This study moreover studies conditions and possibilities for sustainable development and improved accessibility which can be directed to an improved partnership, and therefore the goal number 17; partnerships for the goals.
1.1. Swedish Planning System

According the Swedish Planning and Building Act is the planning system in Sweden built on region plans, comprehensive plans, area regulations and detail plans, see figure 2.2 (Boverket, 2016). A region plan and comprehensive plan can be identified as the direction and guidelines in an overview and long-term perspective where these two are not legally binding. However, area regulations and detail plans are legally binding and can furthermore be guided by region and comprehensive plan.

According the Swedish Planning and Building Act, the county government coordinates and promotes the national (state) interests in the planning process (Boverket, 2016). County governments are responsible for and to take actions questions that include national interests, environmental quality standards, intermunicipal interests and aspects of health, safety and risks for accidents, flooding and erosion. Municipalities are responsible for planning of land and water areas within the geographical borders of the municipality. In Sweden, it is only municipalities that are authorized to adopt plans and decide if plans should be realised or not. This means that Swedish municipalities have a large responsibility in a planning aspect. A municipality are obliged to have an actual comprehensive plan that includes the whole area of the municipality.

By area regulations, some fundamental land and water use can be decided by the municipality. These regulations are done if it is needed to ensure the aim of comprehensive plan or make sure national interests are included (Boverket, 2016). Detail plans regulate what is public space, private land and water areas and can in more detail regulate exploitation areas. Furthermore, these plans regulate the land use as well as the shape of it. Detail plans are in general adopted when new built environment and establishments or when cohesive built environment contains in one multi number of blocks.

Other planning tools and documents that is not mandatory or legally binding are; detailed comprehensive plan, retail policy, traffic plan etc. Municipalities normally create a detailed comprehensive plan for important areas within the municipality that need more guidelines than what is included in the comprehensive plan for the whole municipality.

Prior to a decision on a project such as a construction new housing area or a new road, Swedish legislation requires that environmental impact assessment (EIA) are carried out by the county government (Metzger and Rader Olsson, 2013). In this assessment impacts of the projects are identified. For the case of urban expansions and major infrastructure investments, often made at a strategic stage a number of decisions of this kind of processes a strategic environmental assessment is required.
3. Theoretical Framework

In this section a theoretical framework for the coming analysis of empirical results is presented. The framework is divided in three parts; planning of commerce, car dependency and accessibility. The theoretical framework supports the analysis of peripheral retail centres and the theory is because of this oriented or presented in context with peripheral retail centres.

3.1. Planning of Commerce

In Sweden there is no current legislation that regulates peripheral retail establishments and also no specific policy created from the state government (Ljungberg et al., 2004). The capitalistic society and trade market society have in Sweden been a strong actuator in urban planning (Bergman, 2008). The discussion and debate around peripheral retail centres and its negative impacts have resulted in legislation changes in countries as the Netherlands, Denmark and Norway (Forsmark, 2001). This effect from this debate show that a more sustainable development of retail can be steered by policies and planning. In Sweden, final decisionmaker of localisation of retail establishments is politicians. A qualitative consequence analysis of retail establishments creates better conditions for constructive dialogues with involved actors. To show consequences gives more legislation and more impact (Viklund et al., 2007).

There are countries with national regulations of planning of peripheral establishments (Viklund et al., 2007). In these countries centre locations are pointed out for each region where commerce can be established. According to Forsmark (2001) this method creates possibilities for coordinated planning in regions and counteract urban sprawl of build environment. In the Netherlands, there are policy that
points out specific criteria for location of centres where a centre should have good accessibility of a range of public transportation (ibid.). Moreover, there is a specific level for maximum allowed number of trips to the centre made by car.

Municipal planning of retail can be done on different levels, in the comprehensive plan, in a retail policy or in detail plan by building permits (Viklund et al., 2007). Viklund et al. (2007) argues that retail should be planned in an early planning stage with possibly on a comprehensive level as starting point, as a retail policy for instance.

Localisation of retail is one important question that needs to be updated (Viklund et al., 2007). Moreover, it is important to a long-time update detail plans and comprehensive plans in aspects of possibilities for a sustainable transport system (ibid.). Viklund et al. (2007) recommends follow ups of completed plans, comparison of forecasted traffic and actual traffic, moreover environmental impact and accessibility can be analysed a followed up.

To reach sustainable travel behaviour in society, the Swedish parliament express the importance of a policy for accessibility targets as a substitute of mobility targets are interconnected within the transport sector and urban planning (Riksdagen, 2010).

Sustainable transport politics should for instance focus more on moving people than moving vehicles (Riksdagen, 2010). The goal should be a high accessibility which is the possibility to access something desirable. Mobility however, is a possibility to transports and are instead just a tool to reach benefit within accessibility.

3.1.1. Competition and Purchase Power

In Sweden, municipalities are currently dependent on a range of targets and factors, where targets are set by politicians (Ljungberg et al., 2004). Some of these factors are the economic sector, targets of increased tax incomes and last increased employment rates and marketing of municipality. Furthermore, to reach set out targets, municipalities aim to create as much purchase power as well as employment opportunities as possible where they at the same time aims to prevent an outflow from the municipality of purchase power (ibid.). External centres have an impact on surrounding municipalities because of a moving purchase power within a certain distance. If there is an external centre in an adjacent municipality, purchase power will be taken from surrounding municipalities and in to the municipality with the external centre. Moreover, it can be argued that municipalities accept external establishments as a tool or weapon for competition of purchase power (Ljungberg et al., 2004). Municipalities are dependent on purchase power and are normally in competition with adjacent municipalities. The competition of purchase power can force municipalities to accept new external establishments against their wishes to be able to meet and compete with adjacent municipalities. In this question municipalities aim to prevent that establishments otherwise moves to adjacent municipality.

Power relations and political agendas are moreover discussed by Magnus Rönn (n.d.) in his article “Urban Design in the City of Helsingborg: The Conflicting Interests of Mobility and Cultural Heritage in a Contemporary Project”. Rönn argues that strong resources of political agendas and commercial interests often are grounded in development. Rönn means that the exploitation interest sets the agenda in the urban design project with exceptions of this interest of commercial (Rönn, n.d.).
3.1.2. A sustainable retail policy

For a sustainable development of retail establishments three key actors has been identified by Wärnhjelm et al. (2015). These key actors for planning of retail are governments/authorities, companies and individuals. The individual creates demands through their life choices and generates trips and transports. For retail establishments, companies are represented by land owners or/and construction companies who provides facilities. Companies are also the traders within the establishment and both in large business chains as well as smaller business companies (ibid). The government, which is the third key actor are for retail establishments the municipality and transport administration. The cooperation between these key actors affects the extent of production of trips and transport connected to retail and to what extent these trips are sustainable.

For a sustainable development of retail establishments, a cooperated planning is demanded (Wärnhjelm et al., 2015). Key actors involved are not only dependent of each other, in between there is also conflicts of interest. Because of the connection between actors and its dependence, Wärnhjelm et al. (2015) mean that there is a need for a comprehensive perspective of the potentials of the different actors in a cooperated solution. A routine of this kind need to, in an open process result in a sustainable retail policy (ibid.). An increased focus of cooperation of commercial and public service can be a solution for improving accessibility of a more sparsely retail structure.

A sustainable retail policy should contain two different parts; a physical part and a process related part (Wärnhjelm et al., 2015). These sections of a policy cooperate and affect each other on various ways. In the physical part of a sustainable retail policy factors of systematic spatial structures that supports and affects a sustainable travel and lifestyle pattern are described. A process related part describes decision making criteria and a good process of planning and cooperation. It is important that a process of this kind need to be adjusted to the size of the city and its characteristics (ibid.). A sustainable retail policy should be finalized by a democratic process with referral and approval, this is important due to the opportunity for other interests to impact on the process.

The result of a sustainable retail policy possibly does not mean an immediate transformation to improved conditions for an environmental sustainable urban development (Wärnhjelm et al., 2015). The process, however creates conditions for a long-term processing in terms of sustainability and the involved organizations gets attention for ambitions, targets and development.

3.2. Car dependency

Car dependency is possibly one main issues for achieving reduced car usage and lower levels of carbon emissions. In this study, the focus is on car dependency and discussions of car usage and traffic amounts is for transportation of people which do not include transportation of goods. During the latest years the average travel distance is 43 km every day. 64% of this distance is done by private car, and walking, bicycling and moped travels are 4% of this distance (Västerås stad, 2014). Shopping trips can be defined as a car trip for leisure activity and in 1999 car trips to leisure activities stood for 60 percent of the total private car usage (Wärnhjem, 2015). Additionally, a study showed that around 70-80 % of the total car usage amount in Swedish cities are shorter than 3-4 km. Trips for leisure activities shorter than 3-4 km could possibly be related to trips to peripheral retail centres. In this section, a range of factors and possible adjustments for lower car dependency is presented.

First, accessibility of sustainable transport modes to different activities is one possible factor for reduced car dependency (Ljungberg et al., 2004). Bjurström (2002) concluded from his GIS-study of travel behaviours in Swedish cities that the factors as population density and distance between residence and city have highest impact on percentage of car trips. Bjurström moreover concluded that errands done by foot are mainly done by individuals living close to city centre and lives in multifamily houses.
A quantitative study, De Aberu e silvia et al. (2006) concludes that using land use and urban form designs and planning both around residential neighbourhoods and workplace areas are valuable tools in planning. Results from this study furthermore provide quantitative evidence that workers living in central, compact, mixed and denser areas use public transit and non-motorised transport modes in a more extent. There is moreover a tendency of lower levels of car ownership for workers living in these areas. However, workers living in areas well served by highways tend to use the car as transport mode more intense, although this does not prevent use of public transportation.

In Swedish urban areas a common physical structure is when central parts are characterised by high density of residence, offices and retail (Reneland, 2001). Central areas in Swedish urban areas have relative small areas of green areas as well as car users. The density of residence, offices and retail decrease in line as the distance to the centre increase. The size and number of green areas and car users increase as the distance to the city centre increase. Reneland (2001) argues that an effective tool for planning of long term environmental sustainable society are attractive and safe pedestrian and bicycle routes. If half periphery detail retail establishments could be more integrated in the city structure, a possible starting point for a development of polycentric city structure are created. A possible starting point of this type are dependent on this integration to be done by a combination of residence and offices densification as well as extended pedestrian and bicycle network.

Thus, the relation between traffic amounts and built environment are complex and vague. A study done by Ewing and Cervero (2010), associations between the built environment and travel are analysed. They conclude that there is a strong relation between vehicle miles travelled and measures of accessibility to destinations and secondarily related to street network design variables. Moreover, the study showed that walking has the strongest relation to measures of land use diversity, intersection density, and the number of destinations within walking distance. The use of public transportation as bus and train are both equally related to proximity to transit and street network design and secondarily to land use diversity.

Several studies conclude to similar factors of car dependency and car usage and one could discuss all land use factors that possibly can impact on transports in cities. Wärnhjelm summarise factors that possibility can impact transport in cities and mean that these different characteristics can cooperate to city structure on a comprehensive level that in some level can decrease transport amount and improve energy sustainability (ibid.). As example of these listed factors it can be argues that density, diversity and centrality gives a natural decrease of car dependency. Moreover, the effectivity (shortcut), design and urban shape increase the competition power of the sustainable transport modes. All characteristics listed by Wärnhjelm (2015) are;

- Density
- Diversity
- Regional accessibility
- Centrality
- Effective traffic network
- Road and street design
- Design of pedestrian and bicycle roads
- Public transportation accessibility
- Range of parking and parking policy
- Design
- Mobility management
In the US a strategy for reducing car dependence is a more urban-style development, where potential destinations are closer to residence (Handy and Clifton, 2001). A study done by Handy and Clifton (2001) evaluation of the possibility for local shopping opportunities to help reduce car dependence has been studied. They explore how residents of existing neighbourhoods make use of their current available local shopping opportunities. They argue that providing of local shopping as a strategy do not necessarily mean reduced car dependence in the typical US city by either encouraging alternative modes of travel or reducing travel distances. However, while local shopping may not contribute much to reduce driving it does give residents an option to drive less which is an option people clearly value.

Studies shows that congestions cannot be fixed by additional road infrastructure (Rosqvist and Nordlund, 2011). The phenomena are named “induced traffic” and means that increased road capacity creates new traffic. By increasing the capacity and possibility for car traffic, the relative attractivity of bicycling and public transportation will decrease which affect the possibilities of reaching increased sustainability. The difference of emissions from one car in a traffic jam versus without a traffic jam is small in relation to if car trips instead are done by public transportation or bicycle.

The comfortability is one main competition factor between public transportation and the use of car. For the public transportation, one possible solution is e.g. clean, whole and fresh bus vehicles and different comfort-enhancing solutions can be used for the competition of the car as a transport mode (Holmberg et al., 2008). Other qualities can also affect the feeling of safety as littering, non-legislated graffiti and the feeling of other shady persons.

3.3. Accessibility

Different locations and establishments of retail affects the accessibility mainly vulnerable groups in society, as for instance disabled, elderly, youths and households without a car. In the Planning and Building Act of Sweden chapter 2 §4 states that reasonable possibilities to societal service in near area of built environment should exist (Viklund et al., 2007).

In a macro perspective, accessibility means how easy citizens and economic sector (näringsliv) can reach different activities in society (Holmberg et al., 2008). Different aspects can be included within the term easy, distance or travel time are two common aspects within accessibility. However, aspects as costs, comfortability and the feeling of safety are also important aspects. In a micro perspective, accessibility describes the relation between the individual capacity and environmental demands (ibid.). According to Martens (2017) accessibility can be defined as a personal resource that bestows a person with the possibility of participation in out-of-home activities.

Dependent factors of accessibility are functions of the transport system, localisation of built environment and localisation of functions and its relation to each other (Holmberg et al., 2008). One condition for decreased motorised dependency is to increase accessibility to various activated by non-motorised transport modes (Ljungeberg et al., 2004).

Accessibility can, on a municipal level be defined through analyzation of different functions as residence, offices, services, retail are localised (Holmberg et al., 2008). A comprehensive picture of accessibility can by analysing it in this way be measured of identified. For a more detailed level accessibility for a specific point or area tools as GIS (Geographical Information Systems) can be used (ibid). For each type of target point different standards are set. Accessibility standards may therefore differ from big cities to rural areas.

In an individual perspective accessibility can be defined as the meeting between the capacity of the individual and the design/demand of built environment (Holmberg et al., 2008). Knowledge of both individuals and environment is necessary for accessibility and it is a relative term due to analysis of
these two components gives accessibility. In line with the definition of accessibility in an individual perspective an important factor is of how we define person component based disabilities as movement or orientation difficulties.

Within the Smart growth manual written by Duany et al. (2010), they argue that transport planning need transform the focus to mobility from automobility. However, they moreover imply that accessibility is more useful than mobility. The definition of accessibility in the smart growth manual is “the ability to meet one’s ordinary needs with the minimum amount if travel and costs (Duany et al., 2010, 3.7)”. Moreover, Duany et al. (2010) mean that transportation issues often have solutions in land use-aspects.

Accessibility is, in its very essence, an asset that is jointly produced by all (Martens, 2017). It is only because of the spatial concentration of members of society that accessibility emerges. The concentration of persons allows the emergence of businesses, shops, hospitals, schools, and so on. The accessibility for public transportation are mainly dependent on the total travel time and its different parts of walking time, waiting time, time for change of mode and driving/travel time. These aspects are also dependent on how these parts of travel are perceived but it is also dependent on the percentage of traffic that is active during both day and night (Holmberg et al., 2008). Recommended distance between bus stations is around 100-250 meters and recommended average distance to stations for travelers should be from 200 meters to 400 meters (ibid.). There should moreover be considerations to connections to stations of reasonable walking and bicycling possibilities.

3.3.1. Accessibility analysis

Good accessibility for public transportation and pedestrians/bicyclists does not only mean the possibility to choose those transportation modes. It is also about the attractivity of these transportation alternatives for many of the possible travelers (Viklund et al., 2007). Accessibility is one aspect that changes. Transformation in built environment and accessibility is well connected to each other. An accessibility analysis of this type can work as a tool for calculating approximate numbers of accessibility of public transportation and bicycling. The result of an accessibility analysis should therefore be interpreted as more of an indicative answer of accessibility rather than a definite answer of accessibility.

Public transportation

One main factor to reach a sustainable transport system is the possibility of transferring travellers by car to travel by public transportation (Viklund et al., 2007). Public transportation is therefore one important aspect of accessibility. In this aspect, it is important that public transportation do not take much longer time and that there is good flexibility and wide range for this transport mode to be an attractive and comfortable choice.

One tool to analyse the attraction of public transportation is to use the travel time ratio which is the quota between the travel time of public transportation and bus, see equation 1 (ibid.).

\[
\text{Travel time ratio} = \frac{\text{Travel time}_{\text{bus}}}{\text{Travel time}_{\text{car}}}
\]

Logically, if travel time ratio is equal to 1 it means the trip takes the same amount of time with bus as with car. If the ration is equal to 2 it means travel time for bus trips takes doubled amount of time as the car trip and is usually not a competitive result of ratio for public transportation (ibid.). The recommendation Viklund et al. (2007) gives is a travel time ratio below 1,5 for public transportation to be competitive with the car as a transport mode.
Municipalities and developers can by traffic design easy improve the accessibility of public transportation by short distances to stations and entries (Viklund et al., 2007). There should moreover be safe pedestrian routes between entries and stations. It is not recommended that pedestrians are forced to walk across large parking area or along trafficked roads.

**Walk and bicycle**

Distance is the main factor for the competition power of transportations done by foot or bicycle. Establishments located close to the city core or interspersed in built environment normally has high potentials in attracting visitors with walking or bicycling as transportation mode (Viklund et al., 2007). Municipalities and developers have the possibility of strengthening the attraction of these two transportation modes by creating safe and effective pedestrian and bicycling routes (ibid.).

A travel time ratio for bicycling can be calculated in same way as travels by public transportation, see equation 2. The recommended ratio is as same for public transportation 1,5 for the transport mode to be competitive towards car as transport mode.

\[
\text{Travel time ratio} = \frac{\text{Travel time}_{\text{bicycle}}}{\text{Travel time}_{\text{car}}}
\]  

(2)

Another aspect for bicycle to be a competitive transport mode is the distance to correspond to travel time. Reasonable varies in different cities, normally it is between 2 to 6 kilometres. The reasonable distance depends on the design of cycle paths, terrain and amount of other traffic.

Other important aspects are distance and accessibility to bicycle parking and design of pedestrian paths. Viklund et al. (2007) suggests that guidelines used in city core should be used for external retail establishments as well. As example there should be unhindered pedestrian paths (ledstråk) and adjusted entries. It is moreover important to include car users as pedestrians after they parked the car.

### 3.3.2. Urban Mobility

Mobility and accessibility are two factors highly connected to each other thus with a diverse meaning. Meanwhile accessibility can be identified as the possibility to reach what is desirable, the utility of movement, where mobility can be identified as the movement (Riksdagen, 2010). Mobility can be studied from different perspectives and on different scales in urban design, architecture and landscape architecture (Toft and Rönn, 2017).

Mobility is by Tim Creswell understood as a socially produced motion. Creswell propose that mobility could be categorised and distinguished in different aspects (Toft and Rönn, 2017). He means that mobility can be distinguished as observable empirical reality, mobility as representational strategies attributing meaning to mobility, and mobility as embodied activity and a way of being in the world.

Toft and Rönn (2017) talks about how mobilities spaces long have been neglected by architects and urban designers. Mobilities spaces as parking lots, pedestrian tunnels, train station platforms and suburban path systems are all a part of the infrastructural systems of urban context where Toft and Rönn (2017) argue that these spaces have a lot to offer, if they were qualified and supported by design. One factor of mobility, accessibility and improved competition for use of walking and bicycling is the efficiency of the network. The efficiency of a network, is the distance of travel in a relation to the bird distance. If a pedestrian or bicyclists are forced to take long detours to reach target points, then the attractivity of using these transportation modes are low (Holmberg et al., 2008). Another factor is barrier effects where streets with a high traffic amount, high speeds and high percentage of heavy traffic decrease the mobility for pedestrians and bicyclists.
3.3.3. The Walkable City

Walkability is an important factor of accessibility of sustainable transport modes in urban places. The general theory of walkability explains how to favour walkability (Speck, n.d.). A walk must according to Speck satisfy four main conditions: safe, interesting, useful and comfortable where each of these is essential and none alone is sufficient.

In more detail, safe conditions mean that streets have been designed to give pedestrians higher safety when walking and as Jeff Speck says, “a fighting chance” of being hit by car vehicles; moreover, they must not only be safe but feel safe, which can be seen as an even tougher to satisfy (Speck, n.d.). The conditions of a walk being interesting means that sidewalks are lined by unique building with friendly faces and that signs of humanity abound. Useful walks are walks where most aspects of daily life (services, offices etc.) are within a relative short distance and organized in a way that walking serves them well. Comfortable conditions mean that landscape and building shape urban streets into “outdoor living rooms”, in contrast to wide open spaces, which usually fail to attract pedestrians. Jeff believe that these four conditions are mainly a way of thinking about a series of specific rules that Jeff call the Ten Steps of Walkability. He argues that these steps add up to a complete prescription for making cities walkable to a wider extent.

However, Jeff argues that the walkable city is a simple, practical-minded concept solution to a society with many complex problems, problems that daily undermine out nation’s economic competitiveness, environmental sustainability and public welfare (Speck, n.d.).

4. Research Methodology

To reach the aim of this project and to answer the research questions this study will mainly make use of a qualitative case study. Yin (2009) means that cases of decisions, individuals, neighbourhoods, programs, processes and organisations etc. are common subjects of case studies. The objects being studied in this project are a specific type of urban place (multiple cases), programs of the specific urban place and specific organisation planning the urban place. A case study research can because of this be argued to be a suitable research design for this project. The choice of using case study can also be decided after some specific factors of research process. First, a case study can be appropriate if posed research questions starts with “how” or “what” (Yin, 2009). Second, if the research does not require control of behavioural events, then a case study can be appropriate. Last, if the research focuses on contemporary events a case study can be a good choice of research design (ibid.). To gain as much credibility as possible for this study, it is relevant to choose a multiple case study.

A qualitative research often uses methods as interviews or focus groups and explores experiences, attitudes and behaviour (Dawson, 2009). The number of participants in this type of research normally is relatively small mainly because of the main focus of exploring attitudes and attempts of getting in-depth information from participants (ibid.). Possible for the time frame of this projects, it is suitable to make use of the number of three case studies. The choice of three case studies are moreover based on the possibility to conduct a comparative analysis of all three cases. A multiple case study of three cases can be suited both for a qualitative and a quantitative study. However, since this project investigating what planning approach the choice of a qualitative research is suitable for this project.

This research is also an explorative study which mean a study can discover theory by observing a social phenomenon and its natural form (Yin, 2012). In explorative case studies, fieldwork and data collection are undertaken prior to the final definition of methodological procedures or research questions.
For this study, maps have been created to show current characteristics and identified critical points. The map material has been selected from the map function on websites provided by the municipalities for all cases. The base maps can be found on [www.vasteras.se](http://www.vasteras.se); [www.norrkoping.se](http://www.norrkoping.se); [www.orebro.se](http://www.orebro.se).

Furthermore, this research project will use methods as interviews, secondary document analysis and site observation which all methods will in more detail be described later in this chapter.

### 4.1. Chosen case studies

The selected cases (see figure 3.1) for this study are three peripheral retail centres in Sweden;
- Erikslund located in the city Västerås.
- Ingelsta located in the city Norrköping.
- Marieberg located in the city Örebro.

![Map of location of cities, the chosen peripheral retail centres are located in](image)

Based on general characteristics of external centres (defined in section 2.1 of the report) the choice of case studies is based on following criteria.

#### 1. **Size of the city the case is located in.**

For this study, the choice of centre is partly based on the size of the city that the centre is located in. The cities for the case areas are smaller than a population number of 150 000 inhabitants. The choice of smaller cities and rural areas the car as a transport mode is dominated for all private trips. I argue that cities as chosen in this study have a challenge to develop external centres in an ecological sustainable way due to a relative slow rate of population growth and city densification and expansion. However, the selected cities still have walking, cycling and public transportation network around the city which have good possibilities to be improved. The first step was with other words to identify three Swedish cities of this size.
Västerås is a city with a population number on around 143,000 inhabitants and a land area of 958 square kilometres (Population city, 2014a; Statistiska Centralbyrån, 2018). Norrköping is in relation to Västerås located in south east direction and is a coast city. The population number is around 139,363 inhabitants, and Norrköping municipality has an area of 1,495 square kilometres (Norrköping kommun, 2017b). In 2016 the population number in Örebro was 146,631 citizens (Statisticson, 2017). Örebro is the seventh biggest city in Sweden however, Stockholm the biggest city in Sweden are still 13 times bigger in population than Örebro (Statistiska Centralbyråen, 2017). The land area of Örebro municipality is 1,373 square kilometres (Statistiska Centralbyråen, 2018).

2. Geographical distance from case area to the inner city.
To ensure the retail area can be identified as an external retail centre, the distance to the city core should be around 2 kilometres or more. When identified three cities, a search was done on existing peripheral retail centres within the city and the distance to inner city.

3. The spatial structure of the case area.
By looking at google maps one should be able to identify large scale buildings, amount of parking spaces and sprawl location of buildings within the centre. The third step was to ensure that the spatial structure was within the frames of a typical peripheral car based shopping centre.

4. Connection to bigger roads.
The centre should be located closely to highways or bigger roads. The last step was to ensure that the case was located in connection to a bigger road.

4.2. Delimitation
This project studies the phenomena of peripheral retail centres however a delimitation of this study of tools and conditions for improved accessibility of sustainable transport modes to the centres and within the centres. The study therefore touches upon subjects as competition power or affection of E-commerce or other aspects, however these are not the main focus of the study.

One main focus for this study is reduced car dependency and contributing factors. This includes car dependency in a private use perspective. A focus has therefore not been on car dependency due to truck traffic and non-private trips. Another main focus of this project is sustainable transport modes and tools for improved accessibility, important to note this does not include accessibility of car traffic.

Peripheral retail centres can be analysed in many aspects as architecture, traffic safety, land use etc. This project studies the accessibility of sustainable transport modes and how that aspect can be improved. A study of its own is a research of how accessibility for disabled can be improved within peripheral retail centres. It can be argued that this study possibly is starting point for a study of that kind.

4.3. Research Ethics
This research project has strictly given attention to ethical concerns during the project process of research. When conducting interviews, the interviewees have been fully informed about the purpose of the project and respectively asked about interview recording. Moreover, interviews have been held at a time, date and location chosen by the interviewees and the interviewer has considerably choose appropriate questions to the interviewee. The interviewees had the opportunity to take part of the report before final publication and considerations will moreover be taken regarding anonymity of interviewees in the report.
When collecting data from literature review, the researcher has respectively asked about use of unpublic data in report and when use of figures the source admin are asked for use. The researcher has moreover strictly and carefully used literature in report in matters of no plagiarism.

During observations in the research project process, respect has been given other visitors of site. The researcher has not taken any picture exposing other visitors and the researcher did moreover not disturb other visitors in a negative matter. It is important to consider aspects of safety when collecting data from observations, the researcher has been avoiding places where one can be put in danger, as large traffic sites and roads.

4.4. Qualitative Interviews

Qualitative interviews have for this research been used as one main method where interviews are an essential source for case study information (Yin, 2009). This project studies a multiple number of geographical sites and the planning background behind it. It is therefore suitable to get in-depth information from planning organisation of the different places. Moreover, well informed interviews can provide important insights into studied phenomenon (Yin, 2009). The chosen geographical sites are Erikslund located in Västerås municipality; Ingelsta located in Norrköping municipality and Marieberg located in Örebro municipality. In Sweden, municipalities have planning monopoly which means that municipalities are responsible for planning of their municipality (Boverket, 2016). Based on this, it is suitable to interview a planner from these three municipalities. The planner from the municipality should be or should have been involved in planning of the specific case study areas. The interviewees can provide shortcuts to the prior history of studied situations, which helps to identify other relevant sources of evidence that is hard to find in for example a literature review (Yin, 2009). Therefore, a reasonable approach is to corroborate interview data with information from other sources, which will be done in this study. In this project, data gathering will be done by interviews, secondary document analysis and site observation.

The conducted interviews where held at a location chosen by the interviewee, which was for all cases the interviewee’s office. All interviewees are municipal planners, and because of this were the location the municipal/ city hall for Norrköping, Västerås and Örebro. The first interview was held the 23rd of February 2018 which was with the interview with a planner from Norrköping municipality. The respondent from Norrköping municipality is a plan architect at the department of strategic planning and project management. The respondent from Norrköping municipality has been involved in a starting process of a detailed comprehensive plan for Ingelsta. The second interview, with planner from Västerås was conducted at 1st of March 2018. The respondent from the city of Västerås is a plan and landscape architect working at the department of urban/city planning and administration (stadsbyggnadsförvaltningen). The respondent from the city of Västerås is involved in process of the detailed comprehensive plan for Erikslund. The third interview was conducted at 10th of April where the respondent is traffic planner working at the department of traffic and city planning (trafikenheten, stadsbyggnad). The respondent from Örebro municipality has previous been involved in traffic planning of roads in Marieberg. Comparing the roles of the three respondents a difference can be identified by the planner from Örebro with two other planners. The influence can because of this be identified as different between these interviewees. The interview with planner from Örebro municipality are more directed to the traffic planning approach and less about general questions about the case area. All interviews were held during around one hour per session.

To find suitable interviewees for this research project, the snowball method has been used. By this method, the researcher used one contact who helps the researcher to recruit another contact, who in turn can lead the researcher to another contact (Flowerdew and Martin, 1997). The initial contact may be someone from a formal organisation, a social group or similar. This method allows the researcher to seek out more easily interviewees with particular experiences or backgrounds. Another strength
with this technique is that it helps researcher to overcome one of the main obstacles to recruiting interviewees, gaining their trust. The interviewee can also suggest other persons to be interviewed, as well as other sources of evidence (Yin, 2009).

To find out the planner’s thoughts and the approach of organisation about development of peripheral retail centres the interviews aimed to gather in-depth information. The strength of in-depth interviews is that the researcher can discuss possible ideas from interviewees as well as the researcher can ask about the facts of matter and their opinions about events (Yin, 2009). When using in-depth interviews as method it is important for the researcher to be cautious about becoming overly dependent on the key informant, especially because of the risk of the interpersonal influence that the informant may have on the researcher. Moreover, the researcher need to concern that everyone is different and results might differ dependent on who the interviewee are (Dawson, 2009).

Using qualitative in-depth interviews as a method only offers one to talk to one at the time which can be time consuming which is a main disadvantage when using this method (Flowerdew and Martin, 1997). In this research three interviews have been conducted, one interview for each municipality.

The interviewer has produced an interview protocol which includes a list of topics for discussions as well as some example questions for those topics, see appendix 2. A structure of this kind can be identified as a semi-structured interview, where the aim of the interview is to create discussions (Dawson, 2009). Semi-structured interviews can be identified as in-depth interview as for this study. However, in depth interviews can also be structured interviews with more specific questions and exclusion of discussion, which differentiate the two characteristics of qualitative interviews.

If this research project would be done during a longer time of period interesting interview participants would also be: Involved country government who create impact assessments of produced plans created by the municipality (Yin, 2009). The county government critically analyse created plans which can give the researcher interesting insights from a more critical perspective. Private land owners or development organisation of propertied included in the specific case study areas. This actor can give information about their visions for the land. Land owners can be argued to have a lot of power in future development of their property. Public transportation companies for the chosen cities, interesting to get information about their visions and relation to the specific case study area.

Some strengths of using qualitative interviews as a method in a research is firstly that it is targeted which enables the researcher to directly focus on case study topics (Yin, 2009). Another strength by using qualitative interviews is that it is insightful where it provides perceived casual inferences and explanations. However, qualitative interview can be biased due to poorly articulated questions which is identified as a weakness of the method. It can also result in biased responses, as another weakness of qualitative interviews. Due to the risk of poor recall, inaccuracies can be identified when using qualitative interviews. There is also a risk of a reflexivity from the respondent in a qualitative interview which means that the respondent gives unknowingly or knowingly answers that the interviewer want to hear without being the truth answer (ibid.).

4.5. Secondary document analysis

The second method for this research is a secondary document analysis. The use of documents for case studies have large importance for enlargement of evidence and corroborate from other sources (Yin, 2009). Secondary document analysis has by Bowen (2009, 28) been defined as:

“Document analysis is a systematic procedure for reviewing or evaluating documents – both printed and electronic (computer-based and Internet-transmitted) material.”

The procedure of a document analysis entails finding, selecting, reviewing (making sense of), and synthesising data contained in documents (Bowen, 2009). Documents are helpful in verifying names
or titles of key actors, organisations or provide other specific details that might have been mentioned in an interview or from other sources (Yin, 2009). The method is often used in combination of methodologies in the qualitative research methods (Bowen, 2009) and as in this study document analysis is used in combination with interviews and site observation.

For this method, the use of secondary data has been planning and policy documents from municipalities of the three cases. The documents have been chosen based on the Swedish planning system and what those documents the municipality (planning government) are following in their planning of the case area and adjacent areas (municipality). The documents studied have been identified from the municipal website for each cases (www.vasteras.se; www.norrkoping.se; www.orebro.se), which is the location where public planning documents are published.

One planning document studied for all three cases is the comprehensive plan of the municipality. As mentioned earlier, a comprehensive plan is mandatory in the Swedish planning system and the research has therefore been able to analyse the actual comprehensive plan for all three cases. However, during the research period the latest comprehensive plan of Örebro was published. The document analysis has because of this been conducted on both the comprehensive plan from 2010 and also the comprehensive plan from 2018.

Comprehensive plans set out guidelines and directions for the municipality in an overview and often long-term perspective (Boverket, 2016). The comprehensive plans have been studied to get an overview of the different municipalities the cases are located in and their targets for planning of the case area and for the municipality. The analysis of comprehensive plans has been on visions, targets specific for the case area, targets for transport (all transport modes), targets for retail in the municipality and accessibility targets. The analysis of these aspects has been done to identify the planning status and approach of the different municipalities as well as identify stated conditions and targets for the case areas.

Detailed comprehensive plan specifies on one important area for the municipality. A detailed comprehensive plan has been analysed for the case of Erikslund which is the only case with a detailed comprehensive plan. The analysis of this document has been on vision for the area, targets for transport (all transport modes), targets for retail and accessibility targets. This document has been analysed to identify planning approach and targets for the areas as well as conditions for the case study areas.

A planning program for the case area Ingelsta, Norrköping has in this research been analysed. The analysis of this document has been on vision for the area, targets for transport (all transport modes), targets for retail and accessibility targets. This document has been analysed to identify planning approach and targets for the areas as well as conditions for the case study areas.

Detail plans has moreover been analysed to gather knowledge about legal regulations of land use within the three case areas. Detail plans is not a mandatory document in the Swedish planning system, therefore has the number of detail plans varied for each case area. Detail plans has been studied to analyse possible conditions for the case study areas and possible planning approach.

Other analysed municipal planning or guideline documents in this research is traffic guidelines, traffic plans/programs, climate strategies and sustainability assessment of plans.

4.6. Site Observation

Site observations and field visits have been done for all three cases. Evidence gathered from observations is often useful in providing additional information about the topic being studied (Yin,
Not only do the methods provide additional information, assuming the phenomena of interest have not been purely historical, some relevant environmental conditions will be available for observation. Such observations serve as yet another source of evidence in a case study.

When conducting an observation study of a site, taking photographs of the physical site can work as valuable tool. At a minimum, these photographs will help to convey important case characteristics to outside observers (Yin, 2009). One strength of this method is the gathering of reality knowledge, the method covers events in real time. Another strength is that it covers context of the case being studied, as for instance adjacent areas etc. One weakness of the method is the time demanded (ibid.), the method can be time consuming, especially if it need long travel for the destination.

The site observations were done for all three cases at different occasions, the site observation in Ingelsta was conducted the 23rd of February, in Erikslund the 1st of March and in Örebro the 10th of April. The researcher travelled by public transportation (bus) to the case area from the city core of the city. By this, the researcher got an understanding of the conditions for the accessibility to the centre by public transportation. The site observations were conducted during one and a half hour per case. The researcher has to the site observation prepared printed maps of the area that the researcher during the observation could follow, take notes and mark out specific target points/conflict points or observations. The collection of data at the site observations was moreover done by taking photos of the case areas. The researcher focused during the observations on critically analyse the area from a pedestrian perspective where aspects as traffic safety, feeling of safety, road connectivity for pedestrians and bicyclists, bicycle parking and bus stations and the accessibility to them. Based on these analysed aspects, the researcher mapped out possible conflict points within the case study areas. For all three cases, the researcher walked/observed all pedestrian paths to make sure observations has been done for the whole case area.

4.7. SWOT-analysis

In order to analyse the data gathered from the research methods of this study which is interviews, secondary document analysis and site observation a SWOT-analysis been used. A SWOT-analysis can be used identifying organisational influences strengths, weaknesses, opportunities and threats (Leigh, 2010). A SWOT-analysis is as its best a process by a group of stakeholders where first an identification of internal and external inhibitors and enhancers of performance. Second, analysing those factors based on estimates of their contributions net value and approximation of their controllability. And third, the group decides what future action to implement with regard to those factors (ibid.). SWOTs are normally arranged in table or matrix of one for each aspect. In this method, strengths are seen as an internal enhancer of competence, valuable resource or attribute. Weaknesses can be defined as an internal inhibitor of the resources, competence, or attributes necessary for success. Influences identified as opportunities possibly an external enhancer of performance that can be pursued or exploited to gain benefit. And last a threat can be defined as an external inhibitor of performance that has the potential to reduce accomplishments.

By identifying these different aspects for all three cases by a SWOT-analysis, answers of research questions as identified planning approach and identified actual conditions are in a clear way summarised which enables a comparison of the different cases, both as a tool for the researcher as well as a summarise for the reader.
Empirical results
Chapter 5, 6 and 7

Following three chapters presents the empirical result and analysis for the cases of Erikslund (chapter 5), Ingelsta (chapter 6) and Marieberg (chapter 7). These three chapters are presented by same layout and framework. The chapters start with a historical presentation, describing how the external retail centre emerged. Further, an area description presents current status of the area and other relevant information about the external retail centre and the city the centre is located in. Followed, the identified planning approach are presented which includes set out targets and strategies by the municipality. Identified planning conditions are after this presented which include an accessibility analysis conducted by the researcher of this study. The identified planning conditions also contains a compiled analysis of identified strengths, opportunities, weaknesses and threats by mainly the municipality for the case area. The chapter is concluded and presented in a SWOT-analysis conducted by the researcher of this study. The SWOT-figure will conclude both analysis of researcher and municipality.
5. Result: Erikslund

5.1. History of Erikslund

1985 was the starting point for Erikslund when the Traffic hotel opened. This hotel is since 2004 the construction warehouse, Bauhaus (Erikslund, n.d.). Until 1990, Erikslund grew with more retail. Due to the property crisis in Sweden (fastighetskrisen), the growth of Erikslund stopped in 5 years. Since the mid 90’s the expansion has increased and in 2011 Ikea, city gross and Erikslund shopping centre was established. The establishment of this meant 80 new stores and 50 000 square meters of new retail in Erikslund. Until 2011, Ikea was located in another external retail centre Hälla in Västerås, see map 5.2.

Ikea wanted a larger warehouse, where expansion of the warehouse was not possible in Hälla, Ikea decided to move to Erikslund (Planner Västerås kommun, 2018). Erikslund was at this time, planned for industry and retail of volume durable commerce. Ikea can be identified as volume durable retail and because of this the reasoning was that Erikslund would fit Ikea well. However, during the detail plan process suggestions of not only an Ikea warehouse but also a shopping mall came in. When Erikslund shopping centre was established, the mix of durable volume shopping and non-volume lifestyle shopping happened.

When Ikea wanted to expand their warehouse, the municipality felt a fear of losing an important regional attraction point and aimed to accommodate the wishes Ikea had (Planner Västerås stad, 2018). The solution was to move to current location, Erikslund. The new location for Ikea have resulted in a popularity for other retail stores and companies to be located near Ikea which have contributed to the expansion of Erikslund during the years.

5.2. Area description

Erikslund is located on the west side of the European highway E18. The area contains a mall, other multiple retail points and other types of facilities, see table 5.1. The land use is dominated by private services with a lack of residences and public services in the area. The built environment is characterised by large scale buildings and parking, see figure 5.1 and 5.2. Commercial are designed to be seen from a long distance and from a car vehicle and are therefore of large scale as well.

Figure 5.1. Picture of one building in Erikslund representing the architecture in the area.
Retail in the area
The retail in Erikslund contains one in house mall including an Ikea warehouse and other detail retail. There is moreover other detail retail as supermarkets and warehouses in the case area. Within Erikslund there is retail types as; Non-volume lifestyle purchases, volume durable purchases and groceries, for definitions see chapter 2.1. In table 5.1 important identified target points are listed. To show possible target points and type of retail an overview can be produced of different flows in the area of car users, pedestrians and bicyclists.
<table>
<thead>
<tr>
<th>Number of building and location on figure 5.2.</th>
<th>Name of business or activity</th>
<th>Type of retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Erikslund Shopping Center (Ikea, Stadium, City gross etc.)</td>
<td>Volume durable purchases, Non-volume lifestyle purchase, Groceries</td>
<td></td>
</tr>
<tr>
<td>2 Jula</td>
<td>Volume durable purchases</td>
<td></td>
</tr>
<tr>
<td>3 Biltema</td>
<td>Volume durable purchases</td>
<td></td>
</tr>
<tr>
<td>4 Bauhaus</td>
<td>Volume durable purchases</td>
<td></td>
</tr>
<tr>
<td>5 XXL, Lager 157</td>
<td>Non-volume lifestyle purchases, Volume durable purchases</td>
<td></td>
</tr>
<tr>
<td>6 Mediemarkt</td>
<td>Non-volume lifestyle purchase, Volume durable purchases</td>
<td></td>
</tr>
<tr>
<td>7 Elgiganten</td>
<td>Non-volume lifestyle purchases, Volume durable purchases</td>
<td></td>
</tr>
<tr>
<td>8 Mio</td>
<td>Volume durable purchases</td>
<td></td>
</tr>
<tr>
<td>9 Systembolaget, Webbhallen</td>
<td>Groceries, Non-volume lifestyle purchases</td>
<td></td>
</tr>
<tr>
<td>10 Ica Maxi</td>
<td>Groceries</td>
<td></td>
</tr>
<tr>
<td>11 Chilli, Team sportia, Apotek hjärtat, Kronans apotek</td>
<td>Volume durable purchases, Non-volume lifestyle purchases, Groceries</td>
<td></td>
</tr>
<tr>
<td>12 Blomsterlandet</td>
<td>Volume durable purchases</td>
<td></td>
</tr>
</tbody>
</table>

Table 6.1. Identification of businesses and retail in Erikslund, see map 6.2 for location of activities.

**Street structure**
Erikslund are located between three large roads; European road E18 (and national road 56), the national road 66 and Västerleden, a road under establishment and construction. The main entries to Erikslund by car is the entry to Ikea, entry to Bauhaus and the entry to Ica Maxi, see figure 5.2. There is three main identified target points in Erikslund; Erikslund Shopping centre (including Ikea), The area around Bauhaus and the area around Ica Maxi. Between these three main target points there is road Krankroksgatan, Traversgatan and Hallsta Gårdsgata, see figure 5.2.

**Connectivity**
Erikslund is located around 8 kilometres west of the city core of Västerås and the area can mainly be accessed by the transportation modes car, bus, bicycle and walking. The main transport mode when accessing Erikslund is by car which have a travel time of around 12 minutes from central station in the city core of Västerås (googlemaps.se, n.d, a.). Accessing Erikslund by public transportation there is two possible routes: bus number 3 and 11, see appendix 2. Bus 3 runs between Västerås airport (Västerås flygplats) and Erikslund and is a what is called a city line. Bus 11 runs between Viksång and Eriksborg and is what is called a service line (vl.se, no date). The bus route between Erikslund and Västerås central station takes around 20 minutes. The intensity of the bus route is departures every 10 minutes as highest intensity (weekdays) and every 30 minutes as the lowest intensity which is during weekends (vl.se, no date). To access Erikslund by bicycle, the travel time is around 25 minutes from the central station of Västerås (googlemaps.se, n.d, b.). Accessing the area as a pedestrian or bicyclists there is two passages by tunnel under the European highway E18 and two passages by tunnel under the national road 66, see figure 5.2.

**Nature**
There is no nature reserve within or close to the case area Erikslund (Västerås stad, 2017). However, the area around Erikslund, are dominated by small broken moraine field. There is also a number of
wetlands and sump forest around Erikslund. Salamanders have been found west of Erikslund and are highly dependent on the wet fields in the area (Västerås stad, 2018).

Key actors
Identified key actors for previous and future development of Erikslund are Västerås municipality, private land owners, companies located in Erikslund and public transportation company in Västerås. Västerås municipality have for this area the role as decision maker and partly initiator since current undeveloped land and roads within Erikslund are owned by the municipality (Planner Västerås kommun). The developed land in Erikslund are owned by private owners meanwhile land not yet detail planned and developed by the municipality (Västerås stad, 2018). Other land owners than the municipality are Klövern and ica fastigheter (Erikslund, n.d.) of the area and are due to this able to set suggestions and initiatives that will be passed to the decision makers Västerås municipality. For Erikslund there is an organisation called Erikslund köpcenter ekonomisk förening. Their main task is to market Erikslund retail area and the group should work as one united part towards the city of Västerås. Another main task for the association is to manage logistic and traffic (Erikslund, n.d.). Moreover, companies and land owners possibly comes with development proposals which the municipality approve or decline. Public transportation, for this case VL, can with cooperation with the municipality invest in an improved public transportation. The municipality owns mainly all roads within Erikslund, see appendix 3 (Västerås stad, n.d.).

The city of Västerås
Västerås is a regional retail city (Västerås stad, 2017) and currently Erikslund, Västerås city core and the external retail centre Hälla are three core retail targets in Västerås, see figure 5.3.

Figure 5.3. Identification of case area Erikslund and relation to the city of Västerås and the external retail centre Hälla.

5.3. Planning approach
5.3.1. Targets/visions/prioritizations
The city of Västerås aims to lower the greenhouse gas emissions to a level close to zero. They moreover aim to be able to create conditions for this target and for a society with low environmental impacts and more sustainable life styles (Västerås stad, 2017). Västerås municipality mean that the bicycle should be the obvious mode of transport in the city and furthermore express the importance of conscious planning and prioritization.
A mixed function city is enhanced and Västerås municipality argues that an area containing both residence and other functions and services increase the opportunities for a local city life through a complement of activities that currently is missing (Västerås stad, 2017). Thus, the municipality stress that a societal structure with function monotonous areas can increase the risk for segregation.

Since a predicted population growth likely will increase the amount of car trips it is important to aim for increased usage of sustainable transport modes for short trips (Västerås stad, 2017). In the detailed comprehensive plan of Erikslund, one target is to increase the amount of travels made by bus to Erikslund. The municipality mean that a target of this kind partly can be met by the initiative in Västerås called Smartkoll\(^1\) (Västerås stad, 2018). Another target is to be able to build residential in this area that already containing workplaces and close distance to nature and recreation (Västerås stad, 2018). A new road Västerleden are planned for the area of Erikslund, this road will connect national road 66 with the national road 56 and Eurpean road 18. On both sides of this new road there is plans of an expansion of retail and businesses. This area is currently non-developed land located on the west side of Ikea and Erikslund shopping centre. The city of Västerås mean that the most attractive location for new businesses and retail in Erikslund are close to two of the main entries; the entry to Erikslund shopping centre and Ikea from E18 and one from Surahammarsvägen to Bauhaus, see map 5.2 for entries to Erikslund.

Västerås is a regional retail city and the municipality mean that more establishments in Erikslund strengthens the role as a regional retail centre for both people living in Västerås as well as outside the city (Västerås stad, 2017). In the detailed comprehensive plan of Erikslund, the municipality aims to give opportunities for services and companies to be located in an attractive area in Västerås (Västerås stad, 2018).

### 5.3.2. Existing strategies

Västerås municipality wants to plan for sustainable travels by creating high accessibility and developed public transportation within the whole region (Västerås stad, 2017). How to increase the usage of sustainable transport modes, pedestrian and cycling paths should be prioritized as well as an extension of the public transportation network (ibid.). To create conditions for life style with low environmental impacts, continued investments are demanded for support of sustainable transport systems.

The walking and bicycling traffic in Västerås should be prioritized and work as a complement to a good public transportation network (Västerås stad, 2017). Important geographical target points as service areas in Västerås should be accessible and have good connections by walking, bicycling and public transportation. An increased amount of bicycle traffic, demands a higher number of bicycle parking in the city. Moreover, high standard bicycle parking should be located by these target points. Bicycle parking in connection to public transportation improves the opportunities for combined bicycling and bus travels (Västerås stad, 2017). The municipality mean that it is important to localize public transportation stations so there is a safe option to walk to it and moreover visible stations (Västerås stad, 2018). For the area of Erikslund, the municipality express that in depth studies should be done to create safe walking and cycling network.

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\(^1\) The public transportation system, Smartkoll was introduced in Västerås the summer 2013. The aim of the system is to considerably increase the amount of bus travels (Västerås stad, 2018). This system means main strain lines in combination with additional complementing traffic.
Local centre establishments have today difficulties in competition. New built environment can create better conditions to retain existing service or establish new service and meeting points are prioritized (Västerås stad, 2017).

### 5.4. Conditions

#### 5.4.1. Accessibility assessment

An accessibility assessment of Erikslund are based on guidelines from Viklund et al. (2007) where calculations are done for accessibility to the centre. Moreover, the accessibility calculations are approximative for accessibility and is done for public transportation and bicyclists separately. A further description of accessibility assessment can be found in theory section 4.3.1. in this report. The estimated travel times are earlier presented in section 5.2. in this report. Moreover, the travel time for the different transport modes are based on the distance between the central station of Västerås and the case Erikslund.

**Public transportation**

First, the accessibility by public transportation are calculated with use of equation (1) from theory section 4.3.1. in this report.

\[
Travel \text{ time ratio} = \frac{Travel \text{ time}_\text{bus}}{Travel \text{ time}_\text{car}}
\]

\[
\begin{align*}
Travel \text{ time}_\text{bus} &\approx 20 \text{ minutes} \\
Travel \text{ time}_\text{car} &\approx 12 \text{ minutes} \\
Travel \text{ time ratio} &= \frac{20}{12} = 1,67
\end{align*}
\]

The calculation shows a result of a time travel ratio 1,67. The recommendation by Viklund et al. (2007) is below 1,5 for the public transportation to be competitive with the car as transport mode. This result shows that improvement can be done on the accessibility of public transportation to Erikslund.

**Walk and bicycle**

An accessibility assessment for bicycle equation (2) are used from theory section 4.3.1. in this report.

\[
Travel \text{ time ratio} = \frac{Travel \text{ time}_\text{bicycle}}{Travel \text{ time}_\text{car}}
\]

\[
\begin{align*}
Travel \text{ time}_\text{bicycle} &\approx 25 \text{ minutes} \\
Travel \text{ time}_\text{car} &\approx 12 \text{ minutes} \\
Travel \text{ time ratio} &= \frac{25}{12} = 2,08
\end{align*}
\]

The calculation shows a result of a time travel ratio 2,08. The recommendation by Viklund et al. (2007) is below 1,5 for the use of bicycle to be competitive with the car as transport mode. This result shows that improvement can be done on the accessibility for bicyclists to Erikslund.

Moreover, as previously mentioned the distance between the city core and Erikslund is around 8 km. The given reasonable distance for bicycling is between 2-6 kilometres which distinct shorter than the actual distance between Västerås city core and Erikslund. In Erikslund, the traffic system mainly is function separated which results in unattractive passages and pedestrians and bicyclists on shared...
space, see figure 5.4. In figure 5.5, critical passages will be defined and locations of lacking quality, design or traffic safety. Due to the sparsely built environment and large-scale buildings and car parking there are a lot of surfaces unclear for pedestrians and bicyclists. To see current bicycle parking and suggested additional parking see figure 5.5.

5.4.2. SWOT-analysis

In this section a SWOT-analysis is compiled by the researcher which concludes the actual conditions for the case of Erikslund. The SWOT-analysis is partly based on statements from the planning government – Västerås municipality and partly based on analysis of case area by the researcher. These two perspectives are clearly presented in the SWOT-analysis.

There are regulations of no new external retail establishments in the city of Västerås, this is seen as a strength for not expanding car dependency further by a planner at Västerås municipality (2018). There is also a project called the future of public transportation (Framtidens kollektivtrafik) which is aimed to finished by 2019. This project creates opportunities for improved public transportation solutions between the city centre and Erikslund (Planner Västerås stad, 2018).

A bus street or path are planned between existing Erikslund the new expansion of the centre and is for the area an opportunity for improved accessibility of public transportation (Planner Västerås stad, 2018). A planner at Västerås municipality (2018) sees an opportunity for less congestion in Erikslund by the new roads Västerleden and Kofotsgatan. The municipality express in their strategies that one opportunity is establishments of bicycle parking in connection to public transportation (Västerås stad, 2017). The municipality mean that this type of parking improves the opportunity for combining bicycling and public transportation.

In an analysis of the researcher, the public transportation connection to IKEA and Erikslund shopping centre (mall) are good due to bus stations close to entry and stations well designed and established. There is an opportunity to establish more bus stations in east parts of Erikslund, see map 5.5. The range of bicycle parking is a strength of Erikslund where it exists by the entry of IKEA and Erikslund shopping centre (mall) and more over in the area by Ica Maxi. This strengthen the accessibility to target points of non-motorised transport modes within Erikslund which is one condition for reduced motorised
dependency according to Ljungberg et al. (2004). Due large amount of car parking and few bicycle and commute parking there is moreover an opportunity to transform some car parking to bicycle and commute parking. There is moreover opportunity to strengthen the accessibility and connection between building for pedestrians and bicyclists.

There is a new development project in Sättra where mainly residence will be built. Due to this new project the municipality express that there is an opportunity to create a new good pedestrian and bicycle connection between the two areas (Planner Västerås stad, 2018).

To include politicians in development of Erikslund is seen as a strength for Västerås in a regional perspective as well as a source for good employee opportunities (Planner Västerås stad, 2018; Västerås stad, 2017). By expanding Erikslund they see opportunity to strengthen the regional role of Erikslund further (Planner Västerås stad, 2018).

A retail and business expansion of Erikslund is planned which creates more employee opportunities and strengthens the regional role of Västerås. Since there is plans of expansion in Erikslund which is not detail planned yet, there is an opportunity to regulate the physical design, urban structure and type of activity that contribute to a reduced car dependency and increase accessibility of sustainable transport modes. In an analysis by the researcher, the use of theory De Aberu e silvia et al. (2006) are applicable where there is an opportunity to use physical design to decrease car dependency and improved accessibility. However, there is also a threat for new development to be regulated to building for monotonous functions as more retail and businesses. In an analysis, mixed functions are one tool for sustainable development and possibly less car usage (De Aberu e silvia et al., 2006). To build mixed functions is in the area new regulations are demanded which also possibly mean new detail plan which often is time consuming.

Moreover, Västerås value Erikslund high since it strengthens the regional role as well as employee opportunities (Västerås stad, 2017). In an analysis by the researcher this can be one aspect of acceptance of external retail centre due to good competition of purchase power (Ljungberg et al., 2004). Moreover, an extension with more retail and businesses in Erikslund is a threat for local retail in Västerås.

One strength identified by the researcher for improved accessibility to Erikslund is that Västerås municipality want to put a lot of focus on the design of built environment to minimize the creation of unsettled transportation land (Västerås stad, 2018). In an analysis the focus on design of built environment can work as a valuable tool in planning for reduced car ownership (De Aberu e silvia et al., 2006). By the theory of Handy and Clifton (2001) they also discuss the strategy of urban-style development for reduced car dependence. However, since adjacent infrastructure is traffic separated and contradicts a sustainable structure of built environment, there is also a threat for new built environment in a typical car dependent spatial structure.

The traffic separated system in Erikslund is currently a weakness for improved accessibility in the area. A traffic separated system intensifies the feeling of unsafe for pedestrians and bicyclists (Västerås stad, 2018). There is currently four accessing points to Erikslund by bicycle or walking. These points are either tunnels or bridges, function divided from car traffic and some of these accessing points need to be analysed in a qualitative and safety perspective. A weakness for Västerås is the currently a lack of good accessibility of public transportation within the whole region (Västerås stad, 2017).

There are also in the area currently large barriers by adjacent roads for pedestrians and bicyclists. In an analysis by the researcher is this a weakness for Erikslund and improved accessibility but an opportunity to improve current passages under the roads. The pedestrian and bicycle passages are
currently tunnels and can perceive as unsafe and uncomfortable. According the theory by Speck (n.d.) these are important factors of pedestrian routes for an area to be walkable.

Localization of new built environment and infrastructure is steered by adjacent infrastructure as the topography and hydrology of the area and the biological values (Västerås stad, 2018). There has from the municipality been a suggestion of transforming Erikslund from an external retail centre to a mixed functional area containing residence. However, this suggestion has been problematized for the risk of creating “islands” of only residential and islands of only retail (Planner Västerås stad, 2018). A structure of this kind risk for unsafe feelings during nights due to early opening hours of stores and the difficulty of creating pedestrian routes that feels safe (ibid.). There is due to this a threat of Erikslund expanding in the same physical structure that can contribute to car dependency. Large scale and sparsely built areas with services and retail can perceive as unsafe, this can result in situations where people who work or live in Erikslund chose the car instead of the bus or bicycle for transportation (ibid.). Acting detail plans for Erikslund only includes retail and offices in the area (Västerås stad, 2009). In Erikslund, life of salamanders has been identified on multiple locations. A planner at the city of Västerås mean that one important job has been to plan for the Salamanders’ survival which unfortunately have distracted the focus of planning Erikslund for less car dependency, car traffic and retail expansion for the city of Västerås (Planner Västerås stad, 2018). Erikslund are currently dominated by hard surfaces, there is because of this a threat for a dysfunctional storm water management in the area (Västerås stad, 2018).

The new location for Ikea in Erikslund have resulted in a popularity for other retail stores and companies to be located near Ikea which have contributed to the expansion of Erikslund during the years (Planner Västerås stad, 2018). The establishment of IKEA resulted in large increase of traffic amount on parts of E18 (Västerås stad, 2018). The new road Västerleden will be established in connection to Erikslund and need financials for construction (Planner Västerås stad, 2018). Therefore, there is requests of expanding Erikslund further for financial reasons of this new road.

The establishment of IKEA resulted in large increase of traffic amount on parts of E18 (Västerås stad, 2018). It can in this study be argued that there is a threat for even higher levels of traffic amount on the European road due to planned retail expansion of Erikslund. A new road Västerleden as well as Kofotsgatan is planned to Erikslund which means another threat for higher traffic amounts by private car to the area.

A weakness of the planning process of Erikslund shopping centre (mall) is expressed where the planning process was relatively informal with few actors involved (Planner Västerås stad, 2018). The planning process included different types of planning which had in this process possibly a lack of knowledge between stages or actors. A planner at Västerås municipality believes that when an environmental impact assessment was done by the county government there was no knowledge of the proposal of the mall Erikslund shopping centre.

A weakness of existing bus routes is identified by a planner at Västerås municipality which is that there is no existing effective route between the city and centre and Erikslund (Planner Västerås stad, 2018). Instead areas and residence areas need to be gone through to catch as much travellers as possible. By this method people owning a car may think that the bus choice may take too long time in comparison to using the car (ibid.). There is however a threat if public transportation would be massively improved, the local retail in the city centre would decrease against Erikslund (Planner Västerås stad, 2018). Since there is a mix of different retail types.

A planner at the city of Västerås (2018) feel that there is a lot of expansions and a lot to do which results in planning in one step behind. Instead of being able to drive through development initially, the
municipality instead reacts to proposals. If Ikea wants to move, then the municipality need to answer and due to this a comprehensive and long-term perspective is difficult to have.

To reach sustainable travel behaviour in society, the Swedish parliament express the importance of a policy for accessibility targets as a substitute of mobility targets are interconnected within the transport sector and urban planning (Riksdagen, 2010). In an analysis of this study possible accessibility targets are;

- Increase the number of bus stations.
- Improve accessing points for pedestrians and bicyclists to Erikslund.
- Create a consequent and effective bicycle route between the city core and Erikslund.
- Create good connections between bus stations and entries in Erikslund.
- Design a more distinct traffic system – with example of entries to parking.

In figure 5.5 identified critical points for pedestrians are presented. These critical points are identified at site observation by researcher if this study. At point number 1 a passage under Surahammarsvägen is located. The passage is a tunnel for pedestrians and bicyclists and can be perceived as unattractive.

![Figure 5.5. Identified conflict points in a pedestrian perspective, opportunities for new bus stations, bicycle parking and commute parking.](image-url)
At point number 2 a pedestrian may feel unsafe due to large car road and high speeds. At this point there is also a crossing path not optimal for traffic safety for pedestrians and bicyclists. At point number 3, the car road and entries to parking are large and as pedestrians may feel displaced or unsafe. At point number 4 another passage under Surahammarsvägen is located. The passage is a tunnel for pedestrians and bicyclists and can be perceived as unattractive. The pedestrian and bicycle road at point number 5 are closely located to the large car road and it may perceive as uncomfortable for pedestrians and bicyclists at this distance to high speed roads. At point number 4 another tunnel passage is located. The passage is under the European road E18 and can be perceived as unattractive.

### 5.5. Conclusion

To a conclusion, some strength characteristics of Erikslund is existing bicycle parking, well established bus stations and the non-developed land, owned by the municipality. Some opportunities for Erikslund is to improve pedestrian and bicycle accessibility by better connection points to other adjacent areas as Sätra. Weaknesses and threats can be concluded that a weakness is the functioned divided traffic system and that the area is surrounded by large barriers from large car roads as well as unsafe pedestrian and bicycle passages to the area. A threat for Erikslund is increased car dependency and car traffic due to expansion of centre and retail in same land use structure are current one. Conditions for improved accessibility of sustainable transport modes and reduced car dependency can be finally in a conducted SWOT-analysis, see figure 5.6.

#### Figure 5.6. A conducted SWOT-analysis of the case area Erikslund.
6. Result: Ingelsta

6.1. History of Ingelsta

Ingelsta is initially a farmland which later became mainly an industrial area including warehouses and other activities (Norrköping kommun, 2017a). From the mid 80’s the industrial area has been transformed into what currently is an area characterised as a retail centre, this development has occurred especially the last 20 years. Ingelsta unofficially transformed to a retail area when a warehouse (Coop) in Ingelsta started to sell their warehouse products at same location. This happened without the municipality knowing and a planner at the municipality mean that when the trading started the municipality had difficulties stopping this kind of development (planner Norrköping kommun, 2018).

The change of land use and activities in the area have been regulated by detail plans and permits. This has been done separately for each property in the area (Norrköping kommun, 2017a). The area has because of this been planned without a comprehensive perspective (Norrköping kommun, 2017a). Furthermore, separate properties have over a multiple of decades been cut by their specific purposes without any comprehensive perspective. This have created a fragmented area with various of large scale industry and retail buildings with large parking spaces. In between the built environment a traffic space there is still grasslands left.

6.2. Area description

The road Stockholmsvägen runs through the area. One retail point on west side of the road and one retail point on the east side of Stockholmsvägen. The land use of Ingelsta is quite mixed and within the are there is one mall (Ingelsta Shopping), other retail points, restaurants and other types of leisure facilities (Norrköping kommun, 2017). The land use is however dominated by private services and with a lack of residential and public services in the area. Within and around of Ingelsta there are a nature reserve as well as high nature values. The built environment is characterised by large scale buildings and parking space, see figure 6.1. Commercial are designed to be seen from a long distance and from a car vehicle and are therefore large scale as well.
Figure 6.1. Picture one building located in Ingelsta and its architectural shape that has same characteristics as many other buildings within the area. Picture: taken by author.
Retail in the area

The retail area contains one in house mall, daily retail and supermarkets. Moreover there is some industrial buildings and offices within the area. Within Ingelsta there is retail types as; Non-volume lifestyle purchases, volume durable purchases and groceries, for definitions see chapter 2.1. In table 6.1 identified target points within the case area are listed. To show possible target points and type of retail an overview can be produced of different flows in the area of car users, pedestrians and bicyclists.
Table 6.1. Identification of main target points in Ingelsta, see map 6.2 for location of activities.

Connectivity
Ingelsta is located around 2-3 kilometres (4 km to the mall Ingelsta shopping) north of Norrköping city core and the area can mainly be accessed by the transportation modes car, buss, bicycle and walking. To access Ingelsta by car, which is most likely the common choice of transport mode takes around 9 minutes from the city core (googlemaps.se, n.d., c). Accessing Ingelsta by public transportation there is two possible routes: bus number 115 and 117. Bus 115 runs between Vrinnevisjukhuset and Ingelsta and bus line 117 runs between Vrinnevisjukhuset and Herstadberg (Östgötatrafiken, 2018). The bus route between Ingelsta and Norrköping city core takes around 11 minutes from and around 6 minutes between Ingelsta and Norrköping travel centre. The intensity of the bus route is departures every 20 minutes as highest intensity (weekdays) and once an hour as the lowest intensity (weekends). From Väster Tull in the city core of Norrköping to Ingelsta shopping centre takes around 15 minutes (googlemaps.se, n.d., d). Accessing the area as a pedestrian or cyclists there is two passages by tunnel under the European highway E18 and two passages by tunnel under the national road 66, see figure 6.2.

Street structure
The street network in Ingelsta are currently dominated by the trafficked road Stockholmsvägen. This road runs through the area where retail and target points are located on both sides of the road. Stockholmsvägen is currently one of the entries to Norrköping, it is also a part of a regional public transportation network, see map 6.2 (Norrköping kommun, 2017a). Kromgatan and Kopparagatan are both connected to Stockholmsvägen and are a part of a local public transportation network, see appendix 4 (Norrköping kommun, 2017a). The cycling and walking network in Ingelsta mainly runs along streets as Kopparagatan, Kromgatan, Järngatan and aside Stockholmsvägen, see figure 6.2.

National interests/ nature reserve
Close to the delimited case area, there is two nature reserves, both included in Natura 2000, see map 6.2. The green areas contain oak woods and is a national interest according to the environmental code chapter 4 (Norrköping kommun, 2017a). Another national interest is north part of Stockholmsvägen according to the environmental code, 3rd chapter and the 8th paragraph. This part of Stockholmsvägen is a national interest for communication.
Key actors
Identified key actors for previous and future development are Norrköping municipality, private land owners, companies located in Ingelsta and public transportation company in Norrköping. Norrköping municipality have for this area the role as decision maker and partly initiator since the roads within Ingelsta are owned by the municipality (Planner Norrköping kommun, 2018). Land owners of the area are able to set suggestions and initiatives that will be passed to the decision makers Norrköping municipality. Companies and land owners possibly comes with development suggestions that the municipality need to respond (accept or decline) to. Public transportation company, for this case Östgötatrafiken can with cooperation with the municipality invest in an improved public transportation.

The case area is around 65 hectare and includes properties owned by private companies (Norrköping kommun, 2017a). Properties within the case area (see appendix 5) are the block Silvret (number 1,2,3,5,6 and 8) in north-west parts of Ingelsta. In north-east parts the area includes Blyet number 5-8 and the property Adaptern 3. The properties Malmen (number 3, 5, 6, 7, 8, and 9) is located in south-west parts of Ingelsta. In the south-east parts of the area, existing properties are Adaptern 2 and Reläet 18.

The city of Norrköping
Currently there is three main retail points in Norrköping, these three are Ingelsta (external location), Mirum (external location) and the city centre of Norrköping (Planner Norrköping kommun, 2018). Norrköping has a rather fine-meshed retail structure around the city and there is a relative low number of people having more than 600 metres to a store (Planner Norrköping kommun, 2018).

Norrköping is one of few cities in Sweden having a tram in the city (Tornberg and Cars, 2008). In 2008, around 45% of the total public transport travels are done by tram (Tornberg and Cars, 2008). The difference in time demand when using tram or bus is relatively low, however the tram attracts more travellers than bus (Planner Norrköping kommun, 2018). There are currently 2 tram routes in Norrköping: Kvarnberget-Fridvalla (2) and Klockartörpet and Vidablick (3). None of the existing tram line runs through the case area Ingelsta. For public transportation network, see appendix 4.
6.3. Planning approach

6.3.1. Targets/visions/prioritisations

In the cooperative comprehensive plan for Norrköping and Linköping, Ingelsta is a designated area for retail of durable purchases as well as small industry activities and offices. Ingelsta is one of the designated areas as an important regional area to 2030 (Norrköping kommun, 2017a).

Another target for Norrköping municipality is to improve the integration of Ingelsta with Norrköping city (Norrköping kommun, 2017). The specific program for Ingelsta (2017) by Norrköping municipality aimed to study the conditions for retail expansion as well as hotel activities in Ingelsta (Norrköping municipality, 2017a).

As mentioned in section 3.6.1. in this report, a detailed comprehensive plan was paused due to failing quality standards. After measurements, it is shown that the circulation within Ingelsta is one of the main locations for failing air quality standards (Planner Norrköping kommun, 2018).

In the comprehensive plan of Norrköping municipality (2017) Ingelsta is identified as an activity area with characteristics of shopping centre, restaurants and other activities. Parts of Ingelsta will be affected by the rail project Ostlänken and a future trail for freight traffic (Norrköping kommun 2017).

According to the comprehensive plan of Norrköping municipality they are aiming to be a sustainable, attractive and an expanding city (Norrköping kommun, 2017). There is an expected population growth
until year 2035 and Norrköping municipality means that this expansion mainly will occur as a densification with a direction from the city core and out. Moreover, a target is to create a more connected city where barriers should be demolished.

One aim in the traffic plan of Norrköping municipality is to steer the development of future traffic system to be more sustainable, climate smart and more flexible (Norrköping kommun, 2011). They furthermore aim to increase the percentage of public transportation travellers, pedestrians and cyclists meanwhile decrease the percentage of the car traffic amount (Norrköping kommun, 2017). Moreover, there is a target of pedestrian network denser than the main network for car traffic. Another aim for Norrköping 2035 is a stagnation of car traffic amount despite expected population growth.

The prioritisation of transport groups in the region are aimed to be:
1. Pedestrians and cyclists
2. Public transport
3. Cars

6.3.2. Existing strategies

Norrköping municipality argues that an increased number of sustainable travels need consequent planning and execution. Moreover, all planning should be done with a comprehensive perspective where the municipality means that everything is linked to each other and affects the city (Norrköping kommun, 2017). Investigations shows that management of stormwater, traffic, nature and retail are crucial factors to enable sustainable development (Norrköping kommun, 2017a).

Specific for Ingelsta a variation of functions should be added and in a long-term perspective an addition of residential in Ingelsta (Norrköping kommun, 2017). Furthermore, in a long-time perspective Norrköping municipality wants to integrate the two areas located on each side (east and west location) of Stockholmsvägen. Currently Stockholmsvägen is a motorway which creates a large barrier of the area. Norrköping municipality means that a strategy for decreasing this barrier is to transform Stockholmsvägen from a motorway to a city street where it moreover should be specific regulations for built environment (Norrköping kommun, 2017a). Another long run strategy is to establish well-defined city quarters, this creates a starting point to enable adjustments that promotes development of existing and additional facilities (Norrköping kommun, 2017a).

Norrköping municipality states in their comprehensive plan (2017) that the possibility of accessing Ingelsta by public transportation, bicycle and by foot need to be improved. Solutions to decrease barrier effects of roads need to be created in order to advantage pedestrians and bicyclists.

To plan for a sustainable traffic system, Norrköping municipality aims to use planning tools as; The four-step principle, Prioritization of transport modes and the concept of Sustainable travels.

Currently a new travel centre is in planning stage with aim of replacing current station. A new construction of the travel centre is in connection with the national high-speed train project Ostlänken.

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2 The four-step principle is a tool for transport planning and mean that actions should be planned according to four steps. First, actions that can affect the need of transport and the choice of transport mode. Second, actions that make the use of current road network and vehicles more effective. Third, limited reconstruction. Fourth, new investments and larger reconstructions (Norrköping kommun, 2017).

3 Prioritization of transport modes should in planning and designing be 1. Pedestrians and bicyclists; 2. Public transportation and 3. Car vehicles (ibid.).

4 The concept of sustainable travels are used more and more in planning documents with aim to increase the amount of sustainable travels within cities which includes travels by sustainable transport modes as walking, bicycling and public transportation (ibid.).
which will go through Norrköping and the travel centre (Norrköping kommun, n.d). North of the travel centre, a residence project is planned for Butängen where 6000 new residential and 6000 new employments are planned (Norrköping kommun, n.d.). This area is currently an area consisting companies and car garages and music studios (Planner Norrköping kommun, 2018).

Safe and weather protected bicycle parking should be established in connection to large target points, transport stations and the city core (Norrköping kommun, 2017). Furthermore, the orientation of the cycle network should be improved by expanding route displays and developing technical information systems. To increase the number of cyclists the main bicycle network should be densified (Norrköping kommun, 2017). The main public transportation routes should also be designed so there is a possibility for rail establishments in the future. Moreover, Norrköping municipality wants to develop more commute parking in connection to public transportation.

The possibility of using car parking as commute parking need to be developed combined with good public transportation and bicycle parking (Norrköping kommun, 2017). By improving the bicycle and public transportation network from Ingelsta towards the city core, the accessibility to Ingelsta will be increased (Norrköping kommun, 2017).

For an expanding city to become sustainable and attractive which Norrköping aims for, the current conditions for using the car need to be changed (Norrköping kommun, 2017). One factor for this kind of change can be parking regulations for new establishments. At an interview a planner at Norrköping municipality (2018) explained the difficulty in changing existing parking numbers on land with private land owners if water management cannot be identified as serious negative impacts.

Two properties (Reläet 18 and Adaptern 2) received positive response from the municipality of extending retail and improving traffic solutions on the street Kromgatan (Norrköping kommun, 2017a). One property (Silvret 1) received positive response of extending retail, the property owner is Ingelsta Shopping. The owner of property Blyet 8 including Scandic hotel have received positive response from the municipality for extended hotel establishment and parking (Norrköping kommun, 2017a).

6.3.3. Policies

Until around year 2000 retail policies for Norrköping municipality was against establishment of peripheral retail centres (Planner Norrköping kommun, 2018). Possible reasons for this active policy at this time, the municipality wanted to defend the city core, which was rather car biased during these years.

In 2004 a retail policy for detail retail was approved by the city council of Norrköping municipality, the policy can be seen as a tool for active planning of retail development. The retail policy guides planning of retail by examination of location of new retail establishments and when there is planning of existing establishment. According the retail policy, Ingelsta are directed to retail of durable purchases as well as daily retail (Norrköping kommun, 2017a). Currently a new retail policy is in progress for Norrköping municipality that will replace the existing retail policy from 2004 (Planner Norrköping kommun, 2018). At an interview a municipal planner (Norrköping kommun, 2018) expressed prioritisation of retail locations for Norrköping; “What we care of the most I should say is the district centres, that we defend retail located close to residential.”

Planners at Norrköping municipality are aware of the issues of peripheral retail centres and has for instance been trying to find sustainable solutions through workshops for Ingelsta (Planner Norrköping kommun, 2018).
6.4. Conditions

6.4.1. Accessibility assessment

An accessibility assessment of Ingelsta are based on guidelines from Viklund et al. (2007) where calculations are done for accessibility to the centre. Moreover, the accessibility calculations are approximative for accessibility and is done for public transportation and bicyclists separately. A further description of accessibility assessment can be found in theory section 4.3.1. in this report. The estimated travel times are earlier presented in section 5.2. in this report. Moreover, the travel time for the different transport modes are based on the distance between the Väster Tull, central parts of Norrköping (not the travel centre) and Ingelsta shopping centre.

Public transportation

First, the accessibility by public transportation will be calculated with use of equation (1) from theory section 4.3.1. in this report.

\[ Travel \ time \ ratio = \frac{Travel \ time_{bus}}{Travel \ time_{car}} \]  
\[ Travel \ time_{bus} \approx 11 \ minutes \]  
\[ Travel \ time_{car} \approx 9 \ minutes \]  
\[ Travel \ time \ ratio = \frac{11}{9} = 1,22 \]

The calculation shows a result of a time travel ratio 1,22. the recommendation by Viklund et al. (2007) is below 1,5 for the public transportation to be competitive with the car as transport mode. This result shows that the accessibility of public transportation is a competitive transport mode to the car.

Even though the accessibility assessment of public transportation has well result based on theory of Viklund et al. (2007), the municipality mean that it can be further improved. Norrköping municipality mean that the current accessibility for public transportation can be improved in central parts of Norrköping as well as the ineffective public transportation routes with low competitiveness against cars (Norrköping kommun, 2017). There is today a low accessibility for public transportation in north and south direction of Norrköping. Low accessibility in combination with ineffective public transportation routes makes this transport mode weak in competition to other modes of transport (Norrköping kommun, 2017).

Walk and bicycle

An accessibility assessment for bicycle will make use of equation (2) from theory section 4.3.1. in this report.

\[ Travel \ time \ ratio = \frac{Travel \ time_{bicycle}}{Travel \ time_{car}} \]  
\[ Travel \ time_{bicycle} \approx 15 \ minutes \]  
\[ Travel \ time_{car} \approx 9 \ minutes \]  
\[ Travel \ time \ ratio = \frac{15}{9} = 1,67 \]

The calculation shows a result of a time travel ratio 1,67. the recommendation by Viklund et al. (2007) is below 1,5 for the use of bicycle to be competitive with the car as transport mode. This result shows that improvement can be done on the accessibility for bicyclists to Ingelsta.
Moreover, as previously mentioned the distance between the city core and Ingelsta is around 2-4 kilometres. The given reasonable distance is between 2-6 kilometres, the distance between Norrköping city core and Ingelsta is within the reasonable distance for bicycle to be competitive against the use of car to the centre.

However, in an accessibility assessment based on site observation the accessibility for pedestrian and bicyclists are below standard within Ingelsta. Stockholmsvägen creates a large barrier and there is only two accessing points crossing the road, in south and north parts of Ingelsta, see figure 6.2. The traffic system within Ingelsta mainly is function separated which results in unattractive passages and pedestrians and bicyclists on shared space, see figure 6.4. In figure 6.6. critical passages will be defined and locations of lacking quality, design or traffic safety. Due to the sparsely built environment and large-scale buildings and car parking there are a lot of surfaces unclear for pedestrians and bicyclists. To see current bicycle parking and suggested additional parking see figure 6.6.

6.4.2. SWOT-analysis

In this section a SWOT-analysis is compiled by the researcher which concludes the actual conditions for the case of Ingelsta. The SWOT-analysis is partly based on statements from the planning government – Norrköping municipality and partly based on analysis of case area by the researcher. These two perspectives are clearly presented in the SWOT-analysis.

Current land use of Ingelsta contain a high number of car parking for use of services in Ingelsta. Due to this, the municipality argues for the possibility to create a commute parking based on current range of car parking. This action will demand a better network of public transportation and bicycle parking (Norrköping kommun, 2017). In an analysis this is an opportunity identified by the researcher as well. This possibly strengthens the public transportation to Ingelsta which can in relation to theory of Wärnhjelm (2015) reduce transport amounts and possibly reduced car dependence.

Current travel centre of Norrköping and the area Butängen creates a barrier for accessing Ingelsta coming from the city core. However, the national train project Ostlänken involves Norrköping which
have resulted in plans of a new travel centre. For Ingelsta this mean a good opportunity for decreased barrier and increased accessibility going from the city core to Ingelsta. This furthermore create the opportunity of integrating Ingelsta better with adjacent areas (Planner Norrköping kommun, 2018).

At an interview (2018) a municipal planner in Norrköping moreover express; “Improving accessibility to Ingelsta can be divided in three development stages, in this way we can dense the city from the core and out.”

The barrier between Ingelsta and the city core created by the travel centre of Norrköping and Butängen Ingelsta can also be identified as a threat that development will take long time due to priority of the projects of Butängen and travel centre (Planner Norrköping kommun, 2018). At an interview with a planner at Norrköping municipality (2018) it was said that; “We need to come further in the planning of Butängen in order to improve Ingelsta.”

Ingelsta is an area with big potential for improved walking-, cycling and public transportation connections to the area as well as within the area (Norrköping kommun, 2017). There is a potential of extending tram line to Ingelsta and north parts of Norrköping (Planner Norrköping kommun, 2018). The difference of travel time between bus and tram is not distinct, however the tram still attracts more travellers than bus. A possible extension is however dependent on the future travel centre of Norrköping (Planner Norrköping kommun, 2018). If the travel centre will be on ground level, there is a risk of creating/remaining a barrier. If the travel centre would be above ground level then a problem arises of trams passing through since these kinds of vehicles currently cannot manage incline.

The accessibility of public transportation is one of listed characteristics for possible impact on transport in cities and reduced transport amount and improve sustainable energy (Wärnhjelm, 2015). To Ingelsta there is relatively time effective bus routes from the city core and can in an analysis by the researcher be seen as a strength for reduced car dependency.

Reneland (2001) argues for the relation between number of car users and geographical distance to city core. Ingelsta is located with a relative short distance to city core which can because of this argument be analysed to be a strength for accessibility of sustainable transport modes.

There are in Norrköping mostly local trips, which create good possibilities for an effective development of increased sustainable trips within the municipality (Norrköping kommun, 2017). Analysis further shows that if future prioritisation will be on public transport, pedestrian network and cycling network then car traffic amount will possibly stagnate.

Over 50% of all trips in Norrköping are done by car and it is believed that the car will remain important for people in Norrköping municipality in the future (Norrköping kommun, 2017). Even if high number of car trips is a challenge for Norrköping, the municipality see this as an opportunity to change a trend and increase the amount of sustainable travels. The high numbers of trips done by car in Norrköping is not only opportunity for the municipality to increase the amount of sustainable travels, it is also by the researcher an identified weakness and a threat that it is difficult to decrease the number of private car traffic and car dependency.

At an interview, a municipal planner expressed the challenge of planning peripheral retail centres (Planner Norrköping kommun, 2018). The interviewee argued that when there are external centres emerging there is more than the market force to manage as a municipality. It is rather a reactive process where the municipality are not the initiators of locations for all retail centres.

In general, it can be argued that there is a challenge of developing the road network to a sustainable traffic system where some main challenges for a future sustainable car traffic system in Norrköping
are; traffic safety, noise pollution, emissions, energy use and climate gas emissions. Norrköping municipality has realised the dilemma of extending the car traffic network and its effects of potential increase of car traffic (Norrköping kommun, 2017). By increasing the car traffic capacity, the car traffic amount may tend to increase more than the actual need.

The large road Stockholmsvägen runs through Ingelsta which currently creates a large barrier, especially for pedestrians and cyclists in Ingelsta. The program for Ingelsta stated that in a long-term perspective it is aimed to transform Stockholmsvägen to a city street (Norrköping kommun, 2017a). During the interview we discussed the fact that Stockholmsvägen currently are one of the entries from the European highway E4 to Norrköping which problematize the possibility of transforming this road to a city street (Planner Norrköping kommun, 2018).

![Figure 6.5. Picture of Stockholmsvägen that shows size of it and the feeling of barrier effect (Googlemaps.se, n.d, e).](image)

However, one potential solution for decreasing the traffic amount on Stockholmsvägen and reducing this barrier is to create another entrance to Norrköping from the European road E4 (Planner Norrköping kommun, 2018). This solution is in planning process and is located by the traffic point Bråvalla, located south west of Ingelsta. This entrance can change the structure further, where this part can be a new city part of Norrköping. The municipality has also discussed the possibility of building a pedestrian bridge over Stockholmsvägen. However, this solution creates traffic separation which can lead to unsafe passages and to not an optimal network for pedestrians and bicyclists.

Ingelsta as an entry to Norrköping is by the researcher identified as a good opportunity of creating a public transportation hub. This kind of station would in a long-term perspective include bus and tram connection with good commute parking and bicycle parking. Another opportunity is that the accessibility for pedestrians and bicyclists can as earlier mentioned be massively improved due to lacking quality today.

Another threat when planning for improved accessibility of sustainable transport modes is the nature reservation Natura 2000, see figure 6.2 (Planner Norrköping kommun, 2018). The nature reserve is in two different areas, however there is a need for a biodiversity corridor to help biological species to cross between green areas and survive. The need for the biodiversity means that current trees, plants and green areas are extremely important for the biodiversity. There is therefore difficult to plan for other ecological sustainable solutions due to this nature reserve.
Within the area of Ingelsta a large backup power station is planned for establishment, this type of building and use will need a set out protect distance to other activities and facilities within the area (Norrköping kommun, 2017). Another challenge to consider for Ingelsta is the low capacity of stormwater system.

To reach sustainable travel behaviour in society, the Swedish parliament express the importance of a policy for accessibility targets as a substitute of mobility targets are interconnected within the transport sector and urban planning (Riksdagen, 2010). In an analysis possible accessibility targets are;

- Increase the number of bicycle parking in Ingelsta.
- Reduce the barrier effect of Stockholmsvägen.
- Create an additional accessing point for pedestrians and bicyclists over Stockholmsvägen.
- Create a consequent and effective bicycle route between the city core and Ingelsta.
- Improve access points to Ingelsta.
- Create good connections between bus stations and entries in Ingelsta.

In figure 6.6 identified critical points for pedestrians are presented. At point number 1 a passage under Stockholmsvägen is located. The passage is a tunnel for pedestrians and car users. At point number 2 the pedestrian and bicycle road is located close to the slip road of Stockholmsvägen. As a pedestrian it can feel unsafe due to high-speed and close distance to car road. At point number 3, it is suitable and

![Figure 6.6. Identified conflict points in a pedestrian perspective, opportunity locations for new bicycle parking and commute parking.](image-url)
6.5. Conclusion

In a conclusion from identified SWOT characteristics, two main strengths of Ingelsta is the short geographical distance and time effective bus routes. The main opportunity for Ingelsta is the reduced barrier between the city core and Ingelsta because of the development projects of the travel centre and Butängen. Weakness for Ingelsta can be concluded in the large barrier of Stockholmsvägen which moreover cause poor accessibility for pedestrians and bicyclists within Ingelsta. One of largest threats for improved accessibility and reduced car dependency is the difficulty in reducing the barrier of Stockholmsvägen because of its characteristic as entry road to Norrköping. Finally, a conclusion of Chapter 7 can be presented in a conducted SWOT-analysis, see figure 6.7.

### SWOT-analysis

#### STRENGTHS
- Time-effective bus routes from city core to Ingelsta.
- The public transportation network in Norrköping includes a tram.
- Short geographical distance to city core
- Adjacent residential areas.

#### OPPORTUNITIES
- Ingelsta can be seen as an entry to Norrköping, therefore the opportunity to transform a number of car parking to commute parking.
- Transform a number of car parking to bicycle parking.
- Create a good walking and cycling-network between buildings and parkings.
- Create a public transportation hub.
- Extend tram network to Ingelsta.
- Short distance to city core creates opportunities to integrate Ingelsta with city core and create a integrated part of the city.

#### WEAKNESSES
- Stockholmsvägen is currently a large barrier for pedestrians and bicyclists.
- Lack of accessibility for pedestrians and bicyclists within Ingelsta. Only two passages over Stockholmsvägen and non-consistent walking and cycling network.
- Long walking distances within the area.
- Large scale buildings, creating a non-consistent building structure.
- The central station and Butängen in Norrköping are today creating a barrier between city core and Ingelsta.
- There is a dominance of car users in Ingelsta and the use of car is first in prioritisation in previous planning.

#### THREATS
- Challenges of transforming the large road Stockholmsvägen to a city street.
- The existing building structure means challenges of implementing residential areas within Ingelsta.
- Ingelsta will expand with more retail.
- Retail from city core moves to Ingelsta. This can create an uneven distribution of commerce and retail in Norrköping.
- Natura 2000 results in challenges for planning of accessibility in the area.
- Use of car as transport mode to Ingelsta will increase.

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Figure 6.7. A conducted SWOT-analysis of the case area Ingelsta.
7. Result: Marieberg

7.1. History of Marieberg

In 1978 the warehouse Obs! was built and opened by the cooperative association (Andersson and Uske, 2011). In the beginning of 1980 the cooperative association hired the organisation Centrumutveckling (centre development) for improved development of Marieberg. Obs! was renovated and became a regional retail centre in 1988 which today is Marieberg Galleria (mall). In 1989 Ikea warehouse was opened (Ikea, n.d.). Another renovation was done in 2008 which resulted in 50 new stores from the number of 60 stores to 110 (Atterstig, 2007). Since 2002 the mall is owned by the company Steen & Ström AB (Andersson and Uske, 2011).

The new construction of Marieberg mall (Marieberg galleria) and adjacent expansion of retail store in Marieberg external retail centre is one of the main contributors for expansion of the durable volume shopping in Örebro municipality in the year of 2000 (WSP, 2014).

7.2. Area description

Marieberg is located on the east side of the European motorway E20. The area contains a mall, other multiple retail points and other types of facilities. The land use is dominated by private services with lack of residential and public services in the area. The built environment is characterised by large scale buildings and parking. Commercial are designed to be seen from a long distance and from a car vehicle and are therefore large scale as well. Ikea in Marieberg is the most important magnet that attract many visitors from places like Värmland county and Norway (Atterstig, 2007).
Retail in the area

The retail contains an in-house mall, an IKEA warehouse and other detail retail. Within Marieberg there is retail types as; Non-volume lifestyle purchases, volume durable purchases and groceries, for definitions see chapter 2.1. In table 7.1 all identified retail in the case area are listed, localised and identified type of retail. To show possible target points and type of retail an overview can be produced of different flows in the area of car users, pedestrians and bicyclists.
Table 7.1. Identification of businesses and retail in Ingelsta, see figure 7.1 for location of activities.

<table>
<thead>
<tr>
<th>Number of building and location on map 7.2.</th>
<th>Name of business or activity</th>
<th>Type of retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Marieberg Galleria (Coop Forum, Systembolaget, Hemtex etc.)</td>
<td>Volume durable purchases, Non-volume lifestyle purchases, Groceries</td>
</tr>
<tr>
<td>2</td>
<td>Mediamarkt, XXL</td>
<td>Non-volume lifestyle purchases</td>
</tr>
<tr>
<td>3</td>
<td>ÖoB, Intersport, Elgiganten megastore</td>
<td>Non-volume lifestyle purchases, Groceries, Volume durable purchases</td>
</tr>
<tr>
<td>4</td>
<td>Toys”R”Us</td>
<td>Non-volume lifestyle purchases</td>
</tr>
<tr>
<td>5</td>
<td>Jysk</td>
<td>Volume durable purchases</td>
</tr>
<tr>
<td>6</td>
<td>Em Örebro</td>
<td>Volume durable purchases</td>
</tr>
<tr>
<td>7</td>
<td>Rusta, Cervera</td>
<td>Volume durable purchases, Non-volume lifestyle purchases</td>
</tr>
<tr>
<td>8</td>
<td>Jump Trampoline Park</td>
<td>Activity centre</td>
</tr>
<tr>
<td>9</td>
<td>Chilli, Sängvarhuset SOVA</td>
<td>Volume durable purchases</td>
</tr>
<tr>
<td>10</td>
<td>Blomsterlandet</td>
<td>Volume durable purchases</td>
</tr>
<tr>
<td>11</td>
<td>K-rauta</td>
<td>Volume durable purchases</td>
</tr>
<tr>
<td>12</td>
<td>Willys</td>
<td>Groceries</td>
</tr>
<tr>
<td>13</td>
<td>Ikea möbelvaruhus</td>
<td>Volume durable purchases</td>
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</tbody>
</table>

Connectivity
Marieberg is located around 9 kilometres south of the city core of Örebro and the area can mainly be accessed by the transportation modes car, buss, bicycle and walking. To access Marieberg, the car vehicle is the most common transport mode (WSP, 2014). From the city core of Örebro to Marieberg it takes around 12 minutes (Googlemaps, n.d., f). Accessing Marieberg by public transportation there is two possible bus routes: bus number 1 and bus number 701, see appendix 6. Bus number 1 runs between Lunby to Mosås and is identified as a city bus. Bus number 701 runs between Örebro and Kumla and is identified as a region bus (länstrafiken.se, no date). The bus route takes between Örebro city and Marieberg takes around 15-25 minutes (ibid). The intensity of the bus route is departures every 15 minutes (weekdays) and every 30 minutes as lowest intensity which is during weekends (ibid.). Accessing Marieberg by bicycle from the central station in Örebro city core takes around 29 minutes (Googlemaps.se, n.d., g).

Accessing the area as a pedestrian or bicyclists there is currently one main accessing point by tunnel under the road Kumlavägen, see figure 7.1. Within the area there is bicycle routes and pedestrian paths are on the side of roads as; Kumlavägen, Varuvägen and Säljarevägen, see figure 7.1.

Street structure
Marieberg is located east of the European motorway E20 and north of the national road 51. The main entries to Marieberg is accessed by car. One entry from E20 by the traffic point Marieberg. Other smaller entries are from the roads; Mosåsvägen, Kumlavägen and the national road 51. Marieberg can be divided into two parts, north part (north of National road 51) which is includes the mall and retail developed around the mall and south part (south of national road 51) which includes IKEA and retail developed around it, see figure 7.1 (WSP, 2014).

National interests/ nature reserve
There is no nature reserve within or adjacent to Marieberg however, the roads E20 and 51 are included in national interest for roads in Örebro municipality (Örebro kommun, 2018c).
**Key actors**

Identified key actors for development Örebro municipality, private land owners, companies located in Marieberg, development organisation Marieberg Utvecklings AB and public transportation company in Örebro. First, Örebro municipality can be identified as decision makers due to the Swedish planning system and planning monopoly. However, the land is mainly owned by private land owners as Steen & Ström of Marieberg Galleria (Atterstig, 2007) and Ikea of the Ikea warehouse and Willy:s (Ikea, n.d.). There is a development organization for Marieberg with name Marieberg utvecklings AB (Planner Örebro kommun, 2018). From an interview with a planner from Örebro municipality, they see Marieberg utvecklings AB as initiator for development of the retail centre. Moreover, companies and land owners possibly comes with development proposals which the municipality approve or decline. Public transportation organisation within the municipality is for this case Länstrafiken (Länstrafiken, n.d.). They can with cooperation with the municipality invest in an improved public transportation.

**The city of Örebro**

There is three main retail points in Örebro; Örebro city core, Boglundsängen (external centre) and Marieberg (external centre). Other smaller retail points are Österplan (residence close retail) and Aspholmen (external centre) (WSP, 2014). Örebro are to some extent a function divided city, this spatial structure creates a high amount of transports between home and work (Örebro municipality, 2010).

The travel behaviour measured in 2017 measured choice of transport mode for total amount of trips started within Örebro municipality. The measurement showed that 50% of all trips are done by car, 26% are done by bicycle, 15% are done by foot, 8% by bus and 1% by train (Örebro kommun, 2018b).
7.3. Planning approach

7.3.1. Targets/visions/prioritisations

Three phase targets for the municipality as a geographical area is to decrease the environmental impact by 40% between 2000 and 2020, by 70% between 2000 and 2030 and by 100% between 2000 and 2045 (Örebro kommun, 2016a). The municipality also aims as a geographical area to create a municipality that cooperates more with companies, organisations and the academy for decreased environmental impact (ibid.) Örebro municipality moreover has a target of improving the municipal climate communication in to system changes (ibid.).

Örebro municipality have in their earlier comprehensive plan (2010) pointed out some relevant starting points and targets for ecological sustainable development for the region (Örebro municipality).

- Until 2050 be free from the use of fossil fuel.
- Decrease the need of transport.
- By planning make walking, cycling and public transportation the most attractive transport modes.
It is stated that these targets can be met by densification of the city, exploitation around important public transportation nodes with long-term and well thought planning (Örebro kommun, 2010). One important factor for economic capacity and furthermore economic sustainability, Örebro municipality mean it is important to reach this by a positive cooperation between enterprise and citizens, competition with adjacent municipalities and regions. Örebro stress for the importance of retail for development and the attractivity of the municipality.

### 7.3.2. Existing strategies

Marieberg is one of three selected retail areas where new retail establishments should be directed to in the future (Örebro kommun, 2010). This means that establishment of new durable purchases commerce only can be established in the city core of Örebro and as a complement in new and old retail centres closely located to residential areas. By this it is meant that no new peripheral retail centres should be established. Volume characterised retail can be established in existing retail centres even though the distance to inner city are more than five kilometres.

One strategy of densifying Örebro is to use existing infrastructure and build within a reasonable cycle distance, which is a maximum distance of five kilometres from the city core (Örebro kommun, 2010). However, to dense the city in the most sustainable way the development will occur within three kilometres to Örebro city core.

A retail assessment of Örebro municipality was produced by WSP in 2014. This assessment suggests prioritised daily retail in locations close to residential areas. It is furthermore stated that durable purchase commerce should be concentrated to two areas; Örebro city and Marieberg peripheral retail centre which is mentioned in the comprehensive plan as well. WSP (2014) also meant that there should be a prioritisation of traffic planning around retail establishments.

The transport system in Örebro should be designed to create a rational of using sustainable transport modes (Örebro kommun, 2010). This should be done by the cost of car traffic giving more space to sustainable transport modes in the traffic system.

Within Marieberg there is process work on a new road plan in the east area of Marieberg (Planner Örebro kommun, 2018). The plan is mainly initiated by the municipality and the owner of the road is Trafikverket. The plan is aimed to change the route for the national road 51 and to move some of the car traffic to north parts of Marieberg.

### 7.4. Conditions

#### 7.4.1. Accessibility assessment

An accessibility assessment of Marieberg are based on guidelines from Viklund et al. (2007) where calculations are done for accessibility to the centre. Moreover, the accessibility calculations are approximative for accessibility and is done for public transportation and bicyclists separately. A further description of accessibility assessment can be found in theory section 4.3.1. in this report. The estimated travel times are earlier presented in section 5.2. in this report. Moreover, the travel time for the different transport modes are based on the distance between Örebro central station and Marieberg shopping centre.

**Public transportation**

First, the accessibility by public transportation are calculated with use of equation (1) from theory section 4.3.1. in this report.

\[
Travel \ time \ ratio = \frac{Travel \ time_{bus}}{Travel \ time_{car}} \tag{1}
\]
Hanna Jakobsson  
Master thesis 2018

\[
\text{Travel time}_{\text{bus}} \approx 20 \text{ minutes} \\
\text{Travel time}_{\text{car}} \approx 12 \text{ minutes} \\
\text{Travel time ratio} = \frac{11}{9} = 1.67
\]

The calculation shows a result of a time travel ratio 1,67. The recommendation by Viklund et al. (2007) is below 1,5 for the public transportation to be competitive with the car as transport mode. This result shows that improvement can be done on the accessibility of public transportation to Marieberg.

**Walk and bicycle**

An accessibility assessment for bicycle equation (2) are used from theory section 4.3.1. in this report.

\[
\text{Travel time ratio} = \frac{\text{Travel time}_{\text{bicycle}}}{\text{Travel time}_{\text{car}}}
\]

\[
\text{Travel time}_{\text{bicycle}} \approx 29 \text{ minutes} \\
\text{Travel time}_{\text{car}} \approx 12 \text{ minutes} \\
\text{Travel time ratio} = \frac{29}{12} = 2.42
\]

The calculation shows a result of a time travel ratio 2,42. The recommendation by Viklund et al. (2007) is below 1,5 for the use of bicycle to be competitive with the car as transport mode. This result shows that it takes more than doubled amount of time to travel by bicycle as by car, improvement can therefore be done on the accessibility for bicyclists to Marieberg.

Moreover, as previously mentioned the distance between the city core and Marieberg is around 9 km. The given reasonable distance is between 2-6 kilometres which distinct shorter than the actual distance between Örebro city core and Marieberg.

The traffic system within Marieberg is function separated which results in unattractive passages and pedestrians and bicyclists on shared space, see figure 7.3. In figure 7.4 critical passages will be defined and locations of lacking connections, quality, design or traffic safety. Due to the sparsely built environment and large-scale buildings and car parking there are a lot of uncertain surfaces for pedestrians and bicyclists. To see current bicycle parking and suggested additional parking see figure 7.4.
Figure 7.3. Picture of traffic separation and the pedestrian and bicycle road in north parts of Marieberg. As seen in picture there is a need of more pedestrian roads.

7.4.2. SWOT-analysis

In this section a SWOT-analysis is compiled by the researcher which concludes the actual conditions for the case of Marieberg. The SWOT-analysis is partly based on statements from the planning government – Örebro municipality and partly based on analysis of case area by the researcher. These two perspectives are clearly presented in the SWOT-analysis.

One opportunity for Marieberg is the potential for further growth due to a low density within the area (WSP, 2014). Moreover, Marieberg has a regional and local hinterland which creates the possibility to connect the area better to its hinterlands (WSP, 2014).

In Örebro 8% of all trips are done by public transportation (Örebro kommun, 2018b). In a comparison to calculation of the whole country Sweden by the percentage of all main trips 12 percent are done by public transportation (Trafikanalys, 2016) important to note is the natural higher percent for population dense regions where public transportation are used more regularly. The municipality express the opportunity for increasing the current low number of public transportation travellers (Örebro kommun, 2018b). The municipality however see their high number of bicycle users (26% of all trips in the region) as a strength for the city (ibid.). One stated opportunity is to strengthen the bicycle network by improving connection points, this is moreover included as a strategy for the comprehensive plan adopted in 2018 (Örebro kommun, 2018c).

The development organisation Marieberg Utvecklings AB see an opportunity in integrating Marieberg mall with adjacent built environment as well as integrating the north and south part more (Planner Örebro kommun, 2018). A planner at Örebro municipality (2018) mean that the new road plan of the reestablishment of national road 51 is an opportunity and strength for integration of south and north parts of Marieberg.

There is by the researcher an identified opportunity for the residence areas Marieberg and Mosjö to have good bicycling and pedestrian connection due to short geographical distance and relative small barriers. In an analysis this creates an opportunity for local shopping opportunities which possibly can help in reducing car dependence (Handy and Clifton, 2001). Moreover, within a successful strategy a urbanisation can be included. This however, can in analysis of Marieberg be concluded that no aspects of physical design have been mentioned as an opportunity or strategy.
Örebro municipality see the development organisation Marieberg Utvecklings AB as an opportunity for future development of the area (Planner Örebro kommun, 2018). In the new comprehensive plan of Örebro municipality, an opportunity for improved bicycle network are mentioned. The municipality see an opportunity of improving it to a more consequent and effective network (Örebro kommun 2018b).

In an analysis one identified threat for Marieberg is the non-municipal land, the land is mainly owned by private owners which risks having more focus on economic gain and expansion rather than for ecological sustainable development and accessibility. A municipality may have more aspects included if they owned the land, now they are more a reactive actor in the planning process of Marieberg.

The national number for public transportation usage are 12 % of all trips (trafikanalys, 2016). Only 8% of all travels made in Örebro are done by public transportation, which is identified as a weakness for the region (Örebro municipality, 2018b). 80% of all shopping trips in Örebro are individual trips, this is a weakness due to carbon emissions and less use of public transportation (WSP, 2014).

One weakness in an analysis by WSP (2014) is the good accessibility to Marieberg for car users and poor accessibility for other transport modes. Current bicycle and pedestrian network is identified by the researcher of this study as inconsequent and it can therefore be argued as a weakness for improved accessibility of Marieberg. An opportunity however exists for improved bicycle and walking network as well as improved accessing points to Marieberg. By improving the network, the travel time can be reduced and thereby improved accessibility (Viklund et al., 2007). However, the distance to the centre is around 9 kilometres which is relative large in aspects attracting bicyclists from the city core. According to Viklund et al. (2007) reasonable distance is between 2-6 kilometres. The distance to the city core also implies the weakness for Marieberg and the challenge of densifying the area since densification should be done 3-5 kilometres from the city core (Örebro kommun, 2010). However, in the comprehensive plan adopted in 2018, the pedestrian and bicycle network in Marieberg are pointed out for improvement, current network within the area are inconsequent (Örebro kommun, 2018b).

The functioned divided traffic system in Marieberg is by the researcher currently identified as a weakness for improved accessibility in the area. A function separate traffic system intensifies the feeling of unsafe for pedestrians and bicyclists (Västerås stad, 2018). Moreover, one identified weakness by a municipal planner from Örebro municipality is current location of the national road 51 that creates a barrier between north part and south part of the area (Planner Örebro kommun, 2018).

For Örebro municipality there is retail policies and conducted retail analysis for the region. In an analysis this can be identified as a strength for planning of commerce, however more follow up investigations according the theory by Viklund et al. (2007) can be done. For instance, a qualitative consequence analysis of retail establishments is a good tool that creates better conditions for constructive dialogues with involved actors. To show consequences gives more legislation and more impact (Viklund et al., 2007). For the development of Örebro there are not only identified key actors mentioned by Wärnhjelm (2015). In the development of Marieberg the organisation Mariebergs Utvecklings AB have one key roles for development of the area. There is by this an opportunity for cooperative planning through a consequence analysis which can be an effective tool, for Marieberg and its involved key actors.

To reach sustainable travel behaviour in society, the Swedish parliament express the importance of a policy for accessibility targets as a substitute of mobility targets are interconnected within the transport sector and urban planning (Riksdagen, 2010). In an analysis possible accessibility targets are;

- Reduce the barrier effect of the national road 51.
- Improve the bicycle and pedestrian network to a more consequent and effective.
- Increase the number of bicycle parking in Marieberg.
- Create good connections between bus stations and entries in Marieberg.
- Improve accessing points for pedestrians and bicyclists to Marieberg.
- Create more effective bus routes to Marieberg from the city core of Örebro.

In map 7.4 identified critical points for pedestrians are presented. These critical points are identified at site observation by researcher if this study. At point number 1, a need for more pedestrian routes are needed in west directions (see figure 7.3). At point number 2 and 3, pedestrian need to pass circulation point which creates ineffective routes and the feeling of circulation being a barrier. At point number 4, pedestrians need to cross another pedestrian route with large barrier effect and feeling of unsafe due to fast driving cars. At point number 5, passage under Kumlavägen is located. The passage is a tunnel for pedestrians and bicyclists and can be perceived as unattractive. There is lack of consequent bicycle road at point number 6. At point 7, there is a need of an entry to Ikea and Willys for pedestrians. At this point, the connection between store entries and bus stations should be improved.
7.5. Conclusion

In a conclusion, one main strength characteristics of Marieberg is the relatively low barriers in east and north direction of the area. The main opportunity for Marieberg is to strengthen the pedestrian and bicycle network within the area to create a consequent and connected network. Weakness for Marieberg can be concluded in the long geographical distance to the city core and low travel time ratio for bicycling. One of largest threats for improved accessibility and reduced car dependency is the difficulty in attracting bus travellers to Marieberg due to current low number of bus users in Örebro. Finally, a conclusion of Chapter 7 can be presented in a conducted SWOT-analysis, see figure 7.5.

Figure 7.5. A conducted SWOT-analysis of the case area Marieberg.

8. Analysis

This chapter starts with a conducted comparing analysis of all three case studies (section 8.1). The analysis is presented by general subjects; accessibility to the centre, accessibility within the centre and planning for sustainability. This chapter continues with an identification of general challenges based on previous analysis (section 8.2) for improved accessibility of sustainable transport modes. In chapter 9, suggested solutions for these challenges are presented.

8.1. Comparing analysis

*Accessibility to the centre*
The accessibility to a peripheral retail centre are important to analyse due to theory that accessibility of sustainable transport modes to different activities is one possible factor for reduced car dependency (Ljungberg et al., 2004). In an analysis, it can be argued that the geographical distance to city core has a large impact on potential development for accessibility to the peripheral retail centre. Also, according to Viklund et al. (2007), distance is one main factor for higher use of sustainable transport modes as cycling and walking. In a comparison it can therefore be argued that Ingelsta has higher potentials for good accessibility to the centre with a short distance to the city core than for Erikslund and Marieberg.

For long-term environmental sustainable society, attractive and safe pedestrian routes are one effective tool of planning (Reneland, 2001). This argument can be applied for the case of Ingelsta and its potential for good accessibility for pedestrians and bicyclists. In another perspective the distance to the centre plays an important role for the competition power of the use of bicycle or walking as transportation mode (Viklund et al., 2007). In a comparing analysis, Ingelsta has good potential of strengthen the competition power of walking and bicycling as transportation modes. Erikslund and Marieberg has longer distance to the city core and therefore a larger challenge of strengthen the competition power of walking and bicycling as transportation modes to the centres. However, a reasonable distance depends on the design of cycle paths, terrain and amount of other traffic (Viklund et al., 2007). Therefore, an analysis is that these two centres can have good use of tools as designing of pedestrian and bicycling paths.

An accessibility assessment of bicycling was conducted previous in this report for all three cases where one comparing analysis show that Marieberg has the highest travel time ratio and Ingelsta the lowest. The travel time ratio for Marieberg is 2,42 and the recommendation travel time ratio for bicycle is 1,5 or lower (Viklund et al., 2007). This result shows that the time difference for travelling by car or bicycle is more than doubled. The result for Erikslund was 2,02 which is also a higher ratio than recommended. For Ingelsta the travel time ratio was 1,67 which is over the recommended number 1,5. One identified main factor for this result is the distance to the city core. However, as the theory by Viklund et al. (2007), the travel distance can be adjusted by design of bicycling paths.

Handy and Clifton (2001) discusses the potential of reducing car dependency by decreasing the distance between destinations and residence. Bjurström (2002) discusses similar aspects and means that distance to residence and city are one main factor for impacts of the number of trips done by car. In the aspect of distance to residence the case of Ingelsta can be argued to have an advantage of reducing car dependency. Ingelsta peripheral retail centre are due to shorter distance to city core, located closer to possibly more residences than Erikslund and Marieberg. The residence in adjacent areas of Ingelsta are located closer to city core than for residence areas located in adjacent areas of Erikslund and Marieberg. Due to theory by De Aberu e silvia et al. (2006) and theory by Bjurström (2002), it can be argued that people living in residence close to Ingelsta are to a higher extent likely to use sustainable transport modes in a comparison to Erikslund and Marieberg. It is therefore a higher potential for accessing the peripheral centre by a sustainable transport mode for Ingelsta than for Erikslund or Marieberg.

If peripheral retail establishments located in the fringe of the city and could be more integrated, there is a potential for a development towards polycentric city structure (Reneland, 2001). In this analysis, it has been showed that Ingelsta having an advantage of the short distance to city and the relatively high potential of developing a good accessibility to the centre. Due to this, it can be argued that Ingelsta has a good potential to contribute to a development of Norrköping towards a polycentric urban structure.

Accessibility of public transportation to a peripheral retail centre is one main factor for a sustainable transport system. Previous in this report, conducted accessibility assessment has been done for all cases. In a comparing analysis, it is showed that the accessibility of this aspect is currently highest for
Ingelsta. The travel time ratio for Ingelsta is 1.22 and the recommendation travel time ratio for public transportation is 1.5 or lower (Viklund et al., 2007). This result shows that the time difference for travelling by car or public transportation is low. For both Erikslund and Marieberg, the travel time ratio was 1.67 which is over the recommended number 1.5. Improvement can therefore be done for these two cases. A planner at Västerås municipality (2018) argued that one reason for relatively high travel time ratio is the longer route bus need to take in comparison to car users.

The accessibility of public transportation can moreover be improved by increased number and more effective bus routes to the areas. There is a potential for creating an public transportation hub for these centres since it already is a target point for many people. In a comparison, it can be argued that distance may affect the character of this public transportation hub. For Ingelsta, the public transportation possibly would be more used in a central extent and for Marieberg and Erikslund in a more regional extent.

The accessibility to the peripheral retail centre, can by this comparing analysis be concluded that Erikslund and Marieberg has similar challenges for achieving good accessibility to the centre due to longer distance to city core. Moreover, Ingelsta has the highest possibilities of creating a good accessibility for sustainable transport modes and increasing the competition power of those modes.

Accessibility within the centre
One important aspect of accessibility of bicycling is the accessibility to bicycle parking (Viklund et al., 2007). For this study the bicycle parking and the accessibility to it is studied within the peripheral retail centres. In Erikslund, five locations of bicycle parking were identified, meanwhile two locations of bicycle parking were identified in Ingelsta and one in Marieberg. In analysis of theory by Viklund et al (2007), guidelines of bicycle parking for the city core the case city should be applied to cases of this study. For Ingelsta, this aspect is especially important due to high potential of good accessibility to the centre of from the city core.

The traffic function system for all three cases has been identified as traffic functioned separated. A traffic system of this kind normally includes pedestrian tunnels or bridges over larger roads. Toft and Rönn (2017) argues that urban spaces as pedestrian tunnels has for a long time been neglected by architects and urban designers. In this study pedestrian tunnels were identified for all cases. These tunnels are identified not fulfilling the demands of a walkable city as the characteristics of safe, interesting, useful and comfortable (Speck, n.d.). These tunnels have in a further analysis a lot to offer if they were supported by design, as Toft and Rönn argues (2017).

In a peripheral retail centre, the accessibility for disabled should be as high as in city cores (Viklund et al., 2007). In an analysis of cases for this study it is can be argued to lacking or non-existing. The physical structure problematizes for the use of building facades as a lead tool. It is there specific important that pedestrian paths are unhindered and equipped by lead tools on the ground.

One factor for reduced mobility and accessibility are barrier effects (Holmberg et al., 2008). Ingelsta have challenges of the large barrier of Stockholmsvägen going through the area. This barrier problematise the connectivity and accessibility of the pedestrian and bicycle network. The pedestrian and bicycling network is within the area of Ingelsta ineffective and mainly adjusted for car users. In a comparison to Erikslund, the main barriers instead surround and isolate the area and problematise the connectivity to the area. Ingelsta is not isolated in the same perspective as Erikslund and have better opportunity of integrating the area with adjacent ones. For the case of Marieberg the barriers are similar to Erikslund, however not to the same extent. Marieberg has also a barrier of national road 51 going through the area. Even though the barrier exists for Marieberg, it is not as large as the barrier within Ingelsta.
The efficiency of walking and bicycle network is important for these modes of transportation to be competitive (Holmberg et al., 2008). In comparing analysis, the efficiency of network is identified as best in Erikslund. The efficiency of the network in these areas are mainly affected by barriers and within both Marieberg and Ingelsta, there are larger barriers going through the area.

The accessibility in terms of safe and attractive pedestrian routes between public transportation stations and entries can for these cases be analysed. Some recommendations by Viklund et al. (2007) is that pedestrians should not be forced to walk across large parking spaces and or along trafficked roads. In an analysis it can be argued that all cases to some extent fail in this aspect.

Different type of retail possibly can attract different type of transport mode users. Volume shopping demands the customer to transport their bought products in a comfortable way. If there would be an area with only non-volume life style purchases, a possibility for users not demanding the car as transport mode can be higher. For all three cases there is a mix of retail in the area with mainly volume durable purchases. Since the volume-durable shopping is dominant for all three cases, there is challenge of changing behaviours of choosing another transport mode than cars.

Planning for sustainability
For a sustainable development of retail establishments, a cooperated planning is demanded. Key actors involved are not only dependent of each other, in between there is also conflicts of interest (Wärnhjelm et al., 2015). A qualitative consequence analysis of retail establishments creates better conditions for constructive dialogues with involved actors. To show consequences gives more legislation and more impact (Viklund et al., 2007). For the development of Orebro there are not only identified key actors mentioned by Wärnhjelm (2015) as it is at the case of Erikslund and Ingelsta. In the development of Marieberg the organisation Mariebergs utvecklings AB have one key roles for development of the area. In a comparing analysis a consequence analysis can be an effective tool, especially for Marieberg and its involved key actors for a cooperative planning.

8.2. Identified general challenges
Some general challenges for improved accessibility of sustainable transport modes has been identified from previous analysis of all three cases.

One general challenge for peripheral retail centres is the problematisation of succeeding transforming existing land structure and land use to of built environment. It is argued that an area with mixed functions possibly have larger potential of reducing car dependency. However, for peripheral retail centre it is difficult to change the trend of monotonous functions and large-scale architecture.

Another identified challenge for peripheral retail centres are the normally existing barriers within or close to the area. This problematize the potential of having strong connection points and accessibility, especially for pedestrians and bicyclists. For the cases of this research the accessibility within centres for pedestrians and bicyclists can be seen as general challenge.

Due to large parking spaces, many car entries and lack of clarity and guidance the space for pedestrians and bicyclists often perceive as vague. A result of this is that pedestrian possibly feel that car users are prioritized first in the urban space. There is also in peripheral retail centres a lack of unhindered pedestrian paths and places for people with disabilities. At these places there is no existing leading tool on pedestrian paths.

There is normally a traffic separated system in peripheral retail centres which problematize to transform the traffic system to a function integrated system. A traffic separated system easily creates...
ineffective and inconsequent pedestrian and bicycle routes which one of the challenges identified for peripheral retail centres. Traffic separated system often results in unattractive and unsafe pedestrian tunnels and bridges.

If land already is developed and built, there is a challenge of transforming current unsustainable urban structure at all. Already developed land is normally owned by private land owners which possibly has more focus of economic gain than a municipality. In peripheral retail centres, there is often lower land prices than in the city core and the land owners see the possibility of competition of parking space. Because of this, there is a challenge of transforming car parking due to the economic gain land owners have due to more customers. Peripheral retail centres are mainly market to car users where due to the lack of accessibility for people without a car, there is exclusion of some consumer groups.

For municipalities with population not larger than 150 000 inhabitants one identified challenge is the municipal role as reactive instead of active. Two of three municipalities expressed the difficulty of being initiator and being an active municipality, it is more the case that the municipality answer incoming suggestions from developers (Planner västerås kommun, 2018; Planner Norrköping kommun 2018).

9. Solutions

In this section general relevant solutions of development based on previous analysis are presented. The mentioned proposals are presented based on analysis from this study. The proposals are, if relevant, linked to cases for this study.

Bicycle parking

One tool for increased usage of bicycling and increased accessibility within and to the area is a wider range of qualitative bicycle parking (see figure 8.2) and bike pools (as car pool). One alternative is the potential of transforming car parking to bicycle parking. Bike parking should be established at multiple locations in connection to main target points and in connection to its entries. There is furthermore an option of marketing cargo bikes within the peripheral centre and alternatively a pool for cargo bikes similar to regular bike pool, see figure 8.1. By using cargo bikes, the possibility creates for people without a car to shop at peripheral retail centres and volume durable shopping.

![Figure 8.1. At Ikea in Umeå, Sweden, there is possibilities of using cargobikes instead of using the car (Aspiranten, 2016).](image)
Public transportation stations
Design and accessibility: Stations should be weather protected and located within a distance of 200-400 meter (Holmberg et al., 2008). There is moreover potential for peripheral retail centres to work as a public transportation hub, see figure 8.3. This results in the possibility exists to transform a number of car parking set out commute parking in connection to the possible public transportation hub. Additionally, a suggestion is establishment of car pool and bike pool within or in connection to the commute parking and public transportation hub, see figure 8.4.
Pedestrian and bike routes

Pedestrian and bicycle routes should be established within the space of parking. Car users become pedestrians when parking. The large parking spaces problematize an effective pedestrian and bicycle network within the area if parking space is not used. Well-designed pedestrian paths in connection to entries and going through parking spaces.

A stronger connection can be done between city core and the peripheral retail centre, therefore well design bicycle and pedestrian paths should be implemented. See reference project from Stockholm in figure 8.5.
Pedestrian and bicycle passages

A function integrated traffic system has many advantages as lower car speed and the feeling of safe for pedestrians etc. Therefore, solutions of an integrated traffic system are suggested. However, an integrated traffic system reasonably is a more long-term strategy. If the pedestrian network situation is critical and solutions of an integrated system is difficult the pedestrian network should be designed by care. For already existing passages there are some alternatives of actions. If a peripheral centre has unattractive and unsafe pedestrian and bicycle tunnels there are actions that can be taken: for instance as the project of Urban insight report by Ranum et al., Redefining tunnels and bridges (2018) a project published by Sweco. This project argues for the potential for massive improvement of quality of existing tunnels and bridges with a positive result, see example in figure 8.6 and 8.7 (ibid.).
Figure 8.7. Example of bridge project in Denmark from urban insight report (Ranum et al., 2018).

Integrated traffic function system
Change prioritization of planning of transport mode and integrate the different functions of the traffic system. A starting point for reconstruction or new establishments are to initially ensure a defined street framework. By using this method for establishment, the possibility is higher to reach a city block structure.

Densification
De Aberu e silvia et al. (2006) argues that using land use and urban form designs and planning both around residential neighbourhoods and workplace areas are valuable tools in planning. Results from this study furthermore provide quantitative evidence that workers living in central, compact, mixed and denser areas use public transit and non-motorised transport modes in a more extent. One possible solution for peripheral retail centres to reach an urban structure of city blocks, is a densification of the area. A transformation of architecture is aimed to go from current large scale and sparsely located to more dense and smaller scale of proportions, see reference project in figure 8.8.
Eco ducts
For challenges of nature reserve and biodiversity and the barriers of car roads an eco-duct would be an option so the nature reserve does not hinder other sustainable planning actions for the area, see figure 8.9. This solution would fit the case of Ingelsta, Norrköping due to current restrictions by areas of Natura 2000.

Partnership and cooperation
For a sustainable development of retail establishments, a cooperated planning is demanded. Key actors involved are not only dependent of each other, in between there is also conflicts of interest (Wärnhjelm et al., 2015). Cooperation need to be improved not only in a peripheral perspective between organisations and companies. Cooperation between departments within organisations are an important aspect for cooperation and partnership. If transport planning and urban planning is well connected to each other, sustainable urban planning possibly is more reachable. A sustainability focus and especially for reduced car dependency and increased accessibility of sustainable transport modes should permeate all actors involved in the future of peripheral retail centres.
**Workshops**
Strengthen partnership between actors of involved actors for development of area and create supervision and implement new perspectives between actors. A cost- and time-effective potential for new creative and sustainable solutions. A sustainability focus and especially for reduced car dependency and increased accessibility of sustainable transport modes should permeate all actors involved in the future of peripheral retail centres.

**Regulations and policies**
In a national perspective, inspiration can be taken from other countries as Netherlands, Denmark and Norway (Forsmark, 2001). For further information about these regulations see theory section 4.1.1. Currently there is municipalities creating policies for no new peripheral retail establishments or similar. However, if national regulations are set then there are not only some municipalities in Sweden achieving this. A national regulation would moreover create awareness in municipalities and other actors of the affects from peripheral retail centres. A possible solution is because of this implementation of national regulations should be established of how development of peripheral retail centres should be focused and location of new establishments. Furthermore, for peripheral retail centres a more strict and comprehensive impact assessment can be implemented. Peripheral retail centres have as mentioned with this study many affects and impacts and sustainable directions should therefore not pendent on enthusiasts there should be stricter guidelines. Currently it can be argued that sustainable solutions or reduced car dependency only can be implemented for the cost of economic gain. Planning of retail is in many cases steered by capitalism and regulations could work as a tool for sustainable urban planning.

To reach sustainable travel behaviour in society, the Swedish parliament express the importance of a policy for accessibility targets as a substitute of mobility targets are interconnected within the transport sector and urban planning (Riksdagen, 2010). Peripheral retail centre does not offer activities suitable for all people, the accessibility is e.g. lacking for people not owning a car or people with disabilities. Accessibility policy can therefore be implemented for increased equality in society. For proposed examples of policy of accessibility of the cases, see section 5.5, 6.5 and 7.5.

10. **Final discussion**
In a final discussion, it can be argued that peripheral retail centres need more research and suitable solutions for sustainable development. During this research some perspectives and questions regarding sustainable development of peripheral retail centre have been actual, which are discussed in this section.

One question that can be asked is if an improved accessibility will result in increased unbalance of competition between city core and peripheral retail centres? It can be argued that an improvement of the accessibility of sustainable transport modes to peripheral retail centres, there is more of a potential to create a polycentric city structure increase. However, for this to happen, there should be mixed functions in the area as well. This could be a sustainable solution for the retail competition as well as car dependency. However, this aspect need further research.

There are many scenarios that can be identified for future development with retail involved. How will the emerge of e-commerce affect peripheral retail centres? Will peripheral retail centres be less or more attractive and how will the travel behaviours be affected? It can be argued that these questions need further research.

Another scenario worth discuss is the question of what happens when peripheral centres integrate with rest of the city? One scenario is that a more integrated centre may increase the land prices of the area and other establishments than retail becomes interested in developing in the area. It could be
argued that this kind of development could be a start for a polycentric city structure. Another scenario is that this kind of development together with improved accessibility could outcompete city retail. However, if a development towards polycentric region and a densification and transformation of a monotonous area, then I argue that the development is sustainable.

Connected to this discussion, some could question if not developing peripheral retail centre at all are the best solution for sustainable development. However, it can be argued that this scenario is not suitable for all cases around the world. In Sweden, the peripheral retail is strong and by hoping for self-developed closure possibly can be an optimistic thought. In Sweden, Ikea is a very popular attraction point and a more reasonable development is more awareness of car dependency by peripheral retail companies and policies for sustainable solutions. Some peripheral retail centres have the possibility of transforming to sustainable urban structures and further creating a polycentric city structure. For this to be suitable, it can be argued that it most likely fits larger cities well.

Another discourse of development of better external retail centres is resulting in a contribution to making shopping and consuming more convenient. Shopping and consumerist society also contributes to carbon dioxide emissions. There can therefore be discussed that an improved accessibility of sustainable transport modes possibly does not mean a reduced amount of carbon dioxide emissions.

Peripheral retail centres have initially a problematic urban structure that problematize a transformation to mixed function more dense area. Therefore, it can be argued that tools for improved accessibility of sustainable transport modes that has been presented in this study can be effective for creating a clear vision of what advantages and disadvantages for future sustainable development.

The driving force of expanding existing establishments are strong and positivists of peripheral centres mean that these establishments are needed for increasing the competition (Viklund et al., 2007). However, as showed in this report, some negative impacts of peripheral retail establishments are also known and also an issue. There is an importance of integrating all sustainability development aspects when planning for peripheral retail areas. Followed by this, it is therefore important with a functional cooperative planning between key actors. However, it is not only important for involved key actors, it is as well important for cooperative planning within the organisations of key actors. For a municipality that has more than one planning department, it is important for these sectors to emerge and cooperate plan the same area. Comprehensive planning and detail planning are dependent on each other and can therefore be cooperated to a higher extent. In a discussion, it can be argued that national regulations for development of peripheral retail establishments would help in planning for a sustainable society.

In a discussion of the involved actors and roles of actors there is some similarities and differences of the role as municipality. Norrköping municipality can be identified as a rather active actor for development of Ingelsta, partly because of other development of the city. The municipality have knowledge about challenges of Ingelsta and has actively been trying to find solutions for an improved connectivity and accessibility for pedestrians and bicyclists within the area. Erikslund has by their detailed comprehensive plan also identified challenges of their peripheral retail centre but has also focused on expansion of the centre which possibly results in more challenges and increased car dependency. In a discussion of the role for Örebro municipality the focus has been on traffic roads, overall development of the peripheral retail centre has therefore been directed to private land owners and development organisation. In a conclusion it can be argued that municipalities are active in various ways: Norrköping by other adjacent projects and workshops about the area. Västerås by further development of the centre and the detailed comprehensive plan. And Örebro by retail investigations in the city.
In a conclusion, there are many challenges for sustainable development of peripheral retail centres. One of the main challenges is as identified and studied the accessibility to and within peripheral retail centres.
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Interviews

Figures

Figure 3.1: Eniro, no date. [Online]. Available at: www.eniro.se [Accessed 2018-04-03].

Figure 6.5: Googlemaps.se, no date. [Online]. Available at: https://www.google.com/maps/ [Accessed 2018-05-07].


Figure 8.2: Örebro kommun, 2016b. Cykelparkering – riktlinjer för Örebro kommun.

Figure 8.3: Meier, T. 2015. Tim Meier Photography.

Figure 8.4:
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Figure 8.5:

Figure 8.6 and 8.7:

Figure 8.8:

Figure 8.9:

Appendices
Appendix 2:


Appendix 3:
Västerås stad, no date, c. Karta över väghållare I Västerås stad. [Online] Available at: https://www.vasteras.se/download/18.5e8d74b614b07e41ca6703e/1423138373869/V%C3%A4gh%C3%A5llare [Accessed 2018-05-08].

Appendix 4:

Appendix 5:

Appendix 6:

Appendix 1

A case study protocol for conducted interviews. The interviews where held in Swedish, and therefore, the protocol are in Swedish as well.

Intervju

Inledning:
Fråga om vad planeraren främst jobbar med och hennes/hans relation till det externa köpcentrumet.
Fråga om hennes/hans bakgrund som planerare.

Historia och nuläge:
Uppkomst, områdets roll i relation till region och kommun.
Jag har sett att många externa områden är omvandlade industriområden, hur har det varit för Erikslund/Ingelsta/Marieberg? Vad var starten för detta område?
Vilken aktör har varit initiativtagare för utveckling av detta område?
Vad är kommunens relation mellan gränsande kommuner? Och vilken roll har Erikslund/Ingelsta/Marieberg haft i relationen mellan gränsade kommuner? Något som ser annorlunda ut idag?
Vad har området för roll för kommunens utveckling? Inkomst? Besökare?
Kan du berätta lite om hur den historiska utvecklingen har sett ut av Erikslund/Ingelsta/Marieberg? Övriga viktiga hållpunkter för området?
Jag läste att kommunen var markägare för större delen av området, påverkar det planeringen? Vad är detaljplanelagt?

Planneringsstatus:
Vad är mest aktuellt just nu vid planering gällande Erikslund/Ingelsta/Marieberg? Berör det tillgänglichkeit eller liknande?
Hur har ni varit delaktig i planering av området?
Vilka planer finns på utveckling av området idag?
- Kollektivtrafik
- Utbyggnad
- Trafik/gatustruktur i område

I vilken fas är planen/planerna i? Påbörjat, klar, redo att realiseras.
Har ni stött på utmaningar/svårigheter under projektets gång? Om ja, vilka? Kunde ni hitta lösningar till dessa eller kvarstår de än idag?

a) Om de kvarstår än: Vad anser du behövs för att de skulle kunna överkommas?
Om ni har lyckats lösa dem: Hur löste ni det? Finns det saker som du tror skulle kunna ha underlättat en lösning eller rent av gjort att en svårighet av denna natur aldrig hade uppstått?

Finns det generella lärdomar som du tror skulle kunna vara av nytta för andra liknande projekt? Om ja, vilka?

Har konflikter uppstått vid planering av området?

Finns det någon eller några specifika aktörer som har visat motstånd/initiativtagande gällande expandering av handel i området?

Hur har näringslivet påverkat planeringen av området?

Hur har handelspolicy påverkat planeringen av Erikslund?

Hur har relationen och konkurrenser mellan gränsande kommuner påverkat planeringen av detta område?

Hur har kommunens roll varit i denna process? Initiativ/motstånd?


Hållbarhet

Hur har hållbarhet diskuterats vid planering av området?

Ser du att exempelvis prioriteringen av transportslag har inkluderats i planeringen av Erikslund?

Fortsatt arbete

Kartor?

Hur ser gångbanorna ut idag i området?

Hur ser cykelbanorna ut idag i området?

Hur ser tillgängligheten ut med kollektivtrafik ut idag?

Finns det resevaneundersökningar för Västerås eller framförallt Erikslund?

Jag läste ett policydokument för upphandlingar, kändes mer som policy för inköp. Finns det handelspolicy i fråga om lokalisering av handel?

Främsta möjligheter och utmaningar.

Vad har ni för idéer kring planering av området?

Har du redan nu reflektioner om möjligheter/utmaningar?

Jag kommer välja ett case för att gå vidare med och då utveckla en strategi.

Du nämnde på mail att planen om att tillsätta bostäder i området kommer vara svårt att uppfylla, vilka faktorer har spelat roll i denna process?

Checklista – måste få med

Hur det blev handelscenter
Tidigare ev. motstånd
Motstånd/initiativtagare
Vad som är aktuellt idag – några frågor man jobbar med idag
Hur det har jobbats med hållbarhet
Appendix 2
A map of bus route 3 in the city of Västerås (Västerås stad, n.d., a).
A map of bus route 11 in the city of Västerås (Västerås stad, n.d., b).
Appendix 3
Map of all land owners of roads in Västerås and Erikslund (Västerås stad, n.d., c).
Appendix 4
Map of public transportation network in the city of Norrköping (Östgötatrafiken, 2017).
Appendix 5
Map of properties included in the case areas Ingelsta (Norrköping kommun, 2017a).
Appendix 6
A map of bus route 1 in the city of Örebro (Länstrafiken, n.d., a).

Map of bus route 701 in the city of Örebro (Länstrafiken, n.d., b).