

Table of contents

Figurliste.....	2
Sammendrag.....	3
1.0 Introduction.....	4
1.1 Background and relevance.....	4
1.2 Limitations and research questions.....	5
2.0 Theory.....	5
2.1 Densification.....	5
2.2 Degrowth.....	7
2.3 Natural Movement.....	8
3.0 Methodology.....	9
3.1 What are qualitative methods?.....	9
3.2 Document analysis.....	10
3.3 Case study - Trondheim.....	11
3.4 Ethics and reflexivity.....	11
3.5 Sources of error and setbacks.....	12
4.0 Results.....	13
4.1 Mobility strategy.....	13
4.2 City development strategy for Trondheim.....	14
4.3 Quality program for the development of Nyhavna.....	14
5.0 Analysis and discussion.....	15
5.1 A sustainable way of living.....	15
To prefer walking.....	16
The importance of pleasantness.....	19
Nyhavna case.....	19
6.0 Conclusion.....	20
Into the future.....	22
7.0 References.....	23

Figure list

Figure 1, Time consumption map from the walking strategy by the city planning office for Trondheim kommune, 2016.	18
--	----

Summary

In 2019, Trondheim was named a Centre of Excellence by the United Nations Economic Commerce of Europe, for being a good example of how to best develop cities in line with the 11th United Nations Sustainable Development goals: Sustainable Cities and Communities. Following this nomination, Trondheim has continued its efforts to develop the city sustainably, with the well-being of the people in mind. In a time where the reign of the car as the primary choice for transportation might come to an end, it is interesting to look at how alternative modes of transport is being developed, usually to pose a more sustainable alternative. Sustainable mobility is becoming a more and more disputed topic, and the reduction of car traffic is

This thesis will do an in-depth analysis of planning documents for the development of the city of Trondheim and its mobility network. The mobility strategy, the city development strategy, and the quality program for the development of Nyhavna will act as the basis for the study, and will along with the travel habit survey and the communication strategy for the environment package as supplementing material, be thoroughly analysed in a interpretive content document analysis. These reports will be discussed in light of the theories of degrowth, densification and natural movement to answer the research questions:

How does pedestrian friendly and car reduction initiatives in Trondheim accommodate for a transition into more sustainable mobility?

How can walking and other sustainable modes of transport become competitive with the car for daily travels?

1.0 Introduction

1.1 Background and relevance

As of 2020, 87% of the world's population live in urban areas (Our World in Data, 2024), a number that is fair to assume is ever-growing. This means that the impact of changes to inner-city structures and areas, small or large, affects large numbers of people, in significant ways. In this case the focus will be on large scale structural changes to streets, squares, buildings as well as whole areas and districts, and the reasoning behind and goals for these changes. Throughout history, the world has gone through revolutions that originates from the introduction of a ground-breaking invention. The train, and later the car, may be the biggest of these revolutions, and are ones that drastically changed the mobility, the way people live, and the way cities are being built and developed. After the introduction of the car to masses, all areas and every street was constructed to be easily accessible, and comfortable to drive a car.

Over the past years however, the focus has shifted. Cities of today are in the middle of what seems to be a revolution in terms of prioritisation of space. The car is no longer the main focus of city planning. Political parties, like Miljøpartiet de grønne (MDG) are arising all over the world, and especially in developed countries, with agendas like car free cities as their main policies. It is becoming clear that more and more people have started to imagine, and dream of, a world (or at least a city) without the need for cars.

While cities across the world have begun their journey towards this new ideal, different types and sizes of cities calls for different approaches and strategies. For this thesis, I will be using the Norwegian city of Trondheim as a case study. Trondheim is the third largest city in Norway, and in comparison, to the big metropolises of the world mentioned previously, faces both challenges and advantages when aspiring to take its walkability to the next level. Trondheim is as the third biggest in Norway, still quite a small city on a global basis. Despite its relatively low population of just over 200 000 (Trondheim kommune, w.y.) it is a rapidly growing city, which have been steadily increasing its population tally by about 55 000 people in the last 20 years (Trondheim kommune, 2024).

Trondheim was in 2019 named a Centre of Excellence (CoE) by the United Nations Economic Commission for Europe. This is a huge testament to the focus and responsibility of the city in working towards a greener future for cities. The United Nations Sustainable Development goal number 11 is called sustainable cities and communities and will be the

general topic of this thesis. The thesis will discuss how the focus of sustainability is integrated within the planning documents and processes of the different units working with the development of the city of Trondheim. In particular, the thesis will revolve around mobility and the habits of mobility in Trondheim as well as how they may be affected by the visions and plans for the future development of the city. More specifically, it will look into sustainable mobility and how the accommodation in Trondheim is for a transition away from the car as the primary mode of transport. Hence, I will be working with these research questions:

How does pedestrian friendly and car reduction initiatives in Trondheim accommodate for a transition into more sustainable mobility?

How can walking and other sustainable modes of transport become competitive with the car for daily travels?

1.2 Limitations and research questions

Due to the size of this thesis, it is impossible to dive deep into all relevant information. Therefore, I have decided to focus mainly on walking for transport and how it can become more attractive as a transport mode than the car. I have also chosen to not go deep into the sustainability term but think of it as a broader term. Regarding the choice of documents to use for the document analysis, I have chosen a select few and focus on them, aware that there are many other documents that could and would have been relevant to analyse thoroughly.

2.0 Theory

2.1 Densification

As of the last couple of the decades, the scope and focus of Norwegian city planning have transitioned into creating closer urban centres. In an article by city planner, Tord Bakke in a newsletter for housing research, this is being called densification and have become the overarching idea for the vision of many cities, towns, and villages (Bakke, 2020, p. 196). Densification is a strategy to condense the distance between amenities and services so that all you need on a daily basis is within comfortable walking distance. One of the primary methods of doing this is through downscaling of stores, pharmacies, health centres, etc. so that the essentials is always easily accessible. This includes moving the larger department stores and shopping malls out of the way of designated living spaces (Bakke, 2020, p. 196). The

institutionalised infrastructure will remain in urban centres, although heavily downscaled and more spread out in a grid-like setup with similar distances between the different units. While it is not necessarily as easy to implement as it is in smaller villages with good service coverage, the trend shows that densification is being implemented in suburbs, inner-city neighbourhoods, and city districts on a larger scale and more frequent basis, and often seem to be the preferred strategy for city development.

The “5-minute city” is a theory that suggests all daily essentials in city centres should be within a five-minute walking distance. This term is also presented by Bakke but altered to be the 5-minute neighbourhood, as neighbourhood covers both villages and suburbs in addition to city centres (Bakke, 2020, p. 197). Onwards he also brings forth the term “urban villages” which alludes to a series of smaller urban centres closely connected to the big cities, with good access to the main city (preferably by public transport), but still well covered in terms of social, and essential infrastructure. By having smaller local urban villages surrounding the big cities, people will naturally spend more time in their local urban centre, and the need for car travel and longer distance travel, shrinks significantly. When stores, doctors, pharmacies, daycares, schools, and jobs are all within walking distance for all the people, the need for car traffic becomes almost obsolete on a day-to-day basis (Bakke, 2020, p. 198). Urban villages are an important piece of the strategies for reducing car traffic, which makes it relevant to discuss the research questions. Bakke points out that the key to good walkability does not lie in the structures and buildings itself, but rather in the scope of social interaction. The thought is that an area will not be inviting to walk in if you don't have destinations to go and interact with people, no matter how easy it is to walk (Bakke, 2020, p. 197).

A report by Transportøkonomisk institutt (TØI) named: “How to create self-sufficient housing satellites with low car-dependency”, contains a set of measures surrounding walkability, that have been worked out through a research project. For example, that the threshold where people generally start to choose the car instead of walking is when distances become greater than 800 meters (Øksenholt, et al. 2017, p. 9). The housing satellites being referred to are small local centres with shops, schools and essentials for everyday life without being big enough to draw people from outside the satellite itself. An estimated customer base of between three and five thousand residents is the ideal for establishing a grocery store. With the attractiveness of a grocery store to help other businesses gain traction, a local centre is made. Ideally this centre should be central in the satellite, close to a main road, and have good public transport connections (Øksenholt, et al. 2017, p. 27).

These theories about densification, urban villages, housing satellites and the 5-minute-city are about how local service coverage and average walking distances to everyday destinations, affect the increase of walking in favour of driving. Therefore, the theories are very relevant to answer the research questions about walkability this thesis is based on.

2.2 Degrowth

Degrowth is a socio-economic theory focused on altering the way of living and changing the social objective of the world's communities. Robra and Hekkuri defines degrowth as: "A movement aiming to reduce the size of the global economy and improving the overall well-being." (Robra & Hekkuri, 2019, p. 253). The movement being referred to is based on what is becoming quite a common idea about the current "wasteful" way of living in the world. It calls for an abolishment of the philosophy that economic growth is the primary goal of any community and civilization, and that the focus is to be shifted towards improvement of the general well-being of the public as main priority. "Infinite growth on a finite planet is a biophysical impossibility" (Robra & Hekkuri, 2019, p. 253). This is an observation that summarizes the theory of why degrowth is an important theme. The theory maintains that the only way to change the world society's approach to the imminent climate challenges is to change the people's way of living, into a sustainable one. This includes societal habits of keeping waste within assimilative capacity, phasing out the use of non-renewable resources to match the speed of development of renewable substitutes, and harvest these renewable options along their rate of regenerative capacity (Robra & Hekkuri, 2019, p. 255).

Degrowth includes efforts to change the urban design and form to encourage sustainable lifestyle choices by emphasizing the importance of pedestrian-friendly infrastructure to enhance walkability in cities (Kronenberg et al., 2024, p. 237). The objective of degrowth is strongly related to the continued pressure on what is being called planetary boundaries, defined by Steffen and colleagues (Steffen et al., 2015). The planetary boundaries are nine categories of measurements of the planet's biophysical capacity. They are intended, not as dictations of development but as the biophysical considerations that should be considered for societal development, along with social, economic, cultural factors etc (Steffen et al., 2015). Degrowth is a strategy to keep development within the constraints of the planetary boundaries, and from a political standpoint, limit growth to be able to maintain the current relation to the planetary boundaries, as well as ensuring social justice (Kronenberg et al., 2024, p. 237).

The degrowth term is closely related to the more commonly used green growth. The difference between the two being the stance on economic growth in and of itself. While the green version of the term entails a change in focus of economic growth to become more sustainable and climate friendly, it still operates with the philosophy that economic growth will continue to be one of the goals of social development (Kronenberg et al., 2024, p. 237). It's opposition, degrowth, does however advocate for a more comprehensive transition of the stance on economic growth. A full shift in focus to consider economic growth as an unnecessary, and rather substantiate the wish for growth in areas of well-being, community relations and everyday convenience (Kronenberg et al., 2024, p. 237).

While degrowth may at first glance seem similar to the theories of densification, it is a theory that, like densification, aim to aid the transition into a more sustainable way of living – and mobility. Where they differ however, are in what areas they are focused on influencing. The densification theories are about creating new strategies for planning of cities, with specific solutions and policy to develop spaces that makes a sustainable everyday life convenient. On the other hand, the theory of degrowth is more focused on the sociological aspect. It aims to alter the attitude towards economic growth and sustainability, to create a shared sense of community and cooperation regarding sustainability, both locally and globally. These are two different aspects of the transition into sustainable mobility that are relevant to discuss in light of the research questions of this thesis.

2.3 Natural Movement

Natural movement is a sub-theory of the space syntax theory developed by Hillier, Hanson, and colleagues in the 1980s (Koohsari, et. al. 2019, p. 1). Space syntax is a measure of street connectivity as a direct influence on people preferring walking for transport (Koohsari, et. al. 2019, p. 1). While space syntax is a great method of connecting how integrated streets make for efficient walking, it is a theory that does not include the social and behavioural part. This is where the theory of natural movement supplements the original theory by including the factor of integrated streets and their influence on the choice of walking for transport (Koohsari, et. al. 2019, p. 3).

One of the main factors of increased walking in an area is whether there is a match between street integration and land use or not. A street full of commercial operations will not attribute to more people walking unless the street itself is walkable, and the network of streets around it makes for an easy and efficient walk to and from the commercial area, and vice-versa.

Researching the suitability for different land uses according to the natural movement theory can prove very useful for planners and policy-makers to best accommodate for commercial operations to thrive (Koohsari, et. al. 2019, p. 3). By allocating space for commercial use along well connected streets and areas, the chance for businesses to thrive is much greater, as the flow of potential customers is ensured by roads, nearby footpaths, and public transport opportunities. Over time, well connected and integrated streets will grow a network of commerciality along them as business owners see the opportunity for growth and prosperity where the flow of people is high (Koohsari, et. al. 2019, p. 3). This happens naturally all over the world, and in almost every case, hence the name natural movement.

Space syntax and especially natural movement are relevant theories to analyse when discussing what factors influence the mobility of the population, and can, in combination with the theories of densification and degrowth, provide a diverse theoretical foundation for discussing how to make walking for transport more attractive, and reducing the need for the car on a daily basis in the city of Trondheim.

3.0 Methodology

In this chapter I will describe how I have conducted every step of the research process, as well as the thought process behind the decisions, and choice of method, sources, and research material. I have chosen a qualitative research method and will start this chapter by briefly explaining what that entails and then move on to the specific method. That method is, in this case, interpretive content document analysis. It is important to be transparent about the research process to make sure that the research is verifiable. Therefore, I will describe the method used and the process using it in detail before moving on to explaining why I chose Trondheim as a case study for this project. To close out the methodology chapter, I will cover the ethical aspects and dilemmas that are important to be aware of when conducting a research project, before lastly covering potential sources of error, as well as challenges and setbacks during the process.

3.1 What are qualitative methods?

Qualitative methods are characterised by usually having a connection between the researcher and the research material, whether that is people or literature (Thagaard, 2003, p. 11). Thagaard states that one of the most important goals of qualitative methods is to attain a deeper understanding of different social phenomena. These methods give the researcher the opportunity to analyse and interpret the research material on a basis of detailed data about

people and situations. Qualitative methods cover a wide range of material collection methods. I have chosen to use document analysis as my primary method.

Qualitative analysis of documents implies the researcher to interpret the contents of what is being said or written (Andersen, 2008). A commonality between different types of document analysis is that the texts being analysed are available before the research project starts and cannot be influenced by the project itself (Thagaard, 2003, p. 12). This means that the researcher has the opportunity to study events related to the topic along the timeline, and get an overview of developments, changes and challenges that have occurred at different times.

3.2 Document analysis

When conducting document analysis, the researcher interprets the contents of a document, based on whatever means is being used in said text (Thagaard, 2018, p. 117). Tjora (2021, p. 195) refers to document analysis as a non-intrusive method. Document analysis usually consists of documents, articles and texts that are not created for research purposes, but rather for informative or convincing purposes (Thagaard, 2018, p. 117). This makes it easier in some cases to withdraw the most important pieces of information, as informative documents often are written to showcase main points. The utilisation of document analysis makes it easy to gather information about tangible subjects in specific times or places, often from the main source of information or opinions. This makes it easier to contextualise the documents in a specific time frame, allowing the researcher to account for developments throughout history. They also get the opportunity to compare the information with relevant documents from different time frames (Tjora, 2021, p. 196).

When searching the web for relevant documents it is important to limit the search. The amount of material to be found online is enormous and there is no way to incorporate everything that is relevant in a project (Thagaard, 2018, p. 117). Therefore, the data reduction step is very important to ensure that time is only spent analysing the most relevant material. Diving deep into a select few sources will give a much more specific understanding of the subjects in question, than a literature search where you get a much broader and shallower perception. It is also important to have specific focus to ensure that you stay on topic throughout the process and don't scratch the surface of many different subjects.

For the document analysis as a foundation for the discussion part of this thesis, I have chosen a small, but diverse range of documents. All the documents, however, are official documents from entities directly involved in the planning and execution of developments in

Trondheim, as Trondheim is the case study for this thesis. These documents have been chosen to get an insight into the process of the developments. The first document is the quality program for the development of Nyhavna and is very relevant because it is the largest development project in the city of Trondheim at the time of writing this. Documents number 2 and 3 are strategies for the future of city development and mobility, respectively, developed by the municipality of Trondheim. These strategy reports are very relevant to discuss the sustainability goals and strategies currently present among those responsible for the development of Trondheim. I have also analysed the travel habit survey from Trondheim 2022. I will use simple statistics from it throughout the discussion part but decided not to cover it in the results section as its own document.

It was a natural choice for me to use document analysis as a method in the beginning. By analysing planning and policy documents from Trondheim municipality, I got a good overview of current projects and visions within my case study. This allowed me to contextualise the theories of densification, degrowth and natural movement, as well as initial thoughts I had worked with, and to get an understanding of how the perspective on city planning is in Trondheim.

3.3 Case study - Trondheim

The choice of Trondheim as a case makes sense for a lot of reasons. Firstly, I currently live in Trondheim, and therefore have a pretty strong connection to begin with. That also makes it a lot easier to be closer to what I am researching and gives me the opportunity to have a look at the results of the city planning initiatives in person and create an own opinion along with the information from the document analysis.

3.4 Ethics and reflexivity

Thagaard (2003) states that all scientific operations demand the researcher to be aware of, and respect, ethical principles. The importance of ethics regarding both the research process and the post-processing of an academic thesis is also covered (Thagaard, 2003, p. 22). These principles are, among other things, about the relation between the researcher and the potential interview objects, privacy, accuracy, and neutrality (Thagaard, 2003, p. 22). Berger (2015) in his article address the importance of reflexivity of the researchers position when conducting a research project. There are several factors that can influence a researcher's stances and opinions, and in turn, the result of the research. An important factor is that the researcher must maintain

a neutral stance to ensure that the project or the results is not guided in any direction (Berger, 2015).

Ethical precautions that need to be taken include source criticism. There are a lot of useful information to be found on the internet, but there is also a lot that is not as trustworthy therefore, it is important to reflect on the publisher of the sources, to ensure that the information being used is reliable and accurate. It is also important to consider that although there might be easy to find opinions on the internet, they might not have been intended as public statements (Fangen, 2022). Privacy in terms of document analysis concerns anonymisation of the people behind the statements used in the analysis, as well as treating personal information with respect. “In document analysis, it is important for the researcher to be aware of who has written or produced the document, who the intended audience is, and what the purpose of the document is.” (Andersen, 2008) (translated quote). These terms will influence how the material should be interpreted and how it can be useful to discuss the research questions (Andersen, 2008).

3.5 Sources of error and setbacks

At the beginning of the research project, I decided to use both document analysis and interviews as primary methods. Immediately, I identified the city planning office of Trondheim as a suitable interview candidate and arranged a double interview with two members of the city planning office. One of them working as an inner-city planner, and the other as a traffic planner and advisor. This first interview did not go according to plan however, as I managed to not start the recording properly, like I thought, and ended up without any material. I wrote down what I remembered and explained the situation to the interviewees, sent them my interview guide and asked them to send me a brief summary of the interview. I got some valuable information but would have to rely more on the rest of the interviews. When contacting other potential interviewees, I had a hard time getting any responses to my interview inquisitions. The few that I did get responses from, after numerous follow ups, stated that they did not have time to spare for my research project. Disappointingly, after waiting for responses for a long time, I decided that I did not have time to wait and try to get some more interviews, as I was closing in on the deadline. From that point on I had to expand the document analysis part and transition into relying on that as a sole research method. I decided to not use the little information I got from the first interview and rather change the structure of the thesis to revolve around document analysis.

4.0 Results

4.1 Mobility strategy

The mobility strategy for Trondheim municipality is a compendium of strategies developed in line with the main goals for development defined in the municipal plan for society and land use (kommuneplanens samfunns- og arealdel) called “The Trondheim Promise” (Trondheimsløftet). The three goals are split into number 1) regarding a greener and more circular society, number 2) regarding diversity and strong sense of community, and number 3) regarding the tech capital Trondheim being a power centre for innovation and a better world (Mobilitets- og samferdselsenheten, 2022, p. 7). Six sub-goals for mobility are derived from the three main goals from the municipal plan.

The two sub-goals derived from the first main goal are centered around creating a good, efficient, and well-covered network of mobility options beside the car. The goal is a variety of different modes of transport to utilize so that any travel, over long or short distances, feel as easy and comfortable, and preferably more, than to take the car (Mobilitets- og samferdselsenheten, 2022, p. 5).

The second municipal goal is about community and diversity, which is all about feeling safe, reducing barriers, and creating opportunities for the people to thrive. The mobility subgoals under this main goal are about creating attractive and safe environments with a diverse range of social hubs and community spaces where people will enjoy, living and spending time. A lot of the developments to follow these strategies will revolve around the reduction of car traffic and the shrinking of roads as a social and physical barrier (Mobilitets- og samferdselsenheten, 2022, p. 6). Especially important is a safe and welcoming environment for children and families.

As stated by the third municipal planning goal, Trondheim is a leading hub for technology and innovation. “Trondheim the technology capital” it is being called, pertaining that the city boasts one of the leading arenas for innovation, science, and technology in northern Europe. Much of this is due to the presence of NTNU (Norwegian University of Science and Technology) and SINTEF, one of the largest independent research institutes in Europe (SINTEF, w.y.). The subgoals for mobility regarding the goal of Trondheim standing out as a good example, contain welcoming a sustainable growth of the industry sector and creating suitable solutions for delivery and commercial transport. All this to create spaces suitable for a

balance between competitive industry and commerce, and pedestrian presence (Mobilitets- og samferdselsenheten, 2022, p. 6).

The mobility strategy is split into seven main strategies for mobility development. They are focused on different areas of development. Walking, bicycling, public transport, traffic reduction, parking, living streets and new mobility options are the seven main areas for the mobility strategy. It is stated that the mobility strategy is to be considered as a whole and is dependent on all of the areas being developed to reach the goals.

4.2 City development strategy for Trondheim

Trondheim's city development strategy is a detailed plan for the future development of the city of Trondheim from 2020 to 2050. The strategy has a clear focus on creating an attractive city that people want to spend time in and is adamant at putting the well-being of the people at the top of the priority list. Solutions for an increase of the share of every day travel being by walking, cycling and public transport is the main target that the strategy document presents (Byplankontoret, 2020). It accommodates for a densification of housing developments with a strong network of local urban centres, as well as good public transport connections to both each other and the main city core. The document involves tools and strategic area plans to create guidelines for the completion of the vision for a walkable and pleasant Trondheim city. A heavy focus is also directed at the preservation of existing structures and environments, to create new solutions without ploughing over the current positives in different areas. One of the main goals of the strategy is creating a city where a climate friendly lifestyle is easily achievable across the board. The strategy calls for meticulous land use planning to ensure that all spaces in central areas are utilized maximally (Byplankontoret, 2020).

4.3 Quality program for the development of Nyhavna

The focal points of the report are sustainability and environmentally friendly solutions and initiatives to create an enjoyable and pleasant environment, while being sufficiently climate compensated. The vision for the area includes the creation of pleasant and inviting multi-use spaces, energy efficient infrastructure and good public transport connections as well as walkways and cycle paths (Byplankontoret, 2022 p. 44). The program also includes the aspect of community awareness, both within and on a larger scale. Of the 10 strategic means of development for Nyhavna, point number four in particular is relevant here as it is named: "Prioritising pedestrians, cyclists, public transport and city life." (Byplankontoret, 2022 p. 44). This section focuses on the importance of an area being attractive and rich in experiences for

the people spending time or passing through the area, as well as accommodating for everyone to live in a car-free neighbourhood. Ideas like bike- and car sharing, shared facilities, and activities, are welcomed enthusiastically. Affordability and accessibility for diversity, are other areas of encouragement, while the whole program and area aim to influence the people, both living and visiting the area, to traverse into a more and more sustainable lifestyle with less necessities.

5.0 Analysis and discussion

In the analysis and discussion chapter I have chosen to split it into five main parts, the first three of which, each covering an important topic to discuss the research questions. These topics are; To Prefer Walking, Logistics and Solutions, and A Sustainable Way of Living. All of them will be discussed using the relevant parts of the documents analysed from the city development strategy, the mobility strategy and the 2022 travel habit survey. Part four will look at the district of Nyhavna as a case study, to investigate how the area is being developed from a clean slate. This part will discuss the sustainability and mobility parts of the quality program for the development of Nyhavna. The final part will study the future goals of the development of Trondheim, by analysing the plans for the future in all of the documents analysed. All these parts will be discussed in light of the theories presented in the theoretical framework chapter, as well as previous research on sustainability, mobility and city planning, and will be used to answer the research questions of the thesis.

5.1 A sustainable way of living

Despite covering only 3% of the Earth's land surface, urban areas accounted for 67–72% of combined global CO₂ and CH₄ emissions in 2020 (Kronenberg et al., 2024, p. 234). Any way you look at it, this means that if the world is to become more sustainable, the cities of the world must lead the way. Target 11.b within the 11th of the United Nations sustainable development goals states that the goal is to “[...] substantially increase the number of cities to implement policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters [...]” (United Nations, w.y.). This target focuses on cities to become more sustainable through development, but to allow that to happen, the population must be on board with sustainability being the number one priority for development. This is something Trondheim would most assuredly want to be a good example of, being a CoE.

Previous research shows that to change the transportation habits of the people is a very tall task (Said et. al, 2023, p.4). It is also stated in the mobility strategy of Trondheim, along with a notice that the responsibility various institutions have for altering the transportation habits of the people, is very important (Mobilitets- og samferdselsenheten, 2022, p. 5). This is a recurring theme in the city development strategy, reinforcing the importance of the matter. The environment package's communication strategy (Miljøpakkens kommunikasjonsstrategi) aims to communicate four of the environment package's nine subgoals derived from the city growth agreement (Byvekstavtalen). These four are: increase the share of eco-friendly travels, lowering the threshold for eco-friendly travel, green and efficient commercial transport and increased customer satisfaction (accept for the goals and initiatives of the environment package) (Miljøpakken, 2020, p. 5). This is a clear sign that the city of Trondheim is adamant at accommodating for sustainable mobility (and lifestyle) and have initiatives in place, not only to make these accommodations, but to get the people to agree and cooperate.

The adaptation of the public mindset is one of the cornerstones of degrowth. From a degrowth perspective, the city development strategy is exactly what is needed and a sign that the planners of Trondheim have the right priorities and is focused on getting the population of Trondheim on the same track. A sense of contribution among the population is crucial to create a cooperative feeling about the fight against climate change. By accommodating for public contribution, the general mindset becomes influenced to join the cooperative for a more sustainable lifestyle. Public contribution can be made available in many different forms. In Norway today, the opinion about climate change and sustainability is generally a positive and supporting one. Yet, as the world continue to race past the pollution caps, there is still need for more urgency, and everyone needs to be convinced that a sustainable lifestyle must be top priority.

To prefer walking

To combat the car's reign of being the most common way of transport, the alternatives need to be improved. Arguably the best alternative is to get people walking. Walking for transport is beneficial on several areas (Monash University, 2024). The environmental impact is zero, no pollution of the atmosphere, nor the air quality. Walking for transport is proved to be beneficial for both physical and mental health, in addition to being completely climate neutral (Staff, 2020). Another measure of walking where zero is the answer is when it comes to

cost. Walking is free and requires very little space, and when more people walk, less space is needed for the road network. Although there are a lot of advantages with walking, the car has a massive upper hand when it comes to efficiency, and convenience when having multiple destinations.

According to the travel habit survey from 2022, 28.4% of all travels in Trondheim were by foot (Miljøpakken, 2023, p. 15). This is a small increase from previous years but not by much. When the goal is to get more people to walk, the important question is how? As mentioned earlier, the changing of peoples preferred way of travel is quite the challenge. The choice of sacrificing energy, comfort, convenience, or time to travel more sustainably is one that is rarely made by most people. 50% of travel is still made by car, which is caused largely by the habits of the people, but also by the fact that for most people, the car is still the superior choice for everyday travel (Miljøpakken, 2023, p. 13). The car offers flexibility, control, privacy, efficiency, comfort, convenience, and reliability, while still not being much more expensive than alternative modes of transport. Especially in Norway at the time of writing this, where electric vehicles have even more advantages in terms of accessibility and cost. To increase the share of travels being by other modes of transport than the car, they must become competitive in the areas where the car is superior.

To take away the advantages of the car, the differences in efficiency needs to be levelled. Obviously, walking will never be as efficient as driving a car over the same distance, but there are other ways to make walking more efficient. Firstly, in central areas, one way to make it preferable to walk is to simply make it more complicated to drive a car. Congestion charges and expensive parking is one aspect, which will be discussed further later, while complication of the traffic pattern is another way of making it easier, and more efficient, to walk than to drive a car in central areas. The street use plan for the centre of Trondheim shows that today there are only 8 main throughfares in the inner city. The report showcases a proposed plan for 2050 with three cut-off zones, making it impossible for regular car traffic to travel through the city centre from one zone to another (Byplankontoret, 2021). By making it harder to drive a car in the city centre, alternative modes of transport become favourable for most downtown travels. Other projects in the works are: the Byåsen tunnel, the Brundal connection and the extension of Johan Tillers veg. These projects are designed for large amounts of traffic and will condense the car traffic in specific areas to relieve the pressure on roads in other areas, allowing them to be repurposed. They will also move noise and air pollution away from designated living spaces (Byplankontoret, 2022).

As for the suburbs and outskirts, the challenge to improve walking numbers is greater. The average share of travels being by foot in the suburbs of Trondheim is just 25%, compared to 52,6% in central areas (Miljøpakken, 2023, p. 17). The reason behind this is that the average distance for the travels done in the suburbs are much larger. This is also affected by the fact that in today's city structure, the city centre holds far more workplaces than the surrounding areas and the suburbs, which means a very limited amount of people work within reasonable walking distance of their homes. If the structure were to change into a network of urban villages, the need for long commutes could be eliminated for a lot of people.

The travel habit survey also shows that having available and free parking at work, quadruples the probability of using a car for the commute. To combat this, Trondheim aims to eliminate available parking opportunities. This is a part of the HjemJobbHjem (HomeWorkHome) project, in collaboration with the public transport provider of Trondheim, AtB (AtB, w.y)). The project presents the opportunity for businesses to enter a partnership with AtB and Miljøpakken. This partnership will give businesses a series of benefits regarding sustainable mobility options, and the reduction of parking for the employees. In return for this effort, the employees of the businesses will get; discounts on bus tickets, electric bikes, city-bike subscriptions, studded tires and bike services as well as free bike service and rental. Initiatives like this are a great example of the principles of degrowth. Living smaller, sharing what we have and cooperating for well-being within the planetary boundaries. The HjemJobbHjem project makes it easier to commute without a car for those involved.

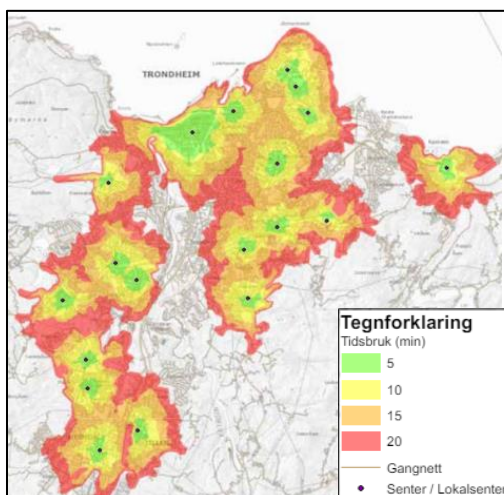


Figure 1, Time consumption map from the walking strategy by the city planning office for Trondheim kommune, 2016.

One solution can be to densify the suburbs and create urban villages and well-planned housing satellites to improve the neighbourhood services and shrink the average travel distance. By having all you need in a relative proximity to the home, the need for the car shrinks significantly. This directly aligns with the degrowth theory. When looking at figure 1, it is clear that the suburbs of Trondheim are far from the “5-minute-city” ideal, presented previously. The inner-city centre is well covered, but the majority of people living outside of the city live more than five minutes away from a local centre. While grocery stores may be more evenly spread out than what is shown in this map, it still shows that a lot of

development is needed to create a well-balanced network of urban villages accommodated to promote walking.

The importance of pleasantness

In addition to efficiency, a big factor in getting people to walk comes from getting people to want to walk. For people to want to walk the spaces designed for walking have to be pleasant, interesting and safe. Out of the mobility strategy's seven main sub-strategies, the one named "Living Streets" stand out in particular. Judging by the fulfilment point system in the mobility strategy report, the strategy for living streets looks to be the most important area. In the process of creating living streets that people want to spend time in, the natural movement is a valuable theory to utilize. Just like the natural movement theory states, the mobility strategy takes into consideration that walkability is measured by many different variables. A connection between accessibility, activity and beauty is required to make a street or an area positively walkable. An architecture style adapted to the area, in combination with vegetation and diverse street design are important factors in drawing visitors to an area. The living streets strategy includes the need for low density commercial activity on the lower floors of nearby buildings which will create a more interesting experience for pedestrians. These initiatives are wanted to be implemented in the different urban centres around the city as well as within the city centre. Success on that front would mean success in creating urban villages with a strong community feel and less need for longer travel. Of course, the city centre will always draw people, but by attractivising the surrounding urban centres, the pressure of people can be shared.

Nyhavna case

The quality program for the development of the district of Nyhavna in Trondheim is a report of the determined guidelines, regulations, goals, and principles, established by the municipality of Trondheim to clarify the vision they want for the area. This is an important document to ensure that the area turns out to be as designated and prioritises what the politicians and planners find most important. The Nyhavna project is a repurposing of an old industrial area. With the possibility to rehabilitate an entire area, the developers get the opportunity to create according to their vision without many limitations. Naturally, there are space limitations and municipal regulations, as well as some structural and cultural historical aspects to respect and preserve, but the general scope and outlook of the area can be sculpted pretty freely. This means that the development plans for the area should be looking to explore a wide range of different solutions, and to create an area as close as possible to the vision for city planning.

One of the main initiatives for reduced car traffic and dependency are the introduction of mobility houses. Mobility houses are an innovative upgrade from the parking garage. Where the traditional parking garage only offers parking spaces for personal vehicles, mobility houses will provide storage and charging for a number of different modes of transportation. The vision is to create a hub for sharing solutions for transportation. Bike-sharing, car sharing or subscription-based vehicles that residents can use only when they need them instead of owning. This will please anyone supportive of the degrowth movement as it is a good example of degrowth in practice, which in fact all of Nyhavna could become, if it is done right and according to the promising plans from the quality program.

To combine the need for parking spaces with becoming a car-free district, Nyhavna will be designed to create shared parking houses to prevent the cars from having to drive through the streets. The parking houses will be located at a strategic location, right at the entrance road, with proximity to the new public transport hub with good connections to both the city centre and the shopping areas of Lade (Byplankontoret, 2022, p. 48). The hope is that by having the car parked in another building, which may be a couple minutes' walk away, instead of in a parking garage underneath the apartment building, the incentive to choose the car for shorter travels diminishes significantly. Another reason why it could work is that the area will have some convenience stores and such even closer than the car is parked, and the shopping centre at Solsiden, and even downtown, will not be much further away either. By complimenting this idea with that of good accessibility for bikes and pedestrians, the connection to other areas of the city becomes very well covered and the need for a car will diminish.

6.0 Conclusion

As the city of Trondheim has been named a Centre of Excellence by the UN for working towards a sustainable future, it is fair to assume that the city is well accommodated for people to live a sustainable lifestyle, with good, diverse options to complete daily travels using sustainable alternatives to the car. Trondheim is a city that want to improve the mobility network and to make it easy and preferable to live without relying on a car for travel.

Through analysing the different planning documents and research reports of mobility and transport in Trondheim, this study has established that there is a big focus on creating a city where a sustainable way of living is, not only is easy to accomplish, but desired and regarded as a commonality. The travel habit survey shows that about half of all travels are done by car,

which means there is still a long way to go. However, the more recently published planning reports contains heavy focus on sustainability as a factor of significant importance. The mobility strategy, city development strategy and the quality program for Nyhavna are all permeated with initiatives and visions for sustainability. It is a sign of the times that maybe the world is beginning to realise the imminence of the dangers of climate change. At least that is the case in Trondheim which justifies its CoE status by maintaining heavy focus on sustainability. There are many different plans in place with accommodations for sustainable mobility specifically in focus, and car reduction and pedestrian friendly-ness is at the heart of it. The visions for the future of Trondheim look very good in terms of sustainability. The long-term planning really makes it easy to have something to strive for, and if realised, the vision for Trondheim will be a very good city to live a sustainable life in.

One of the key challenges of making people travel sustainably is to extinguish the advantage of the car. This is being done on many levels in Trondheim today. Expensive congestion charges and parking, complicated traffic patterns in the city, good mobility alternatives, sharing solutions, densification of the city and development of urban villages surrounding the city centre are initiatives which, when they are implemented, will force those who can, to look for other modes of transport than the car as a standard. These measures in combination with a general improvement of attractiveness and accessibility in pedestrian friendly areas will, according to the plans, create a city where it is both easy and desirable to live and move sustainably.

With the quality program for the development of Nyhavna, Trondheim have the opportunity to create an area of golden standard, that really encompasses the vision and becomes a groundbreaking area in terms of sustainability. If done properly, this neighbourhood will be its own local centre and will be an example of how urban villages can work in Trondheim.

Analysing planning documents from Trondheim kommune using the theories of degrowth, densification and natural movement makes it easier to understand how and why Trondheim are investing so much into the developments of the city, both with physical and social developments.

Into the future

If the priority of sustainable development remains as high in the coming decades, Trondheim could develop into a great example of a diversified mobility city. The current plans looks to be covering large quantities of future plans and developments which will preserve the status that Trondheim has as a CoE and expand the horizons of walkability. The mobility strategy and land use plan alike include visions of a city centre without regular car traffic whatsoever, where walking is the obvious choice for short distances, and bikes and public transport have to fight for being the most popular mobility choice for medium to longer distance travels. A city without any substantial car traffic would have tons of possibilities for innovation. It would also remove pollution, both in the air and noise, and make for a safer, prettier, and more accessible environment in the city core. In an ideal world, inhabitants would walk to their local centre for daily needs and be shuttled between different local centres around the main one in a sustainable mode of transport, which very well might be how Trondheim is interpreted some years into the future.

7.0 References

Anderson, G. (2008). *Kvalitativ metode*. Holbergprisen.

<https://holbergprize.org/nb/holbergprisen-i-skolen/dokumentanalyse>

AtB. (w.y.) *Om HjemJobbHjem*. AtB. <https://www.atb.no/hjh/om/>

Bakke, T. (2020). Den urbane landsby: Redusert avhengighet av transport og institusjonaliserte strukturer som døråpner for *degrowth*. *Tidsskrift for boligforskning* 3(2), 196-200. <https://doi.org/10.18261/issn.2535-5988-2020-02-08>

Berger, Roni. (2015). *Now I see it, now I don't: researcher's position and reflexivity in qualitative research*. SAGE Publications.

<https://journals.sagepub.com/doi/epub/10.1177/1468794112468475>

Bills, J. & Kelly, L. (2024, 23. February) *The 19 cities with the best public transport in the world – according to locals*. Time out. <https://www.timeout.com/travel/best-public-transport-in-the-world>

Byplankontoret, (2020). *Byutviklingsstrategi for Trondheim*. Trondheim Kommune.

https://www.trondheim.kommune.no/globalassets/10-bilder-og-filer/10-byutvikling/byplankontoret/kommuneplan/byutviklingsstrategi_areal--og-transportutvikling_mot2050/bu-strategi-m-protokoll.pdf

Byplankontoret, (2021). *Gatebruksplan for Midtbyen mot 2023 og 2050*. Trondheim

Kommune. <https://www.trondheim.kommune.no/globalassets/10-bilder-og-filer/10-byutvikling/byplankontoret/temaplaner/gatebruksplan/gatebruksplan-for-midtbyen---vedtatt-plan.pdf>

Byplankontoret, (2022). *Kvalitetsprogram for Nyhavna*. Trondheim Kommune.

https://www.trondheim.kommune.no/globalassets/10-bilder-og-filer/10-byutvikling/byplankontoret/1d_kunngi-annet-plan/2022/kvalitetsprogram-for-nyhavna/kvalitetsprogram-for-nyhavna-vedtatt-19.05.22.pdf

Fangen, K. (2022). *Kvalitativ metode*. De nasjonale forskningsetiske komiteene.

<https://www.forskningsetikk.no/ressurser/fbib/metoder/kvalitativ-metode/>

Koohsari, M. J., Oka, K., Owen, N. & Sugiyamab, T. (2019). Natural movement: A space syntax theory linking urban form and function with walking for transport. *Health &*

- place*. 58 (2019) 102072,
<https://www.sciencedirect.com/science/article/pii/S1353829218306737>
- Kronenberg, J., Andersson, E., Elmqvist, T., Łaszkiwicz E., Xue, J & Khmara, Y. (2024). Cities, planetary boundaries, and degrowth. *Lancet Planet Health*. [Cities,-planetary-boundaries,-and-degrowth_lanplh.pdf](#)
- Miljøpakken. (2016). GÅ MER- KJØR MINDRE Gåstrategi for Trondheim. *Miljøpakken*.
https://miljopakken.no/wp-content/uploads/2011/02/Ga%CC%8Astrategi-for-Trondheim_h%C3%B8ringsutkast_18feb2016.pdf
- Miljøpakken. (2022). Kommunikasjonsstrategi. *Miljøpakken*.
<https://miljopakken.no/wp-content/uploads/2022/10/Kommunikasjonsstrategi-Miljopakken-2022-2029.pdf>
- Mobilitets- og samferdselsenheten ved Trondheim Kommune. (2022). *Mobilitetsstrategi for Trondheim*. Trondheim Kommune.
https://www.trondheim.kommune.no/globalassets/10-bilder-og-filer/11-politikk-og-planer/planer/temaplaner/mobilitetsstrategi-for-trondheim_revidert-etter-vedtak-1.pdf
- Monash University. (2024). *Walking for transport at least once a week may help some older people live longer: study*. Monash University.
<https://www.monash.edu/news/articles/walking-for-transport-at-least-once-a-week-may-help-some-older-people-live-longer-study>
- Reisevaneundersøkelsen. (2023). *Reisevaner i 2022*. Miljøpakken.
<https://miljopakken.no/wp-content/uploads/2023/08/rvu-trondheimsregionen-2022.pdf>
- Richie, H., Samborska, V. & Roser, M. (2024). Urbanization. Our World In Data.
<https://ourworldindata.org/urbanization#:~:text=Using%20these%20definitions%2C%20it%20reports,shown%20in%20the%20chart%20below>
- Said, M., Soria, J. & Stathopoulos, A. (2023). *Shifting Mobility Behaviors in Unprecedented Times: A Multigroup MIMIC Model Investigating Intentions to Use On-Demand Ride Services During the COVID-19 Pandemic*. SAGE PUBLICATIONS.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9912045/pdf/10.1177_03611981221147520.pdf
- SINTEF. (w.y). *About SINTEF - Applied research, technology and innovation*. SINTEF.
<https://www.sintef.no/en/sintef-group/this-is-sintef/>

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., Carpenter, S. R., De Vries, W., De Wit, C. A., Folke, C., Gerten, D., Heinke, J., Mace, G. M., Persson, L. M., Ramanathan, V., Reyers, B & Sörlin, S. (2015).

Planetary boundaries: Guiding human development on a changing planet. *Science*, 347(6223), 736. <https://doi.org/10.1126/science.1259855>

UNECE. (2019). *NECE and City of Trondheim, Norway, join forces for smart and sustainable urban development with new Geneva UN Charter Centre of Excellence*. UNECE Sustainable Development Goals. <https://unece.org/housing-and-land-management/press/unece-and-city-trondheim-norway-join-forces-smart-and-sustainable>

United Nations. (w.y). *Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable*. Department of Economic and Social Affairs Sustainable Development. <https://sdgs.un.org/goals/goal11>

Øksenholt, K. V., Tønnesen, A. & Tennøy, A. (2016). *Hvordan utforme selvforsynte boligsatellitter med lav bilavhengighet?* (TØI rapport 1530). Transportøkonomisk Institutt. <https://www.toi.no/getfile.php?mmfileid=44339>